AVAILABILITY AND UTILIZATION OF COMPUTERS IN TEACHING AND LEARNING OF BUSINESS STUDIES IN SECONDARY SCHOOLS: WESTLANDS DISTRICT NAIROBI COUNTY, KENYA

KIARIE MAINGI BERNADETTE KAMENE

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University or for any other award.

Signature ______________________ Date __________________

Kiarie Maingi Bernadette Kamene

E55/CE/13461/2009

Supervisors:

This thesis report has been submitted for review with our approval as University Supervisors.

1. Signature ______________________ Date __________________
   Dr. Wilson Kerich
   Senior Lecturer
   Department of Educational Communication and Technology

2. Signature ______________________ Date __________________
   Dr. Ndichu Gitau
   Senior Lecturer
   Department of Educational Communication and Technology
DEDICATION

This study is dedicated to my Sweetie Andrew and our four children Alphonse, Louis-Anthony, Assumpta and Austin.
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I am grateful to the Almighty God for giving me good health, a sound mind and the strength to undertake this study.

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ABBREVIATION AND ACRONYMS

The following abbreviations and acronyms were used in this study:

**ACOT** - Apple Classroom of Tomorrow

**ASTUTE** - Association of State Technology Using Teacher Educators

**CFSK** - Computers for Schools Kenya

**CRE** - Christian Religious Education

**DEO** - District Education Officer

**ICT** - Information Communication Technology

**IT** - Information Technology

**LCD** - Liquid Crystal Display

**KCSE** - Kenya Certificate of Secondary Education

**KICD** - Kenya Institute of Curriculum Development

**KNEC** - Kenya National Examinations Council

**NEPAD** - New Partnership for Africa’s Development

**NGO** - Non-Governmental Organization

**PDE** - Provincial Director of Education

**SPSS** - Statistical Package for the Social Sciences
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ABSTRACT

The use of computers world over has changed the way we do many things. In the developed world, the integration of computers in teaching and learning has proved to be a worthwhile experience. This study sought to establish the availability and utilization of computers for teaching and learning Business Studies in Nairobi County’s Westlands district – Kenya. The objectives of this research were: (i) to investigate the availability and accessibility of general purpose computers to teachers and learners of Business Studies in Westlands district secondary schools of Nairobi County. (ii) To ascertain the ways in which teachers and learners use computers for teaching and learning purposes in Business Studies. (iii) To probe the attitude of Business Studies teachers and learners towards the use of computers in teaching and learning of Business Studies. (iv) To explore the main benefits of using computers in teaching and learning of business studies in Nairobi County’s Westlands secondary schools. (v) To investigate the challenges that teachers and learners of Business Studies experience in relation to the use of computers for teaching and learning respectively. The study was significant because its findings can be used to help teachers, students and teacher training institutions to improve the availability, accessibility and use of computers in education and eventually help in achieving Kenya’s economic blueprint Vision 2030. This study was guided by Bates ACTIONS theory. The independent variables were teacher and learner characteristics, computer as a teaching/learning resource and teaching strategies. The dependent variables were; improved teaching environment, class participation and improved performance in exams. This research was a descriptive study that used both qualitative and quantitative analysis. The target population was made up of all the head teachers, Business Studies teachers and students of the 23 secondary school in Westlands District. The researcher used stratified sampling in order to ensure all types of schools were represented. In each category, simple random sampling was used to pick the sample population. Data was collected using questionnaires, interview schedules and observation then analysed using percentages, frequencies and charts. This study found that head teachers were aware of the general trend towards the use of computers in education. It also found that although both teachers and students have a positive attitude toward the use of computers in the teaching and learning 62.5% of teachers did not use them for instructional purpose. The most pressing challenges were; low literacy levels, lack of time within teaching time and a fact that teachers were not taught how to use the computer as a teaching resource. The researcher concludes that there is willingness to use computers to teach but patience is required as the positive attitude precedes the implementation of teaching resources such as the computer. One of the recommendations of this study is a revision of the curriculum to allow integration of this emergent technology in our classrooms at all levels and in all subjects because computers are now an inevitable tool of trade in all spheres regardless of the career choice of any person.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Computers’ role in learning is simplification of reality, often with exaggerated cause-effect linkages which can be very effective in a teaching context (Garson 1987). Reid & Rushton (1985) recognise that there is little room for scepticisms over the growing importance of computers in education. Useful as teaching resources are, they cannot replace the teacher (Twoli et al. 2007); and the computer is one such resource. However, a lot depends on the availability and utilization of computers in the classroom.

According to Shue (2009), computers were introduced in American schools in 1965 and were mostly used for administrative purpose. Molnar (1997) explained that computers were not widely accepted in American schools during the 1950s and 1960s because it was difficult and expensive to house the huge machines that they were during that period of time. However, Apple II computers found widespread acceptance in education around the year 1983 (Murdock & Desburg 1994). David (1991) in her report presented at the annual meeting of the American Education Research Association described a research and development collaboration among public schools, universities and research agencies that Apple – the Computer Company – initiated in 1985 and sustained through 1995 with outstanding results. It was named the Apple Classroom of Tomorrow (ACOT). Its goal was to examine how the routine use of technology especially the computer-related technologies by teachers and students would change teaching and learning.
Virtually, no modern public or private school could exist in the United States of America without a computer lab and computer instruction in the 90s (Murdock & Desburg 1994).

The assumption that computer technology has become an essential part of the basic school curriculum was summed up in the report of the United States Department of Education (1996); the report referred to computers in the classroom as “the ‘new basic’ of American education,” and to the Internet as “the blackboard of the future”. Murdock & Desberg (1994) say that in 1985, California Legislature passed a senate bill that established a technology component in the state’s teaching credential requirements for California teachers. Emphasis was on computer based technology; thus an organization called the Association of State Technology Using Teacher Educators (ASTUTE) was formed and became an instrumental force in helping improve the way teachers were taught to use educational technology.

In Britain, computers were used in many schools around the year 1984 (Hermes 2008). Candau, Hannafin, Doherty, Judge, Kuni and Yost (2003) wrote a manual in Britain with the goal of helping teachers learn how to use the computer technology to effectively create a learning environment that would provide opportunities for students to interact with content in a meaningful way. According to Candau et al (2003), preparing young people for the future goes beyond the issue of getting them ready to work; they also need new skills as computer technology continues to be woven into their daily lives.
A study done by Afshari, Bakar, Luan, Fool, & Samah, (2010) in Pakistan showed that the Ministry of Education in Iran invested a great deal of funds to facilitate the integration of Information Communication Technology (ICT) in schools. They observed that school leaders and teachers in Iran were key factors in ICT implementation in schools – because teachers make decisions on whether or not to integrate resources in schools. Lara & Whitter (1996) explain that using computer technology improves students’ learning process. In Nigeria, Fakeye (2010) say that beginning and experienced teachers can benefit from the role that computers play; beginning teachers can access a wealth of teaching resources while old teachers can share their knowledge with those who seek it. He also outlines the fact that the Nigerian federal government conducted a pilot project of integrating computers in sixty secondary schools and colleges with reasonable success although access to computer resources was the biggest barrier in both rural and urban areas.

In Kenya a study done by Wabuyele (2006) investigated teachers’ and administrators’ perceptions and experiences towards computer use in Kenyan classrooms. Results from his in-depth interviews, participant observations and document analysis revealed that both teachers and administrators view the use of computers in Kenyan classrooms as worthwhile; computer-using teachers were enthusiastic and spoke positively about computer use, whereas non-computer-users felt left behind technologically. According to Wabuyele (2006), teachers reported feeling unprepared by teacher training colleges in the area of the use of computers in the classrooms, and they expressed the need to provide both practising and pre-service teachers with professional development opportunities in
teaching technology. He suggested that teachers’ and administrators’ perceptions and experiences play a significant role in the use of computers in Kenyan classrooms and hence the need to provide pre-service and in-service training programs to enable them to successfully teach using computers in the classrooms.

Ivers (2003) confirmed that beginning and experienced teachers can benefit from the role that computers play in teaching and learning; beginning teachers can access a wealth of teaching resources and learning opportunities via the internet as well as collaborate online with other teachers. Experienced teachers have these same benefits, as well as the opportunity to share their expertise with others. Ivers (2003) further confirms the situation in Kenya; that many veteran teachers have had to learn how to use computers on their own.

In Kenya, teachers are not required – as a matter of policy – to instruct using the computer and its related technologies. However, one of the flagship projects for education and training in Kenya Vision 2030 is to establish a computer supply programme that will equip students with modern Information Technology (IT) skills (the government of the Republic of Kenya 2007). The ministry of Information and Communication (2006) drew up an ICT policy document touching on different areas including education. In this policy, the government agrees that there is need to strengthen and streamline ICT training through promoting ICT in education at primary, secondary, tertiary and community levels. Many teachers agree that the use of computer technology enhances teaching and learning a conclusion well drawn by Wabuye (2006) in his research.
While the use of Computer Based Instructions is prolific in most developed world schools, it is still a dilemma that poses great challenges to the majority of Kenyan teachers with regards to their perception and the roles they should play as they cope with this emergent technology. (Tanui, Kiboss, Wabala & Nassiuma 2008).

According to Smerdon et al. (2000) advances in modern computer technology have changed the way we do many things including the way we learn, study and communicate. What goes on in the classroom today is impacted upon by the computer technology and will likely affect the skills that today’s children learn in schools and the way they are taught to function in the world (Kashorda, Waema, Omosa, & Kyalo 2007).

Computers have been used at the university level in Kenya to teach Business Studies related courses such as Commerce, Entrepreneurship, Banking and others. However, at the secondary school level it is not very clear whether Business Studies teachers use computers where they are available to them. It is clear though that some teachers of Business Studies may be using computers even if it is only for the preparation of examinations and or for social purposes. This research therefore endeavoured to establish whether computers were available at the secondary school level and if so verify whether they were used by Business Studies teachers and their learners for teaching and learning purposes.

1.2 Statement of the Problem

Computers are useful in teaching and learning because they make the work of teachers easier; for example computers are used in demystifying complex concepts in different subjects. Computers help students learn better by enhancing
their learning environment and increasing learning resources. Availability of computers to Business Studies teachers is the first stage in the successful adoption of computers in teaching the subject in secondary schools. This is because teachers can only be competent and interested users of computers as teaching tools if they are available and easily accessible. Teachers will not adopt computer technologies into their instructional tasks if computers are not available in the first place.

There are many challenges that hinder the process of using computers in the classroom. However, when effectively used, computers have a dramatic effect on teachers and learners as concluded by Reid & Rushton (1985). But, where computers are not used effectively, they do not add value to teaching and learning.

The role played by computers in the teaching of Business Studies in Kenyan secondary schools is not obvious. This study was done to establish the extent to which computers were available to teachers and learners and whether they used them for teaching and learning Business Studies in Westlands secondary schools. The evolution of microcomputers in the classrooms has been influenced by many factors. Candau et al. (2003) observes that teachers are the critical link in achieving effective computer technology integration in schools. Positive teacher attitude encourages the use of computers while a negative one hinders their use in the teaching and learning environment. The researcher therefore sought to reveal whether it is worthwhile using computers in teaching and learning of Business Studies where they are available and accessible to teachers and learners.
1.3 Research Objectives

The objectives of this research were to:

(i) Investigate the availability and accessibility of general purpose computers to teachers and learners of Business Studies.

(ii) Ascertain the ways in which teachers and learners use computers for teaching and learning purposes in Business Studies.

(iii) Establish the attitude of teachers and learners towards the use of computers in teaching and learning of Business Studies.

(iv) Explore the main benefits of using computers in teaching and learning of Business Studies.

(v) Investigate the challenges that teachers and learners experience when using computers for teaching and learning of Business Studies.

1.4 Research Questions

This research sought to answer the following research questions:

(i) How available and accessible are computers to the teachers and learners of Business Studies?

(ii) For what purposes if any do Business Studies teachers and learners in Westlands district schools use computers in their teaching and learning?

(iii) What are the attitudes of Business Studies teachers and learners in relation to use of computers in teaching the subject?
(iv) What are the main benefits of using computers in teaching and learning of Business Studies?

(v) What challenges are experienced by teachers and learners of Business Studies in their bid to use computers for teaching and learning in Westlands district secondary schools?

1.5 Significance of the Study

As Carrington & Robinson (2010) put it; in both the developed and developing nations, an increasing number of children and young people walking through the school gates each morning are required to leave behind an entire suite of competencies, practices and knowledge about digital technologies. This research could be the genesis of freeing these children and young people in our classrooms by giving them the wings of technology through their teachers’ positive attitudes towards the use of computers in teaching and learning. Knowledge heresies are possible to eliminate if teachers can easily access computer technologies. Educational heresies have been carried over for too long according to Carrington & Robinson (2010). This situation is besides the fact that the same young people are later on in the job market expected to relate to computer applications as if they have done so all their lives – majority of the times without induction.

This research could be important to teacher educators because it can help them understand the dimensions that influence teachers’ perceptions towards the use of computers as a means for effective development of teacher training curriculum that would prepare teachers to face the challenges in the information age. Positive perceptions improve accessibility of computer technologies because the teacher
educators and the teachers-to-be will seek to use computers where they are available.

This study sought to help Business Studies teachers to realise the instructional possibilities afforded by computer technology. Urs (1989) noted that teachers can learn to value past teaching experiences while identifying and maintaining the exploration of the new technologies such as the computer. This study can therefore help Business Studies teachers in removing any bias they may have harboured in relation to computer technology. Once the bias is removed these teachers will be drawn to use the computer technology and explore its pedagogical possibilities.

Business Studies learners may end up enjoying a more learner centred instructional process due to the effects of studies such as this one. This is because such studies may have a positive impact that could eventually change availability and use of computers in the classroom for the better. Teachers will realise that preparing our young people for the future goes far beyond the issue of getting them ready to work theoretically but they need the practise that comes with the exposure provided by the computer technology.

The role of computers in the classroom can be given a more positive outlook by this research to eliminate the notion held by some teachers and parents that computers are distractions in the classroom as opposed to learning tools. Business Studies teachers and other subject teachers can also become conscious of the fact that computers are not necessarily teaching machines but multi-faceted tools that can empower both teachers and learners. For example, to realise that word
processing can be used to prepare class notes; Desktop Publishing and PowerPoint packages can be used to prepare interesting and colourful learning materials such as book covers, short notes and charts that would otherwise not be possible in a Business Studies class or any other classroom.

The Republic of Kenya (2007) in its Kenya Vision 2030, states that Kenya aims to be a regional centre of research and development in new technologies. Majority of new technologies will now have something to do with computers even if the computer’s only use would be to analyse data. This study can help the government in achieving this goal which can only be done if computer technology is integrated into the school system at an early and prime time such as in the secondary school phase. This study can also help the government achieve another objective stated in Kenya Vision 2030; that Kenya intends to have international ranking for her children’s achievement in science and technology by the year 2030. The study can help the government and its relevant agencies like the Ministry of Education to justify the need to devote more resources in the national budget to computers and other related technologies such as smart boards in the classrooms because these are included in science and technology. This would then definitely improve availability and use of computers for all teachers including those teaching Business Studies.

The researcher hoped to trigger financial support either by the government and or its development partners as well as investors towards research on a wider scope to establish the availability and use of computers for teaching and learning. This
could be beneficial to researchers, Business Studies teachers and teacher training institutions and in the long run to the education policy makers in Kenya.

1.6 Limitations of the study

(i) Being an outsider in the institutions that were under investigation may have limited what was revealed to the researcher in the research instruments that were used.

(ii) School culture and leadership practices in the schools sampled may have interfered with the data that the researcher collected in the long-run.

(iii) Within the sample investigated, the different institutions presented spontaneously different educational circumstances that may have contributed to the outcome of the study.

(iv) Since this study was descriptive in nature, its findings were an indication of possible trends and not an ultimate judgement on the entire school structure in the Kenyan nation.

The world over, everybody is expected to know something about computers. In this context some of the respondents to the research instruments may have deliberately concealed their ignorance on the topic under investigation. However, the researcher put measures in place to counter this during data collection. For example the questionnaires had control questions.

1.7 The Scope of the Study

a) The study was conducted in Nairobi County’s Westlands district. This district borders Kiambu County to the North. To the south is Dagoretti district and to
the north-east is Kasarani district while to the South-east is the Central Business district. Westlands district had twenty three (23) secondary schools at the time of this research. Ten (10) schools were public schools and thirteen (13) were private at the time of the study.

b) Westlands district is located in the capital city of Kenya. In the capital city, technological advancement is not the same as in the rural areas because schools in the Capital are more easily exposed to computers. The study results can therefore not be generalised to all the schools in Kenya or in any other nation for that matter.

c) This study was carried out in Westlands district secondary schools only and cannot be a reflection of what happens in the primary or tertiary levels within the same education system as there could be differences.

1.8 Assumptions

The following assumptions were made during this research:

(i) That the administrators, teachers and learners attitudes play a role in the way in which computers are used in schools.

(ii) That majority of Business Studies teachers and students had used computers and or other digital devices such as mobile phones before, either within or outside the school environment.

(iii) That Business Studies teachers and students relate to the basic concepts of computing and networking particularly the internet.
1.9 Theoretical Framework

According to Bates (1995), major changes are needed in the education system in order to meet the need for a higher skilled workforce, and for lifelong learning in an increasingly complex society. Bates says that those countries that harness the power of telecommunications and computing to the education and training needs will be economic leaders of the 21st century. This research adopted Bates ACTIONS model as outlined below:

Access: How accessible is a particular technology for learners? How flexible is it for the particular target group?

Costs: What is the cost structure of the technology? What is the unit cost per student?

Teaching functions: What are the best teaching applications for this technology?

Interactivity and user friendliness: How easy is it to use? What kind of interaction does it provide?

Organizational issues: What changes in organizations need to be made? What barriers need to be removed for the success of this technology?

Novelty: How new is this technology?

Speed: How quickly can courses be mounted in this technology? How quickly can materials be changed?

By answering the questions generated by the ACTIONS theory, this research sought to establish the availability and utilization of computers in the teaching and
learning of Business Studies in Nairobi’s Westland’s schools. For any technology to be useful to teachers and learners it should be available and accessible. As he was writing to administrators, Bates (1995) considers cost as a strong discriminator between technologies, and it is often the first issue considered by institutional decision-makers. Generally, the technologies that are easy to use or are user friendly tend to be more accessible to teachers and learners because they seek them out willingly. Teachers and learners seek a technology that is versatile with many functions such as the computer. Under organizational issues, Bates says that we need educational organisations that can exploit the new technologies to meet the needs of the twenty-first century. He calls for changes in institutions that would allow new technologies to be used even if it is to give prestige due to their novelty. Novel technologies may also create curiosity and bring about effective learning if used in the classroom.
1.10 Conceptual Framework

By using Bates ACTIONS theory the researcher has developed a conceptual framework as illustrated in figure 1 below to guide this study.

**Independent variables**

**Teacher characteristics**
- Computer literacy
- Experience
- Attitudes

**Learner characteristics**
- Entry behaviour
- Attitudes
- Class size

**Computers as teaching/learning resources**
- Access to computers
- Cost of computers
- Teaching functions of computers
- Organizational issues related to use of computers
- Novelty and speed of the computer technology

**Teaching strategies**
- Learner-centred (Heuristic strategies)
- Interactivity and user friendliness
- Teacher-centred (Expository strategies)

**Dependent variables**
- Increased class participation
- Increased level of use or integration of computers

**Extraneous variables**

**Source: researcher’s own**

*Figure 1.1: The Conceptual Framework*
This conceptual framework has identified the independent variables as; teacher and learner characteristics, the computer as a teaching and learning resource and teaching strategies. These independent variables influenced by the extraneous variables of geographical and family background brings about the expected outcome of this study which are increased class participation and an increased level of use or integration of computers in teaching and learning.

There is some evidence that students respond enthusiastically to the use of novel technologies in teaching (Osono et al., 2010). Bates (1995) discredits any novelty in print materials in favour of the computer technology novelty that attracts learners but also realises that computer instructional design in the different areas of education remain critical for educational success. This newness of the computer technology may result in an improvement in student satisfaction and learning outcomes (Reid & Rushton 1985).

Candau et al. (2003) appear to support Bates’s user friendliness and interactivity of the computer technology when they talk about creating a participatory learning environment. In writing their book Candau et al. (2003) wanted to help teachers employ the power of computer technology to spark students’ imagination and ultimately move them towards greater learning experiences. Their goal was to help teachers learn how to use the technology to expand the possibilities for learners in the classroom and effectively create learning environments that provide vast opportunities for students. Murdock & Desberg (1994) support Bates model too when they say that students could use computers to help them break out of the walls of the classroom to share and have access to all the wonderful information and experience that is now possible. Although Crooks (1994) realises
that what gets learned from such a multifaceted innovation (the computer) is not
easy to evaluate, all these authors had one thing in common; the belief that when
teachers attitude is positive towards the use of computers, the learners would
inevitably benefit so long as their entry behaviour was catered for.

Bates (1995) theory has the cost structure where he admits that computer
technology is difficult to put a price tag on because its capabilities keep improving
yet the costs seem to be going down. The costs of computer hardware have been
going down steadily although this is not matched by the software costs that are
still high in our set up. The developed world has also increasingly donated
computer hardware to Kenyan schools through the Computers for Schools Kenya
(CFSK) – a non-governmental organization formally registered in October 2002.
In the years CFSK has been in existence, it has sourced over 40,000 personal
computers some of which have been deployed in public secondary and primary
schools at minimal costs. Business Studies teachers and learners are some of the
beneficiaries of these computers and their use of the technology could change the
way Business Studies is taught and learned.

With the correct attitude and avoiding the two extremes of addiction and phobia in
both teachers and students (Tanui et al., 2008), computers are not difficult to use.
Teachers in the developed world have been able to learn how to use computers
effectively to create learning environments that provide opportunities for students
to interact with content in meaningful ways (Candau et al 2003). This once
established in our classrooms could improve learners’ class participation and
internalization of the concepts being taught.
In order for computers to play a positive and effective role in teaching and learning of Business Studies there are many organizational changes that would need to be integrated in our educational policies. These may include in-servicing teachers, ensuring that teacher training institutions are integrating the use of computers in the subjects taught and providing computer laboratories to both teachers and their students indiscriminately.

1.11 Operational Definition of Terms

**Attitude:** Is that which influences an individual’s choice of action and response to a stimuli.

**Business Studies:** A subject offered under the 8-4-4 Kenyan education system and covers commerce, accounting, economics, entrepreneurship and office management.

**Computer:** An electronic device that accepts user input referred to as data, processes it under specials instructions called programs in order to produce a desired output called information.

**Computer applications:** The software or sets of instructions that direct a computer user on the tasks to perform and how to perform them.

**Computer hardware:** The physical computer components that one can see and touch. Such equipment includes; the system unit, input devices, storage devices and output devices.

**Computer software:** Sets of instructions that a computer uses to perform the expected activities.
**Computer technology:** The computer devices which are used in the communication of ideas between persons and groups in various teaching and training situations.

**Cooperative learning strategies:** A plan of action in gaining of knowledge and skills that is characterised by willingness of the learner and teacher to comply in the learning processes.

**General purpose computers:** Computers that are designed to be able to perform a variety of tasks when loaded with the appropriate programs.

**Microcomputer:** A small, relatively cheap computer that is commonly used in schools, training and learning institutions, small business enterprises and communication centres among others.

**Information and Communication Technologies:** diverse set of technological tools and resources used to communicate and to create, disseminate, store, and manage information. Examples are computers, the Internet, broadcasting technologies (radio and television), and telephony.

**Multimedia:** The ability of a computer to process and output text, sound, video and pictures.

**Personal computer:** A computer that is mostly used by one person because it has one microprocessor. It is also called a microcomputer.

**Teaching resources:** Materials intended for use by a teacher to improve or extend his teaching.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examines the literature under the following headings:

a) Historical background of computers in schools.

b) Availability and accessibility of computers to teachers and learners of Business Studies in schools.

c) Utilization of computers by teachers and learners of Business Studies in schools.

d) Business Studies teachers and learners attitudes towards the use of computers in schools.

e) The general benefits of using computers in teaching and learning.

f) The challenges experienced in the use of computers in teaching and learning.

g) A review of Bates ACTIONS model/theory.

2.2 Historical Background of Computers in Schools

Computers of the 1950s and 1960s, featuring a mainframe host configuration, were not widely accepted in schools because it was difficult and expensive to house the huge machines in schools or share them with universities (Hermes 2008). However, according to Dockterman (1998) in 1965, mainframes and minicomputers were placed in some schools in the United States of America (USA), but mostly for administrators. Crooks (1994) notes that computers were
often used in the 1960s for computer-assisted instruction in American schools; Reid & Rushton (1985) observe that computer use was limited to developing computer literacy in secondary schools in computer labs usually by one teacher. They noted that most of the teachers didn't know how to use the computers and students didn't use them in other subjects. This research seeks to shed more light on the situation in Kenya in relation to Reid & Rushton’s (1985) conclusions. Since the early 1980s, statistics show that computer usage in schools has grown remarkably Hermes (2008) and has been encouraged in all subjects indiscriminately.

Many Kenyan schools have computers that are used for various purposes. The researcher sought to find out whether these computers are accessible and utilized by teachers and learners for instructional purposes specifically in Business Studies. Although many computers have been donated by the private sector and Non-Governmental Organizations (NGOs), their availability to teachers and learners in Kenyan schools is worth investigating.

2.3 Availability of Computers to Teachers and Learners of Business Studies in Schools

Availability and use of computers to teachers and learners in schools will determine the role that computers play in the classroom. Murdock & Desberg (1994) already saw that students could use computers to help them break out of the walls of the classroom to share and have access to all the wonderful information and experience that is now possible. This research sought to establish whether the Kenyan learners have also been able to have access to this wonderful
experience. Although Crooks (1994) realises that what gets learned from such a multifaceted innovation (the computer) is not easy to evaluate, Candau et al (2003) agrees that access to computers can ignite students’ thoughts and eventually move them towards a better learning experience. It was significant to verify in this study whether conclusions such as these hold in the Kenyan context. Accessibility of computers should enhance the easy use of computers as students and teachers alike consequently employ them more often.

Willoughby & Wood (2008) argue that the past several decades have produced rapid advances in computer technology and increased access to computers in both developed and developing nations. This is a likely situation in Kenya too although undeniably Kenya has been lagging behind the developed world. Global statistics show that schools around the world are becoming increasingly well equipped with computer hardware (Willoughby & Wood 2008).

The Ministry of Education (2006) realises that access to computers in schools is supported by parents, development agencies such as NEPAD e-schools programme and the private sector. This support takes the form of donations of computer hardware from the corporate world or funding of the acquisition of hardware and software. However, access to computers could be highly improved if it is the government’s responsibility to ensure that all schools have computers. This is because the private sector cannot be put to task by the government for its inequitable distribution of the computer resources.
2.4 Utilization of Computers by teachers and learners of Business Studies in Schools

The most basic educational administrators are the classroom teachers when it comes to the use of teaching resources. Bates (1995) notes that achieving quality in teaching and learning depends substantially on making learning resources such as the computer as accessible and interactive as possible. Bates (1995) also brought out the fact that the level of organisational support given to a technology is critical to its long-term success. Changes in administrative structures and procedures, improved technical support for staff and students, and additional staff development and training were supported by Crooks (1994).

Researchers such as Willoughby & Wood (2008) suggest that computers continue to be underutilised in many schools. Statistics on access of computers in schools tell us little about the quality and quantity of learner and teacher interaction with computers as seen by Jonassen (2000). There was need to measure the quality and quantity of use of computers in our schools; this research aimed at being the starting point as it sought to ascertain whether computers were available and used by teachers and learners of Business Studies. Although computers may have been available in schools, only a few teachers use them according to Kandiri (2006).

Could this be the situation even today in Kenya for Business Studies? The researcher hoped to get an answer to this question. Teachers can play a vital role in exposing students to computer technology by demonstrating how to use it effectively for teaching and learning. Teachers can only play this role if they are well equipped and confident that the technology is beneficial. One purpose of this study was to find out why other researchers such as Makau (1990) and Osondo et
al (2010) concluded that computers are underutilised even when they are available. It will also test availability of computers in Westlands secondary schools.

In their research, Murdock & Desberg (1994) found that around the year 1994 computers were being used in the United States of America for a wide range of activities in schools including drill and practice or tutorial instructions, promoting writing and language skills as well as using problem solving software or learning of programming languages. Initially there was fear and apprehension of the computer as disruptive in the developed world such as in the USA. The fears were thought to be responsible for the limited use of computers in the early years of implementation in most countries and subjects (Willoughby & Wood 2008). In this study, the researcher was interested in finding out whether similar fears exist in Kenya or whether that phase has passed. Computers are no longer a new phenomenon and their use is expected to increase because teachers and learners have been continuously exposed to their use either in the school or social setups. Exposure to computers could be the key to their use in our education system in general and in Business Studies in particular.

The researcher believes that the availability and use of computers was worth investigating because computers in education have the capability of replacing so many teaching technologies such as flip charts, resource persons, text books and even to some extent real events and things. The versatility of the computing technology in teaching of Business Studies and other subjects is amazing, if only its availability and application could be well known.
2.5  Business Studies teachers and Learners Attitudes towards the Use of Computers in Schools

Christensen (2002) clarifies that teachers are the main gatekeepers in allowing educational innovations to diffuse into their classrooms. Learners’ belief in their teachers is very strong in the Kenyan culture. This therefore could mean that the way teachers perceive computers could make or break in terms of implementing their use by the government or any other body for that matter. Also, the success of any initiatives to implement technology in an educational program depends strongly upon the support and attitudes of the teachers involved as seen by Yuen, Law & Chan (1999). Osondo et al (2010) showed that positive attitudes toward computers are positively correlated with teachers’ extent of experience with computer technology. With familiarity, anxieties and fears towards the use of computers in the classrooms tend to decrease, and confidence increases for both teachers and students. The saying that practice makes perfect holds in relation to the use of computers in schools.

The confidence a teacher possesses in using computers together with accessibility of computers could therefore greatly influence his or her effective implementation of the technology in the classroom. Positive teacher attitude toward computers is widely recognized as a necessary condition for effective use of all information and communication technology in the classroom of today. This research sought to find out whether the conclusions that have been drawn by researchers in other parts of the world and especially in the industrialised world hold in Nairobi Westlands District in the teaching of Business Studies.
2.6 The General Benefits of Using Computers in Teaching and Learning

Although it is generally recognised that the adoption of computers in education in the developed countries has progressed well in the acquisition of basic skills in different areas of study, according to the Ministry of Education’s National Information and Communication Strategy for Education and Training (2006), the impact of ICT on the educational goals in Kenya is still inconclusive. Nevertheless, reported observations have been: rapid expansion of knowledge, improved examination outcomes, enhanced communication and technical efficiency as well as decentralization in the delivery of educational services. These are great benefits although not in relation to the direct subjects taught in the school system such as Business Studies. The ministry also realises the fact that computers have a more powerful role of increasing resources and improving the learning environment. This was echoed by researchers such as Ivers (2003), Reid & Rushton (1985) and Carrington & Robinson (2009). This benefit can only be meaningful where a teacher sees that the learning environment (for the learner) is being improved in the same measure as the teaching environment (for the teacher).

According to Mann (2006) using computers in teaching can enhance student achievement. She pointed out that computers do assist in improving students’ motivation due to among other things, its novelty. It would be important to ascertain whether computers enhance student achievement in Kenya, knowing the significance of motivation in learning. This may be true because computers provide what text books cannot provide in all subjects Business Studies included;
for example, using computers, students can easily do a project and compare data with students in far off areas through the internet.

Research also showed that students who used computers were more engaged and more independent in the classroom. Reid & Rushton (1985) puts it that, computers could provide instant feedback that provides the learner with the individual attention that drives him or her to great heights in terms of motivation.

Another benefit of using computers in the classrooms is that it prepares students for the outside world (Mann 2006). This is a conclusion worth investigating because, in order to get by in today’s job market one must be proficient in the use of technology – specifically computers. At the turn of the 21st Century, sixty (60) per cent of jobs required skills in computer and network use. Educators must therefore prepare their students so that when they are done with school they will be marketable. The secondary school level would be the best level at which the use of computers must be insisted upon. As seen earlier in this research, secondary school is the structure within which the use of computers should be seriously implemented to take root and be carried into the tertiary level and eventually into the job market.

2.7 Challenges Experienced in the Use of Computers in Teaching and Learning

Teachers must shoulder the responsibility of providing the best possible learning environment for their learners. Professional development of teachers is the biggest challenge to using computers in the classroom according to Mann (2006). This is no exception for Business Studies teachers in Kenya. Computers may also present
a uniquely challenging medium to integrate in teaching and learning because the technology changes at a rapid pace. This may inhibit its smooth acquisition and adoption as it may leave teachers in a fix as to whether this technology is worth chasing after. Educators constantly need to update their technological skills in order to use this technology effectively. This constant change can make teachers feel like perpetual novices (Willoughby & Wood 2008). Predictably then this feeling may bring about negative attitude towards the use of computers in the classroom.

Teachers also tend to view the use of computers as bringing about increased workload in terms of lesson preparation. There is also the possibility of feeling very frustrated when a lesson that took a long time to prepare cannot be delivered due to technical and logistical issues that come with the use of computers and its related technologies. This may discourage teachers from using the technology and thus revert to the old ways of teaching. The Government of Kenya through the Ministry of Education Science and Technology (2006) notes that teachers are a major barrier in the integration of ICTs and related technologies in education. There is need therefore to investigate the use of the computer technology in Kenyan secondary schools starting with Business Studies in this study. This is because computers are an important part of the integrated ICT infrastructure.

Hermes (2008) noted a challenge that each time computing power or technology increases, it's ahead of the capacity and budgets of public schools, leaving schools with outdated models and software. This was found to be worth finding out in our public schools. The same was also reported by Kirk (2000) that up-to-date
computers were more likely to be found in affluent, suburban schools. Poorer
inner-city or rural schools usually had older models of computers.

Teachers throughout the UK around the year 2003 asked for help in integrating
computer technology into the classroom (Candau et al. 2003). Similarly according
to Willoughby & Wood (2008) many educators highlighted the need for support
personnel and material resources to support their integration of computer
technology in their teaching. In Kenya employment of support staff in relation to
ICT implementation in schools is done privately by the heads of schools and not
as a matter of policy from the government. This situation can be improved in
order to increase access and lower the costs involved.

Willoughby & Wood (2008) maintain that the comfort level of the teachers when
using computers in the classroom determines the level of use of computers.
However, a higher comfort level can only be brought about by constant use of
computers in the classrooms. Ivers (2003) also feels that teachers should take into
account their own familiarity and comfort with the topic and methods through
which they plan to teach using computers. Murdock & Desberg (1994) describes
designing computer based lessons as a complex endeavour. These are
observations that cannot be taken for granted by Business Studies teachers if they
want to successfully use computers in teaching the subject.

Earlier researchers like Male (1988) thought that limited number of computers
was a challenge but more recent researchers like Willoughby & Wood (2008)
have seen that this is a less prevalent challenge. In Kenya the following are some
of the challenges as highlighted by the Ministry of Education Science and Technology (2006).

(i) High levels of poverty that hindered access to computers and related facilities.

(ii) Unavailability of ICT teachers.

(iii) High cost of hardware and software for educational institutions.

(iv) Frequent power disruptions and limited access to electricity.

(v) Obsolete computers in schools due to the rapid changes in the computing technology.

(vi) Increased moral degradation as a result of the continued use of computers in schools.

The first and second challenges have been addressed over the last seven years and may not be as pronounced as they were in the year 2006. However, these challenges have been echoed by other researchers in relation to developing nations although the fourth one is unique to the Kenyan society.

2.8 A Review of Bates Theory

Bates (1995) wrote his book with administrators of distance education in mind. His idea was to make it easy for them to choose the appropriate technologies that should make course delivery more flexible or more accessible to distance education students. Bates was aware that many a times when asked to implement technologies, teachers do not know where to start. In many cases they are unaware of the available technologies while in other cases they know what is available but do not know how to choose the best suited technology to their teaching. The researcher chose this theory because the ACTIONS theory can be applied to
determine the availability and where available, the utilization of the computer technology in schools.

2.9 Summary of the Literature

The literature review identified numerous challenges that have faced the availability and utilization of computers in the classroom since their introduction; however, they are not impossible to solve. According to many researchers, majority of the learners today may be described as technologically advanced and willing to go to great heights in improving themselves in this area. The teachers are also trying because with time the use of computers in the classrooms has been demystified. The challenge is to improve the integration of this technology despite the way it changes very fast. In summary, this research was in line with the existing body of knowledge and was thought to have a great impact on society and the school system in general.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covers the following subtopics: research design, the target population, sampling procedure and sample size, instruments used for the study, piloting; reliability and validity, data collection procedures, data analysis, logistics and ethical considerations.

3.2 Research Design

This study used a descriptive survey approach due to its fact-finding nature. This approach enabled the researcher to obtain information relating to the availability and utilization of computers in teaching Business Studies from teachers and students as well as the school heads. According to Neuman (2006), a research design should address the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Further Kothari (2010) recommends that the research design should be a conceptual structure within which research will be conducted.

This study used both quantitative and qualitative approaches in collecting and analysing data. Quantitative data was obtained in terms of the number of computers available to teachers and learners of Business Studies. According to Bell (1993) quantitative survey is based on measuring of quantity or amount. Qualitative research was also used in finding out the attitudes and opinions of the respondents in respect to availability and use of computers in teaching and learning of Business Studies. According to Kothari (2010) qualitative research can
help a researcher to find out how people (in this case teachers and students) feel or what they think about a particular subject; in this case the availability and use of computers for teaching and learning Business Studies.

3.3 Variables

In this study the independent variables were teacher and learner characteristics, the computer as a teaching and learning resource and teaching strategy used. Teachers’ characteristics as an independent variable took into account computer literacy, teaching experience and attitudes towards computers and related technologies in teaching Business Studies. Learner characteristics were incorporated in terms of entry behaviour, attitudes towards computers in Business Studies and class size. The computer as a teaching and learning resource was an independent variable keeping in mind Bates ACTIONS theory in terms of access to computers, cost of computers, teaching functions of computers, organizational issues related to the use of computers, novelty of computers and speed of the technology. The final independent variable, teaching strategy was looked into in terms of the heuristic and expository teaching strategies.

There were two other independent variables that although not related to the purpose of the study, were included as extraneous variables because of their effect on the dependent variables. These were the geographical and family backgrounds of the teachers and learners of Business Studies. The dependent variables were the expected outcomes such as class participation, positive attitudes towards the use of computers and improved performance of Business Studies in examinations such as KCSE.
3.4 Location of the Study

The study was conducted in Westlands district Nairobi County, Kenya. Westlands district is one of the seven districts in Nairobi County. This district borders Kiambu County to the North. To the south it borders Dagoretti district and to the north-east is Kasarani district. To the South-east is the Central Business district.

The district under study had twenty three (23) secondary schools ten (10) of which are public schools and thirteen (13) are private schools. There are two major roads that pass through the district. These are Waiyaki Way which is the main road from the western parts of Kenya into the Nairobi city and Limuru Road that comes into the city from Kiambu County. There are four main business areas within the district namely, Westlands, Lavington Green, Kangemi market and Village Market. The district administrative offices are in Westlands business area.

The researcher opted for the location due to the reasons outlined below:

(i) No study of this kind had been carried out in Westlands District before.

(ii) There was expectation that Westlands district had in general terms incorporated the use of computers in schools and in businesses. The teaching technology under investigation – computers – was likely to be available in the district.

(iii) Westlands is becoming an increasingly important district as an education and business centre.

(iv) Westlands district has a wide variety of schools such as high and low-cost schools as well as essentially urban and rural-like schools.
3.5 Target Population

The target population was obtained as secondary data from Westlands D.E.O’s office authorised by the County Director of Education in Nairobi. This study targeted twenty three (23) secondary schools in Westlands district Nairobi County. Ten (10) of the schools were public while thirteen (13) were private. There were eleven (11) girls’ schools, seven (7) mixed schools and five (5) boys’ schools. The study targeted all the twenty three (23) school head teachers, thirty two (32) Business Studies teachers and one thousand five hundred (1500) Form three students. The total target population was therefore one thousand five hundred and fifty five (1555).

3.6 Sampling Procedures and Sample Size

Use of sampling procedures was necessary in order to get a sample population that would represent the rest.

3.6.1 Sampling Procedure

Although all the elements of the population were eligible participants in the study the population was not homogeneous and it was imperative to obtain a representative sample from the population. Westlands District was purposively chosen for this study because of its diverse population that represents the general diversity of the Kenyan nation. Stratified sampling was used for the schools in order to represent the following strata; public versus private schools, boys, girls versus mixed schools plus day versus boarding schools. The researcher purposively picked Form three students because they had chosen to do Business Studies up to KCSE. As for the students within each of these strata simple random
sampling technique was used to select the students who would take part in this study. Thus a combination of sampling techniques was used to make the sample population as inclusive as possible in relation to the schools and the respondents.

d) Sample Size

The sample size for this study was as shown in the sampling grid table 3.1 below:

*Table 3.1 The Sampling Grid for Westlands District Schools*

<table>
<thead>
<tr>
<th>Name of school</th>
<th>Type</th>
<th>Category</th>
<th>Business Students</th>
<th>Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Enrolled</td>
<td>Sampled</td>
</tr>
<tr>
<td>Kenya High sch</td>
<td>Girls</td>
<td>Public</td>
<td>92</td>
<td>50</td>
</tr>
<tr>
<td>Nairobi school</td>
<td>Boys</td>
<td>Public</td>
<td>106</td>
<td>50</td>
</tr>
<tr>
<td>St. Georges Girls</td>
<td>Girls</td>
<td>public</td>
<td>49</td>
<td>40</td>
</tr>
<tr>
<td>Kangemi High Sch</td>
<td>Boys</td>
<td>public</td>
<td>66</td>
<td>40</td>
</tr>
<tr>
<td>Kianda School</td>
<td>Girls</td>
<td>Private</td>
<td>53</td>
<td>40</td>
</tr>
<tr>
<td>St. Mary’s School</td>
<td>Boys</td>
<td>Private</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>St. Martin’s School</td>
<td>Girls</td>
<td>Private</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Agakhan High Sch</td>
<td>Mixed</td>
<td>Private</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

| Total              |         |          | 460      | 300     | 12  | 8      | 8     |

Researchers suggest that a sample population of ten per cent (10%) of the target population from sampled schools is representative of the population in a descriptive study like this one; Gray (2004), Kothari (2010), Mugenda and Mugenda (1999) and Kumar (2005). In this research the sample size was eight (8) out of the twenty three (23) schools in the district. At the choice of schools level,
the sample size was thirty four point seven eight (34.78) per cent, large enough to ensure that the results were reliable. The heterogeneous nature of the entire population in this research also necessitated the large per cent age of the sample size. The large sample size although expensive was to enhance accuracy and acceptability of the results or findings of the study.

Four (4) of the schools were public while four (4) were private schools. Three (3) schools were boys’ schools while three (4) were girls’ and the remaining one (1) was a mixed school. Eight (8) Business Studies teachers were randomly sampled while eight (8) school heads were interviewed. The student population was also randomly sampled to get the three hundred (300) students who participated in this study. Business Studies is an elective subject in all the schools and subject choices were done at the end of Form one in some schools and at the end of Form two in others. Form three Business Studies students were therefore the best participants in this research as they had chosen the subject for KCSE and so could answer the questionnaire more objectively.

3.7 Instrumentation

The researcher developed the following instruments for collecting data:

(i) Questionnaires

(ii) Interview schedules
3.7.1 Questionnaires

Two questionnaires were developed for this research. The questionnaires were for Business Studies teachers and students. These questionnaires were carefully constructed as they were the heart of the study. The researcher developed them from scratch with the help of colleagues in class and the Research Methods lecturer as well as the University supervisors in the final stage of their development. In order to ensure that the questionnaires captured data accurately, the wording was carefully done to avoid ambiguity. The questionnaires had three sections each. The first section aimed at collecting biographical data of the respondents. The second part aimed at collecting data relating to the use of computers while the third and last part aimed at collecting data that forms the opinion and attitude of the respondent towards the use of computers in teaching and learning.

In this research structured questionnaires were used because they are easy to administer and relatively inexpensive to analyse, yet highly reliable. The questionnaires had a few control questions that ensured reliability of the data collected. The questionnaires also had a few open ended questions to capture the opinions of the respondents towards the use of computers for pedagogical purpose. To administer the questionnaires, the researcher physically took the questionnaires to the schools, administered them directly to the students and collected them back. This ensured that all students gave back the instrument as they walked out of the venue of data collection.
3.7.1 Interview schedule

The school heads were interviewed orally. The researcher made telephone calls and booked appointments with the Head Teachers through the secretaries in order to carry out the interviews. The interviews were structured to ensure that similar data was collected from the different school heads and to make it possible to analyse such data. The wording in the interview schedule was carefully done avoiding ambiguity and phrases that would make the respondents uncomfortable. The interview schedule also had a few control questions that helped indicate reliability of the responses sought.

3.8 Piloting

Although conducting a pilot study does not guarantee success in the main study, it does increase the likelihood of succeeding (Berg 2008). The researcher did the feasibility study in two (2) schools. The two schools chosen were; a private girls’ school and a mixed day school due to their proximity to the researcher and their representation of the other schools that were considered in the sample population. The researcher aimed at testing the reliability and validity of the research instruments. The reliability and validity index expected was calculated using the Karl Pearson’s coefficient of correlation; the same one that was used to test the overall data validity.

The Business Studies teachers in the two pilot schools were given teachers’ questionnaire in which they were allowed to air their views about the questions contained in it. Twenty Business Studies students in each of the schools were also given the students’ questionnaire to help assess content validity. After the
questionnaires were received back they were carefully analysed to check on weaknesses that they may have had. A few weaknesses were discovered and adjustments were made to the questions therein. This helped the researcher to come up with more reliable questionnaires for the teachers and students. The school principals were included in the pilot survey through interviews. The interview schedule for the principals was also improved into a structured interview after the pilot study to get better data reliability. The researcher realised that a structured interview would be easier to analyse during the full scale study. The two schools on which the pilot study was done were not included in the sample population for the main study.

3.8.1 Reliability

The researcher sought to ensure that the instruments provide consistent results because the reliability of a research instrument concerns the extent to which the instrument yields the same results on repeated trials (Gray 2004). By using Form three students only, the researcher improved on reliability of the students’ questionnaire by minimising the variations that arose from the respondent population. Although unreliability is always present to a certain extent, there will generally be a good deal of consistency in the results of a quality instrument gathered at different times (Neuman 2006). The degree of stability in the responses given by the Form three students due to their experiences in Business Studies indicated a high degree of reliability, meaning that the results were repeatable.
The simplicity and user friendliness of the research instruments (the questionnaires and interview schedule) were also to ensure that they were as reliable as possible thus enhancing data integrity. The respondents were given adequate time to respond to the questions in the questionnaires and interview schedule.

To test reliability in this research, the researcher used Karl Pearson’s coefficient of correlation (also called the Product Moment correlation coefficient). Using this correlation coefficient it was possible to draw inferences and conclusions given the social nature of this research. The following formula was used to measure reliability of the research instruments in this study.

Data reliability formula:

\[ r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \cdot \sum (y_i - \bar{y})^2}} \]

The value of \( r \) lies between positive (+) 1 and negative (-) 1 for the 2-tailed significance and 0.05 for the 1-tailed significance. In this research, if the value of \( r \) (for the 2-tailed significance) fell between 0.5 and 0.9 the data collected passed the reliability test. Three assumptions that are made when using the product moment correlation were retained in this research. The assumptions are: that there is a linear relationship between two variables; the two variables are casually related and a large number of independent causes are operating both the independent and dependent variables.
3.8.2 Validity

Validity determines whether the research truly measures that which it was intended to measure and how truthful the research results are (Bennars & Otiende 1994) and (Neuman 2006). The researcher sought to get data from Form Three students because they have done the subject for three years and that ensured content validity of the students’ questionnaire. The researcher was also lucky to find teachers who had been teaching the subject for more than three years for this ensured that content validity for the teachers’ questionnaire was also met. An early definition of test validity identified it with the degree of correlation between the test and a criterion (Kothari 2010).

To establish validity of the instruments, the researcher consulted specialists in the department of Educational Communication and Technology as well as experts in the school of education. The university supervisors too had a great input in ensuring that all the data collection instruments used in this study portrayed content validity. Discussion with fellow Masters Students also contributed to the content validity of the questionnaires and interview schedule.

3.9 Data Collection

The researcher did not start data collection until she was issued with a written approval to do so by Kenyatta University Graduate School. Before this letter was issued, the Dean of the School of Education, the Chairman of the Department of Educational Communication and Technology and the supervisors were consulted. On presentation of the letter from Graduate school to the Ministry of Higher Education Science and Technology, a research permit was issued allowing the
collection of data. The researcher took copies of the permit and research authorization letter to the Nairobi County Director of Education, Westlands District Education Officer and head of schools where data was collected.

The researcher sought consent of participants in the research through the appropriate channel in each case. The heads of schools were directly approached for consent to the interviews as well as to permit the administration of the questionnaires to Business Studies teachers and students. Once the head teacher gave the permission for the researcher to contact the Business Studies teacher, he or she became the contact person in that school and in turn gave consent for data to be collected from the students.

3.9.1 Questionnaires

Questionnaires were taken to the participating schools to collect data. The researcher met teachers, gave them the instruments and agreed to pick them after one week. As for the students, the researcher visited the sampled schools as arranged through the school head, met the students in an area provided by the school administration and gave the questionnaires. Collection of the instruments was done soon after the students were done with them. To ensure 100% collection of the instruments, the students gave back the questionnaire as they left the room.

3.9.2 Interview schedule

The researcher made arrangements to conduct the interviews on school heads at convenient times within the agreed research period. The researcher first visited to get an appointment with the school heads and then returned at the appointed time
to administer the interview. Notes were taken during the interview to facilitate data analysis at a later time.

3.9.3 Documentary data

The secondary data collected was mainly from the D.E.Os office in relation to the number of schools in Westlands district, the number of Business Studies teachers and students in the district and the KCSE performance in Business Studies.

3.10 Data Analysis

Kothari (2010) defines data analysis as the computation of measures along with searching for patterns of relationships that exist among the data groups. The researcher therefore inspected, cleaned, transformed, and modeled data with the goal of highlighting useful information suggesting conclusions, and supporting decision making in relation to the topic under investigation. Use of computers in teaching Business Studies was analyzed in relation to the effect this has on class participation. The relationship between variables such as teachers’ attitude towards using computers and their competence in the use of computers was also analyzed.

This study used SPSS program in data analysis. Data collected using questionnaires was analyzed by first checking for completeness in filling the instruments. Those that were not filled up to 50% were removed because this could affect the results of the study. The likert scale questions were coded as they were already pre-coded and data entered in the computer. Open ended questions and those from the interviews were transcribed, data categorized, themes
established and then coded and entered in the computer for analysis. Both the quantitative data and the processed qualitative data were analyzed using descriptive analysis tools such as frequencies and percentages. The findings were presented in the form of tables, pie charts and graphs.

3.11 Logistics and Ethical Considerations

The researcher gave credit to all the authors quoted in the study. Conclusions of this study were derived from the data collected from the field and not the researcher’s best guesses, intolerances or judgment. The quality and integrity of this research work were improved by truth and avoidance of error to the best ability of the researcher. The information gathered was not shared with other parties for purposes other than those of the research.
CHAPTER FOUR
REPORTING AND DISCUSSIONS OF THE FINDINGS

4.1 Introduction

This chapter presents the data collected and analyzed. The data was edited, coded, organized and analyzed using SPSS with the aim of establishing the availability and utilization of computers in the teaching and learning of Business Studies in Westlands District Nairobi County, Kenya. In order to achieve the objectives of the study three data collection instruments were used; namely, an interview schedule for the school heads, and two questionnaires one for the Business Studies teachers and the other for the Business Studies students. Observation was also used during the interviews to ascertain the number of computers present in the school computer laboratories.

Eight schools provided the data for the full scale study; school heads in all the eight school were available for the interview and all the eight Business Studies teachers in the school chosen for this study returned the questionnaires giving a hundred per cent success in data collection for two instruments. The student sample population was three hundred (300); two hundred and forty six (246) students returned the questionnaires giving an eighty two per cent (82%) success in getting back the research instrument.

This chapter presents the findings from the three groups of respondents using three descriptive statistical tools; frequency tables, graphs and pie charts under the following headings as per the objectives of the study:
a) Availability and accessibility of computers to teachers and learners of Business Studies in Westlands schools.

b) Utilization of computers by teachers and learners of Business Studies in Westlands schools.

c) Business Studies teachers and learners attitudes towards the use of computers in the classrooms.

d) The general benefits of using computers in teaching and learning.

e) The challenges experienced in the use of computers in teaching and learning.

The findings of this study are presented here:

4.2 Biographical data

Insight into the nature of the sample population was sought. The biographical data of the sample population is given as follows starting with the teachers Age.

![Figure 4.1: Teachers’ Response on Age](image)

Sixty two point five per cent (62.5%) of the teachers that took part in this study were aged between thirty five and forty four years as shown in figure 4.1 above.
Twenty five to thirty four age bracket while two female teachers were aged forty five years and above.

The researcher sought to know the teaching experience of Business Studies teachers who participated in this study and their responses were summarised in Table 4.1 below.

*Table 4.1: Participating Teachers Teaching Experience*

<table>
<thead>
<tr>
<th>Teaching experience</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 9 years</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10 to 14 years</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>15 years and above</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

All the teacher participants had been teaching Business Studies for over ten years with two of them having fifteen years and above teaching experience. This indicated that they had a wealth of experience in teaching the subject.

The students interviewed also provided preliminary data and their gender is summarized as shown in figure 4.2 on page 49.
Figure 4.2: Students’ Gender Summary

All the student participants in this study were in Form Three. Form Three is a non-examination class and the students had chosen Business Studies for KCSE. Fifty one point six per cent (51.6%) of students who participated in this study were female. The male population was forty eight point four per cent (48.4%). It is therefore not easy to say either sex likes the subject more than the other because the difference is minimal.

During the school administrators’ interviews, they were asked how long they had been at the same schools and their responses are summarised as shown in figure 4.3 below:

Figure 4.3: Length of Time Spent at the Same School by the Head Teachers
A half of the teachers interviewed (50%) had been working in the same school for between six to ten years. Only twelve per cent (12%) had been at the same station for less than five years. Thirty eight per cent (38%) had been in their schools for over ten years.

(v) **Availability and accessibility of computers to teachers and learners**

Availability and accessibility of computers in schools precedes their use in teaching. To assess this factor, the researcher asked the school administrators, the teachers as well as the students a number of questions that would give an indication on the availability as well as accessibility of computers in schools. However, the study dwelt more on the head teachers because they were recognized as being the organizing authority in the provision of computers for their schools.

On the number of computers that were available to the teachers and the students. The head teachers’ responses were as shown in Figure 4.4 below:

![Figure 4.4: Number of Computers Available to Teachers and Students](image)

The figure above shows that all the head teachers had provided computers in all the schools although the number varied from school to school. The two national
schools included in the study had the highest number of computers but also had the highest student population with six streams in each school. This made the student: computer ratio approximately one to seven (1:7) which the head teachers acknowledged as undesirable. Both public and private schools had computers in the computer laboratories, staffrooms and in the school offices. Head teachers indicated that these computers were available to the teachers and their students in the computer laboratories and staffrooms. The head teachers however, in another question on whether they thought that the computers they provided were enough responded as shown in Figure 4.5 below:

![Pie chart showing head teachers' opinion on sufficiency of computers in schools. Yes: 87.5%, No: 12.5%]

*Figure 4.5: Head Teachers Opinion on Sufficiency of Computers in Schools*

Eighty seven point five per cent (87.5%) acknowledged that the computers were not enough for their teachers and learners. The head teachers’ awareness of insufficiency of computers indicated that they were enthusiastic about getting more computers in their schools and on further being questioned; they expressed the desired computer student ratio as shown in Figure 4.6 on page 52.
Figure 4.6: Head Teachers’ Desired Computer Student Ratio

The sixty two point five per cent (62.5%) of head teachers indicated that they were working towards achieving a one to four (1:4) computer student ratio as recommended by the Ministry of Education and KICD. This was realistic, given the current situation where there were mostly three computer labs in the national schools and one or two in all the other schools. The number of computers in a lab ranged between thirty five and forty as observed during data collection. Worth noting also was how the heads of school acquired the computers used in schools as shown in Table 4.2 below:

Table 4.2: How Head Teachers Get Computers for their Schools

<table>
<thead>
<tr>
<th>How do you get computers for the school?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through donations</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Through partnerships</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>through buying</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sixty two point five per cent (62.5%) got the computers through partnerships with either hardware and software selling companies and agents or Computer for
Schools Kenya (CFSK) a Non-Governmental Organization (NGO) that has gone a long way in getting computers into Kenyan secondary schools. This concurs with what the Ministry of Education (2006) realised that availability of computers in schools is supported by parents, development agencies and the private sector. Public schools were not initially financed by the government to get computers for their teachers and learners. The researcher is of the opinion that the government should take up the responsibility of providing computers to schools because it is difficult for head teachers to procure computers cheaply and it would be cheaper for the government to buy the computers on large scale maximising on economies of scale. Establishing the computer supply programme would also help to achieve Kenya’s vision 2030.

A teacher will use computers in the classroom where they are available and easily accessible to both the teacher and the students. Having dealt with the heads of schools on availability of computers in schools, the researcher asked both teachers and learners to give their opinion on the sufficiency of computers in the schools. Their responses were as shown in table 4.3 on page 54:
Table 4.3: Teachers’ Opinion on Sufficiency of Computers in Schools

<table>
<thead>
<tr>
<th>There are enough computers in the school</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Undecided</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The responses of both teachers and learners reflected those of the head teachers on sufficiency of computers. This is because fifty per cent (50%) of the teachers agreed that there were enough computers. Another cumulative 37.5% disagree that there were enough computers while a 12.5% were undecided on whether the computers were enough or not. However, it was clear that there was no consensus among the teachers on whether computers were enough or not. The researcher is of the opinion that this was an indication that the teachers have not tried to use computers to teach to competently decide whether there are enough computers for teaching in the schools.

The study further asked teachers to respond to a statement that computers are available in the staffroom. Their responses were summarised as shown in Table 4.4 on the next page:
Table 4.4: Teachers Access to Computers

<table>
<thead>
<tr>
<th>Teachers have access to computers in the staffroom.</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>6</td>
<td>75.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

No teacher disagreed with the statement that teachers have access to computers in the staffroom although one was undecided as to whether there are computers in the staffroom or not. This gave a clear indication that computers were available in the staffrooms in at least seven of the eight schools that participated in this study.

It is the opinion of the researcher that computers were available to teachers at very close quotas, that is, where they prepare their lessons.

The researcher further asked the teachers how often they had access to computers and the results are shown in Table 4.5 on the next page:
Table 4.5: Teachers’ Frequency of Access to Computers

<table>
<thead>
<tr>
<th>How often do you have access to a computer?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>3</td>
<td>37.5%</td>
</tr>
<tr>
<td>Once a week</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Once a month</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Accessibility of computers to the teachers on a daily basis was at sixty two point five per cent (62.5%) and the remaining thirty seven point five (37.5%) had access to computers at least two to three times a week. Although teachers’ opinion on the sufficiency of computers in table 4.3 on page 54 showed that computers were not enough, they were accessible to the teachers. The three teachers who had access to computers two to three times a week may point to high teacher to computer ratio in the schools where a single computer in the staffroom was for the entire staff thus not allowing daily access.

Today’s learners are enthusiastic about new technologies. They were asked to give their opinion on whether computers in the schools were enough to be used for teaching and learning purpose. Their responses are summarised as follows in table 4.6 on the next page.
Table 4.6: Students’ Opinion on Sufficiency of Computers in Schools

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>59</td>
<td>24.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>95</td>
<td>38.6%</td>
</tr>
<tr>
<td>Undecided</td>
<td>13</td>
<td>5.3%</td>
</tr>
<tr>
<td>Disagree</td>
<td>54</td>
<td>22.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>25</td>
<td>10.2%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Sixty two point six per cent (62.6%) of the students agreed that schools had enough computers. Thirty two point two per cent (32.2%) disagreed that the computers in schools are enough. This concurs with the opinion of the teachers as well as that of the head teachers. Although computers are available in schools, this study shows that they are not enough for the school population. This agrees with the findings of Tanui et al (2008) that, although computers may be present in Kenyan secondary school classrooms they are hardly enough for pedagogical purposes.

The students were asked to give a response to another statement that, students are allowed access to computers in school. Their replies were summarised as shown in Table 4.7 on page 58:
Table 4.7: Students’ Opinion on Access to Computers

<table>
<thead>
<tr>
<th>Students are allowed access to computers</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>18</td>
<td>7.3%</td>
</tr>
<tr>
<td>Agree</td>
<td>111</td>
<td>45.1%</td>
</tr>
<tr>
<td>Undecided</td>
<td>49</td>
<td>19.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>32</td>
<td>13.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>36</td>
<td>14.6%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

A cumulative fifty two point four per cent (52.4%) agreed that they were allowed access to computers in their schools. Twenty seven point six per cent (27.6%) disagreed while nineteen point nine per cent (19.9%) were undecided on whether they are allowed access to computers in schools. While school heads were keen to provide computers to students it is the opinion of the researcher that their access was not highly emphasised by the head teachers. Some teachers encourage the use of computers by giving assignments that necessitate the students to seek access to the computers in the schools. As an observation during the interviews, the researcher came to the realization that head teachers are keen on the security of computers in their schools. The computer laboratories were well secured and students needed to be with their teachers in the laboratories at all times. It is the opinion of the researcher that such strict measures prevented some students from having access to the computers when their teachers were not available.
4.4 Utilization of computers by teachers and learners in schools.

After establishing the availability of computers in the schools the researcher sought to know whether they were used for teaching and learning of Business Studies. All the three levels of participants, that is, teachers, students and the school heads had their input in this area. However, the emphasis was on the teachers who are the real implementers of teaching technology in the classroom. This is because although the heads of schools may have provided the computers, they could not possibly have taken them to the learning environment for the teachers. The students too could not have carried computers into the classroom without the authorization of their teachers. Clearly then the teachers were assumed to be the ultimate decision makers in relation to the use of computers in the classroom.

The researcher acknowledges there is much more to using computers to teach than just availability. With this in mind, head teachers were asked whether there was electricity supply in their schools and they all at 100% confirmed that they have electricity although they raised the issue of blackouts as four out of the eight schools did not have backup in case of power outages. Head teachers confirmed that power terminals were available in the computer laboratories and classrooms during the interviews.
The researcher asked the teachers whether the schools had Liquid Crystal Display (LCD) projectors that could be used with computers to project learning materials for the students. The responses were summarised as shown in Table 4.8 below:

Table 4.8: Teachers’ Response to Availability of a School Projector

<table>
<thead>
<tr>
<th>A school projector is available to teachers</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

A collective seventy five per cent (75%) of the respondent teachers indicated that there were LCD projectors available in schools. Twenty five per cent (25%) clearly indicated that LCD projectors were not available to teachers. This showed that most of the teachers had the necessary equipment that was required for them to use computers in the classrooms.

Ivers (2003) says that British teachers in the year 2003 had asked for help in order to be able to integrate computers in the classroom. The researcher sought to find out the reaction of the teachers to a statement that there is a computer technician available to help them use computers in their schools. The teachers’ reactions to the statement were as shown on Table 4.9 on the next page:
Table 4.9: Availability of Computer Technician to Help Teachers Use Computers

<table>
<thead>
<tr>
<th>The school has a technician to help teachers use computers to teach</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>Agree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

From Table 4.9 above, it was clear that five out of the eight participating schools had employed technicians to help teachers with this technology while the other three schools did not have a technician. This could mean that teachers in the five schools with the technician asked the administration to employ one, while in the other three the teachers are comfortable without one or the administration is aware of the need but has not yet addressed it especially where the teachers strongly disagree with the statement.

The researcher enquired from all the participants whether they used computers and the reply from the three groups of participants was an awe-inspiring one hundred per cent (100%). The researcher then zeroed in on the objective of the study on the use of computers to teach Business Studies and directly asked the head teachers whether Business Studies teachers used computers to teach in their schools.
The head teachers’ reactions were summarized as shown in Figure 4.7 as shown below:

![Pie chart showing head teachers' responses on computer use for teaching Business Studies]

*Figure 4.7: Head Teachers’ Response on Use of Computers to Teach Business Studies*

Fifty per cent (50%) of the head teachers indicated that Business Studies teachers in their schools did not use computers to teach. However, during the interview they all wanted a clarification whether this research was for Business Studies only or for all the other subjects saying that they knew that computers were used to teach Mathematics, Physics and Chemistry. It was interesting to note that thirty seven point five per cent (37.5%) of the head teachers were not sure whether the Business Studies teachers used computers to teach yet they had provided the computers and are the implementers of the Ministry of Education policies.

The researcher is of the opinion that head teachers did not closely check on the teaching activities in Business Studies subject in relation to using computers to teach. It was an indication that the head teachers trusted that the teachers were doing their job. Another indication is that the Business Studies results did not warrant any scrutiny by the head teacher on teaching methodologies. Only one
head teacher said with certainty that the Business Studies teacher(s) in his school used computers to teach. The researcher is of the view that patience is needed towards computer use in the classroom because it takes time for new ideas and tools such as the computer to take hold of lasting and powerful ways such as teaching.

Since teachers are the gate-keepers of teaching resources, the researcher asked the Business Studies teachers whether they use computers to teach the subject. Their responses were as shown in Figure 4.8 below.

![Figure 4.8: Business Studies Teachers’ Response on Use of Computers to Teach](image)

Sixty two point five per cent (62.5%) said that they did not use computers to teach Business Studies while thirty seven point five per cent (37.5%) said that they used computers to teach the subject. Despite the fact that computers were available and teachers had access to computers in the schools, sixty two point five per cent did not use them to teach at all. The researcher feels that there is need to help teachers
integrate computers in their teaching as was done in the United Kingdom in the year 2003 (Ivers 2003 and Candau et al 2003).

This study had three respondents and so the researcher also asked the students about their level of experience on the use of computers during the Business Studies lessons. Table 4.10 below shows how they answered.

**Table 4.10: Students’ Experience on Use of Computers in Business Studies**

<table>
<thead>
<tr>
<th>Do you have experience on the use of computers in learning Business Studies?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>133</td>
<td>54.1%</td>
</tr>
<tr>
<td>A little</td>
<td>106</td>
<td>43.1%</td>
</tr>
<tr>
<td>A lot</td>
<td>6</td>
<td>2.4%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Fifty four point one per cent (54.1%) pointed out that they had no experience at all on the use of computers in learning Business Studies as a subject. Forty three point one per cent (43.1%) had a little experience. The students’ responses indicated that the technology had not been integrated in the teaching of Business Studies. The most likely suggestion here is that the Business Studies teachers do not take computers with them to the classrooms.

The students’ views conformed to those of the head teachers and the classroom teachers that computers are not used in the teaching of Business Studies. The turn of events in this study became surprising because researchers such as Willoughby & Woods (2008), Smerdon (2000) and Shue (2009) saw that computer use in the
classroom improves the teaching and learning environment to great heights. The researcher is of the view that perhaps the few years of gradual development of computers in Kenyan schools is still too short a period to create a natural culture of computer use.

On the realization that computers were not being used in the teaching and learning of Business Studies to a great extent, the researcher went on to look at another question that had been asked of the teachers and students in relation to the use of the internet. Both teachers and students at one hundred per cent (100%) confirmed that they use the internet. However, when asked whether they used the internet for teaching and learning purposes the responses were as shown in figure 4.9 below.

![Figure 4.9: Teachers’ Response on Use of the Internet for Teaching Purpose.](image)

Although one hundred per cent (100%) of teachers used the internet, seventy five per cent (75%) of them said that they did not use the internet to communicate teaching and learning materials to their learners or colleagues. Only twenty five per cent (25%) used the internet to communicate on teaching and learning. Although the United States Department of Education (1996) considered the
internet as the blackboard of the future, the situation in the Business Studies classrooms in Westlands District of Nairobi County is yet to agree. The researcher is of the opinion that computers in our secondary schools are used for all purposes other than teaching and learning. While the possibilities of the internet on teaching and learning are emphasized in the developed world, it did not interest seventy five per cent (75%) of Business Studies teachers in Westlands District.

The students had also earlier indicated that they use the internet. Their responses to the question on whether they communicate over the internet in relation to their learning revealed the results as outlined in Table 4.11 below:

**Table 4.11: Students’ Communication over the Internet on Learning**

<table>
<thead>
<tr>
<th>Do you communicate over the internet on learning?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>71</td>
<td>28.9%</td>
</tr>
<tr>
<td>No</td>
<td>175</td>
<td>71.1%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Surprisingly just like their teachers, seventy one point one per cent (71.1%) of students do not communicate over the internet on learning. Only twenty eight point nine per cent (28.9%) communicates over the internet in relation to learning. This shows that most learners, just like their teachers have not explored the possibilities of the internet as a learning resource either because the teachers had not stimulated them or they do not have access to it. It is the feeling of the researcher that perhaps the learners’ initiative is stifled by their teachers during class time and by the fact that students are not allowed to have their own
computers and computer related devices that could access the internet during school time. It is also the belief of the researcher that the Kenyan student has not acquired the discipline that would make the teachers trust them with internet enabled devices in school and in the classrooms. Until such discipline is acquired it is going to remain difficult for the teachers to trust students with the internet as a teaching and learning platform.

The researcher sought to find out whether teachers encourage students to use computers in the teaching and learning process. The students responded as shown in Table 4.12 below.

*Table 4.12: Students’ Opinion on whether they are Encouraged to Use Computers*

<table>
<thead>
<tr>
<th>Teachers encourage students to use computers</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>11</td>
<td>4.5%</td>
</tr>
<tr>
<td>Agree</td>
<td>33</td>
<td>13.4%</td>
</tr>
<tr>
<td>Undecided</td>
<td>52</td>
<td>21.1%</td>
</tr>
<tr>
<td>Disagree</td>
<td>85</td>
<td>34.6%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>65</td>
<td>26.4%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Only seventeen point nine per cent (17.9%) of the students agreed that teachers encourage them to use computers during teaching and learning. A total of sixty one per cent (61%) disagreed with the statement that teachers encouraged them to use computers. As earlier seen that seventy five point five (75.5%) of teachers confessed that they were not using computers to teach, this was confirmed by their students view here that they are not encouraged to use computers. This could have
been an indication that teachers are a hindrance to the use of computers in teaching and learning of Business Studies although this may not be deliberate or known to them.

The researcher also sought the reactions of the students towards their teachers' use of computers by posing a statement that teachers should be encouraged to use computers in teaching. Nearly all (91.9%) of the student respondents indicated that they strongly agreed with the statement. However, it came to the realization of the researcher that as Willoughby & Wood (2008) put it, the prevalence of technology has not eliminated the underutilization of computers in the classroom.

### 4.5 Teachers and learners attitudes towards the use of computers in schools.

In order to establish the attitude of the respondents towards the use of computers in schools, the researcher started by asking the school heads their opinions on the use of computers for teaching and learning. Head teachers one hundred per cent (100%) agreed that computers have a place in the teaching and learning environment. All (100%) heads of schools quoted vision 2030 and the economic stimulus programme that has encouraged the development of the general IT industry starting at the secondary school level.

#### 4.5.1 Business Studies teachers’ attitude on the use of computers in the classroom

Molnar (1997) agrees that the successful use of computers in the classroom is dependent on positive teacher attitudes toward computers. Also having noted that classroom teachers are the gatekeepers of educational innovations such as the computer, this study sought to establish teachers’ attitude towards the use of
computers in their classrooms. Teachers were asked to state their opinion on a statement that computers have an advantage in teaching. The results were as follows in Table 4.13 below:

*Table 4.13: Teachers’ Opinion on Computers Advantage in Teaching*

<table>
<thead>
<tr>
<th>Computers have an advantage in teaching</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>8</td>
<td>100.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

All the teachers (100%) strongly agreed that computers have an added advantage when used in the teaching and learning process. This was in agreement with what Mann (2006) says; that computers enhance student achievement and improve motivation. The researcher interpreted this as a strong conviction that teachers are in favour of using computers in teaching and learning. It is the opinion of the researcher that such strong conviction should be backed by directives on the use of computers in the classrooms. Institutions like Kenya Institute of Curriculum Development (KICD), Kenya National Examination Council (KNEC) and the Ministry of Education, Science and Technology need to give policy directives on the use of computers in the classrooms. For example, if KNEC were to test some computer simulated concepts in Business Studies, the teacher would go to great
lengths to teach using computers because teachers are motivated by their students’ performance in National examinations.

Further, teachers were asked to react to an assertion that computers are a distraction in the classroom. Their reactions were as shown in Table 4.14 below:

Table 4.14: Teachers’ Opinion on whether Computers are a Distraction

<table>
<thead>
<tr>
<th>Computers are a distraction in the classroom</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>3</td>
<td>37.5%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Only one of the respondent teachers agreed that computers are a distraction. Seven disagreed with four of them doing so strongly. This was interpreted as a positive attitude towards computers in the classroom by the eight seven point five (87.5%) of the teachers. Teachers did not fear that the computers would take students attention away from them or away from the subject matter.

Another question was posed to the teachers to further check on their perceptions towards the use of computers. The question sought their view on whether computers help in content retention. However the question was in the negative
and stated that computers cannot help in content retention. The teachers’ reactions were summarised in Table 4.15 below:

Table 4.15: Teachers’ Opinion on Computers and Content Retention

<table>
<thead>
<tr>
<th>Computers cannot help in content retention</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>3</td>
<td>37.5%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

This question in the negative was also to check on the alertness of teachers as they answered the questions in the questionnaire. Their responses confirmed that they were alert and their attitude was consistently positive towards the use of computers in the classrooms. Eighty seven point five (87.5%) disagreed that computers cannot help in content retention affirming that computers can help students in content retention. It is the opinion of the researcher that teachers know that the computer offers to widen teaching resources due to its visual aids and it can enhance the way concepts are taught and learned. The teachers’ reactions to this question further confirmed what Reid & Rushton (1985) say, that when effectively used, computers have a dramatic effect on teachers and learners.
The researcher posed another question to check whether there was enough time to implement the teaching and learning process through the use of computers in the classrooms. The responses of the teachers were as shown in Table 4.16 below:

<table>
<thead>
<tr>
<th>Class time is too limited for use of computers</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Unfortunately all the teachers (100%) agreed that class time was too limited for use of computers to teach. Teachers realised that this technology required time to use in the classroom because it has many logistical issues such as bringing the computer to classroom and setting it up and using it within the forty or eighty minutes of a single or double lesson respectively. This confirmed what Ivers (2003) concludes, that the computer needs a lot of time and effort for the user to come to grips with new software especially in the first few times it is used. The researcher agrees that teachers have a point here that the use of such technologies is not catered for in the current syllabus. Another interpretation is that teachers desire an ideal situation where they would find all the necessary equipment in the classrooms so that there is no wasting time in setting up. Teachers need to feel
that they have time to experiment with the computers and thereafter use them confidently in the classroom without having syllabus coverage worries in the background.

4.5.2 Business Studies students’ attitude on the use of computers in the classroom

Students are the beneficiaries of the learning resources brought into the classroom by their teachers. It was therefore important to establish their perceptions too on the use of computers in the classrooms. To achieve this, students responded to a number of statements. The first one was that students would enjoy a lesson with computer interaction for learning. The results were as shown in Table 4.17 below.

Table 4.17: Students’ Opinion on a Class with Computers

<table>
<thead>
<tr>
<th>I would enjoy a class with computers</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>215</td>
<td>87.4%</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
<td>4.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>18</td>
<td>7.3%</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

As shown in Table 4.17 above, eighty seven point four per cent (87.4%) strongly agree that they would enjoy such a class environment. This showed that majority of the students desire to learn using computers under the direction of their
teachers. This exposed the learners’ positive attitude towards the use of computers in the classroom environment.

Students were asked to react to a second statement that computers are a distraction in the classroom. Their reactions are shown in figure 4.10 below:

Figure 4.10: Students' Opinion on Computers as a Distraction

In Figure 4.10 above, seventy eight point nine per cent (78.9%) disagreed with the statement. This led to an inference that majority of the students had a positive attitude towards the use of computers for teaching and learning. They did not think that computers would be a distraction when used in the classroom.

The researcher asked students to react to another statement that computers can help them in content retention. Their reactions were as shown in Figure 4.11 on the next page:
Figure 4.11: Students’ Opinion on Computers and Content Retention

From the figure above, eighty six point two per cent (86.2%) of the students agreed that computers help in content retention. This affirmed what their teachers had also seen, that computers are a useful resource. Murdock & Desberg (1994) during their study in the United States of America on ACOT, saw that computers could provide instant feedback and help learners to retain what they had learnt over time in a better way than those who did not use computers in the classroom.

The three groups of respondents in this study showed a positive attitude towards the use of computers in the teaching and learning.

4.6 The general benefits of using computers in teaching and learning.

It was found that computers were not being used extensively to teach Business Studies even with the positive attitude towards their use. This made it very difficult to measure the general benefits of computers in the teaching and learning.
of Business Studies. All the benefits that the three groups of respondents introduced to were all assumptions based on what they thought would be the benefits if computers were used in the classrooms. It is clear that the use of computers could improve students’ motivation due to its novelty as was pointed out by Mann (2006). However, this would only be a research fact in a situation where teachers started using computers confidently and en mass to teach in their classrooms.

The few teachers who used computers to teach said that they use them to prepare their lessons, type administrative documents such as schemes of work but did not use them directly for instructional purposes.

The researcher asked the students to state the topic that they would love to learn with the aid of computers and the results were as shown in Table 4.18 below:

<table>
<thead>
<tr>
<th>Table 4.18: Students’ Opinion on the Best Topic with Computers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best topic to learn using computers</td>
</tr>
<tr>
<td>------------------------------------</td>
</tr>
<tr>
<td>Accounting concepts</td>
</tr>
<tr>
<td>Demand and Supply</td>
</tr>
<tr>
<td>Product Promotion</td>
</tr>
<tr>
<td>All the topics</td>
</tr>
<tr>
<td>Insurance</td>
</tr>
<tr>
<td>National Income</td>
</tr>
<tr>
<td>The Office</td>
</tr>
<tr>
<td>Entrepreneurship</td>
</tr>
<tr>
<td>Money &amp; Banking</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Table 4.18 on page 92 showed what learners desired a learning environment with computers although seventy five per cent (75%) of their teachers’ were not using computers as was established in Figure 4.9. The researcher would have preferred to establish some benefits of using computers in a situation where they were actually being used and not hypothetically as shown in this table. The teachers too had their topics that would have been best taught using computers as teaching aids/tools although majority of the teachers admitted to not using this teaching technology. This is because they realized it was the good thing to do despite the circumstances they found themselves in.

4.7 The Challenges Experienced in the Use of Computers in Teaching and Learning.

4.7.1 Computer Literacy

During the analysis of the questionnaires, computer literacy came across as one of the main challenges that need to be addressed if computers are to be used successfully in the teaching and learning process. Teachers were asked to rate their computer literacy and Table 4.19 on page 78 shows how they responded.
Table 4.19: Teachers rating their own Computer Literacy

<table>
<thead>
<tr>
<th>How do you rate your own computer literacy?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Average</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
<td>50.0%</td>
</tr>
<tr>
<td>Very Good</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

From Table 4.19 above, fifty per cent (50%) of the teachers rated their computer literacy as good and only one was confident enough to rate herself as very good. Twenty five per cent (25%) of the participant teachers rated themselves as poor. This was interpreted to mean that some teachers did not consider themselves good enough or confident enough to use computers in the classroom. They consequently prefer to use other technologies and methodologies.

It was interesting on the other hand to note how the teachers rated their students’ computer literacy. This is shown in Table 4.20 on page 79:
Interestingly, sixty two point five per cent (62.5%) rated their students as very good in computer literacy. This was attention-grabbing keeping in mind that in table 4.19 fifty per cent (50%) of the teachers rated themselves as good. This revealed that teachers were therefore of the opinion that their students were way ahead of them in terms of computer literacy! The researcher feels that this was a contributing factor as to why majority of the teachers were not using computers in the classrooms as seen in Figure 4.9 above. Ivers (2003) confirms the teachers’ positions and summarised is as follows; for some teachers the use of computers in the classroom is threatening and too demanding for their time and energies.

<table>
<thead>
<tr>
<th>How do you rate your students’ computer literacy?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Average</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Good</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Very good</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
The researcher also asked the students to rate their own computer literacy. They too produced interesting results as they rated themselves as shown in table 4.21 below.

\textit{Table 4.21: Students Rating their Computer Literacy}

<table>
<thead>
<tr>
<th>How do you rate your own computer literacy?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>17</td>
<td>6.9%</td>
</tr>
<tr>
<td>Average</td>
<td>99</td>
<td>40.2%</td>
</tr>
<tr>
<td>Good</td>
<td>103</td>
<td>41.9%</td>
</tr>
<tr>
<td>Very good</td>
<td>27</td>
<td>11.0%</td>
</tr>
<tr>
<td>Total</td>
<td>246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The students did not rate themselves as highly as they were rated by their teachers. While sixty two point five (62.5\%) of teachers rated the students as very good, only eleven per cent (11\%) rated themselves as very good. On the other extreme where teachers did not rate the students as poor at all, six point nine per cent (6.9\%) of the students rated themselves as poor. Teachers were uncomfortable about their students’ computer proficiency while the students did not think of themselves as proficient enough thus creating misconceptions between the teachers and the learners on each other’s computer skills.
4.7.2 Teacher preparedness in using computers to teach

The school heads were asked whether they thought that teachers were equipped to use computers for instructions in the classrooms. Their responses were as shown in figure 4.12 below:

Eighty seven point five per cent (87.5%) of the respondent head teachers acknowledged that teachers were not taught how to use computers in their teacher training. This confirmed what many researchers such as Ivers (2003), Carrington &Robinson (2009) and Tanui et al have seen; that many veteran teachers have had to learn how to use computers in the classroom on their own. The school heads realised the need for in-servicing teachers on use of computers in the classrooms. It is the opinion of the researcher that head teachers need to go a step further in facilitating the use of the computers they have worked hard to provide in their schools by in-servicing the existing teachers. It is the interpretation of the

Figure 4.12: School heads’ opinion on teacher preparedness to use computers
researcher that the head teachers may be expecting the classroom teachers to take individual initiative while the teachers expect the institutions to take action to address the issue of computer literacy skill acquisition, thus creating a deadlock.

The teachers were also queried on their preparedness during teacher training and the results were as shown in Table 4.22 below:

Table 4.22: Teachers’ Reaction to their Preparedness to Use Computers

<table>
<thead>
<tr>
<th>Teachers were not well prepared to use computers.</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>6</td>
<td>75.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>1</td>
<td>12.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Eighty seven point five per cent (87.5%) agreed that they were not prepared during their teacher training to use computers in the classroom. This agreed completely with what the head teachers had said. This affirmed a challenge; that teachers could not use computers unless they knew and were confident on how the computers worked to their advantage in the classroom. This means that the problem can only be addressed through organised in-service training for all teachers on the integration of computers in the teaching. However 12.5% strongly disagreed that teachers are not prepared to use computers. Based on their attitudes
as presented earlier in this study, teachers would willingly attend in-service training so long as it is organised in such a way that it does not interfere with their teaching time-table in the schools; for example during the school holidays.

### 4.7.3 Other challenges facing the teachers and students in using computers

The researcher posed a question to the school heads on the main impediment towards the use of computers for teaching. At their managerial level the challenges were as shown on Table 4.23 below:

<table>
<thead>
<tr>
<th>What is the main challenge towards the use of computers?</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of internet connectivity</td>
<td>2</td>
<td>25.0%</td>
</tr>
<tr>
<td>Hardware and software costs</td>
<td>5</td>
<td>62.5%</td>
</tr>
<tr>
<td>Lack of e-learning content</td>
<td>1</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

The table above shows that sixty two point five per cent (62.5%) pointed at cost of hardware and software as their main challenge. Crook (1994) concentrated on the British experience of microcomputers in the classroom and realised that at one point political pressure was applied to get computers to schools cheaply. It is the opinion of the researchers in this study that although Crooks wrote about Britain, political pressure on provision of computer hardware and software by the government can work in Kenya in order to relieve the head teachers of this challenge. The lack of internet connectivity and e-content also featured among the
problems that the head teachers encountered. Internet connectivity in Kenya is too expensive for an average school and its cost is not factored into school fees.

The researcher asked the teachers to enumerate their main challenges. They presented three main challenges and suggested solutions to such challenges as outlined in Table 4.24 as follows:

Table 4.24: Teachers’ Main Challenges towards the Use of Computers and Proposed Solutions

<table>
<thead>
<tr>
<th>Teachers' main challenge</th>
<th>Proposed solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-service training</td>
</tr>
<tr>
<td>Poor computer literacy</td>
<td>3</td>
</tr>
<tr>
<td>Lack of time during teaching</td>
<td>0</td>
</tr>
<tr>
<td>Poor access to computers</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
</tr>
</tbody>
</table>

The table above shows a cross tabulation of teachers’ challenges towards the use of computers in the classrooms for teaching and learning and their proposed solutions. Teachers cited the main challenges as poor computer literacy, lack of time to use computers during teaching and poor access to computers. Three out of eight teachers indicated poor computer literacy as the main challenge and suggested that it would be countered by in-service training. Three more teachers indicated poor access to the computers as their main challenge and suggested two solutions; giving teachers loans to buy laptops and schools getting more
computers. Two out of eight teachers viewed lack of time during teaching as their main impediment to the use of computers for teaching. Their reason for this was overloaded syllabus and their suggestion was a manageable syllabus.

In this study, the students were also asked to enumerate their main challenges. They presented their problems or main challenges as shown in Table 4.25 below:

Table 4.25: Students’ Challenges towards the Use of Computers

<table>
<thead>
<tr>
<th>Students challenges</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor access to school computers</td>
<td>89</td>
<td>37.4%</td>
</tr>
<tr>
<td>Poor knowledge</td>
<td>55</td>
<td>22.4%</td>
</tr>
<tr>
<td>Distractions such as social media</td>
<td>23</td>
<td>9.3%</td>
</tr>
<tr>
<td>Late onset of use of computers</td>
<td>23</td>
<td>9.3%</td>
</tr>
<tr>
<td>Limited lesson time</td>
<td>15</td>
<td>6.1%</td>
</tr>
<tr>
<td>Computer illiteracy</td>
<td>14</td>
<td>5.7%</td>
</tr>
<tr>
<td>Lack of appropriate software</td>
<td>10</td>
<td>4.1%</td>
</tr>
<tr>
<td>Writing notes</td>
<td>7</td>
<td>2.8%</td>
</tr>
<tr>
<td>Negative attitude</td>
<td>7</td>
<td>2.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>243</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

In the table above, thirty seven point four per cent (37.4%) of students cited poor access to computers in the schools for learning as the main problem. This confirmed that although the school heads were making efforts to provide computers, they were not enough. The researcher feels that there is need to let the
students interact more with computers during school hours so that the learners can explore the possibilities of improving the learning environment provided by the computers.

Twenty two per cent (22%) cited poor knowledge as their main impediment towards the use of computers in learning. This implies that schools need to take computer literacy classes especially in Form one and two seriously so that the students can feel more confident in Form three to use computers for learning.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
This chapter will lay emphasis on giving a summary of the findings of the study, implications of the findings, conclusions drawn from the study as well as recommendations and suggested areas for further research. The purpose of this research was to establish the availability and utilization of computers in teaching and learning Business Studies in Westlands District Nairobi – Kenya.

5.2 Summary of the findings
This study shows the extent to which computers were available and accessible in Nairobi’s Westlands District schools and the extent to which the computers were used in the teaching and learning of Business Studies.

5.2.1 Availability and accessibility of computers to teachers and learners of Business Studies
In as far as availability of computers is concerned, this study found that head teachers have taken up the responsibility of providing computers for their institutions. Head teachers were directly experiencing high costs of getting computer hardware and software with the majority of them resulting to establishing partnerships with NGOs and government agencies in order to attain their goals. This study also found that the school heads were determined to get many more computers for their institutions and that they desired a much better computer to student ratio than what they had.
The findings of this study showed that computers were available and to a large extent accessible to teachers and learners in secondary schools of Westlands District, Nairobi County. However, the study also found that the computers available were not sufficient for the teaching learning needs of both teachers and learners.

5.2.2 Utilization of computers in teaching and learning Business Studies

This study established that the use of computers in teaching and learning of Business Studies is not widespread among the Business Studies teachers and learners in Westlands district. The study found that the minimal usage of computers was mainly because majority of the teachers had no training on the use of computers to teach. Another reason for not using computers was that teachers were not in-serviced on the use of computers since their introduction found many teachers already teaching.

5.2.3 Business Studies teachers and learners attitude towards the use of computers

Despite the finding that teachers were not using computers in the classrooms, all the stake holders, that is, teachers, students and school heads had a positive attitude towards the use of computers in Business Studies classrooms. Murdock & Desberg (1994) realize that students can use computer to break out of the walls of the classroom, but this research found that in the Kenyan situation the teacher is very instrumental in helping the students do so. This is because in the African culture, teachers have authority and a lot of influence on what the students can take up in the classrooms.
5.2.4 The challenges experienced in using computers to teach and learn

This study found that both teachers and students experience a number of challenges that impede the use of computers for teaching and learning. Teachers expressed computer illiteracy, lack of training to use computers and an overloaded syllabus as the main problems that prevent their use of computers to teach. On the other hand, students expressed poor access, poor computer skills and late onset of use of computers as some of the reasons why they do not use computers to learn.

5.3 Implications of the findings

The implications of the findings in this study are discussed under the following sub headings:

5.3.1 Availability and accessibility of computers to teachers and learners of Business Studies

This study found that computers were available and accessible to teachers and learners but were not largely being employed in the teaching and learning of Business Studies. This implies that availability of computers was not the only challenge although it was previously viewed as a big challenge. The implication therefore is that there is need to seek and clearly focus on the other challenges related to the use of computers in teaching and deal with them swiftly before the technology goes to waste in this area of teaching and learning of Business Studies.

Despite the availability of computers in schools, eighty seven point five per cent (87.5%) of head teachers as shown on figure 4.5 of this study acknowledged that the computers were not enough. Their acknowledgement that the computers were
not enough implies that head teachers were aware that they were expected to provide more computers.

Head teachers got computers for their schools through partnerships with NGOs and development partners. This implies that cost is an impediment towards computer acquisition and agrees with the finding that the cost of computer hardware and software was cited as one of the challenges that head teachers were experiencing. This implies that the relevant government agencies such as the Ministry of Education Science and Technology has to invest in acquisition of computers for schools by establishing a computer supply program as envisioned in Kenya’s Vision 2030. Such a program would lift the burden of providing computers to schools off the head teachers and make it cheaper for the government to acquire computers for schools due to economies of scale and inter-governmental purchase arrangements.

The teachers and students perceptions on the sufficiency of computers were very similar clearly showing that computers were not enough in schools. The implication is that computers were being used in the schools but not for instructional purposes. This study confirmed that both teachers and learners were using the internet but not for teaching and learning respectively.

5.3.2 Utilization of computers by teachers and learners of Business Studies

This study found that although computers were available and accessible to teachers and learners, they were not being used to teach and or learn Business Studies. This implies that there was a lack of confidence and know-how in the teachers and learners towards the use of computers for teaching and learning.
Lack of confidence further implied incompetence in the use of computers among the teachers and the learners. This was mainly brought about by the lack of teacher training making it difficult for the teacher to use computers for pedagogical purposes.

The students’ apprehension towards their teachers’ use of computers in the classroom as brought out in this study implied that only the teachers – who are the main gatekeepers in allowing educational innovations to diffuse into the classroom (Christensen 2002) – will eventually resolve the situation. They will do so by taking up the initiative to use computers to teach especially in our culture where the students look up to the teachers for directions.

The willingness to use computers in teaching and learning among the teachers and learners is overwhelming as discovered in this study. However, there is a mismatch between the willingness and utilization of the teaching tool. This implies that it is possible to tap into the enthusiasm of both parties if policy makers act quickly to incorporate computers in the school system.

5.3.3 Business Studies teachers and learners attitude towards the use of computers.

This study found that teachers and students have a positive attitude towards the use of computers for teaching and learning. This implies that both parties know the general trend towards the use of computers in all spheres of life including teaching and learning and would like to be part of this trend despite the challenges. This also implies that teachers are aware that the computers in the classrooms will increase the percentage of what is learnt and retained due to its
novelty as well as audio-visual experiences that a computer brings with it. The teachers therefore agreed with the findings of Mann (2006) when she concluded that computers enhance students’ achievement and improve their motivation to learn.

5.3.4 The challenges experienced in the use of computers for teaching

Business Studies

This study found that computer illiteracy is a major impediment in its use for teaching and learning. This implies a great need for teacher education that will eliminate the lack of knowledge. It will also equip them with computer skills and set a new and exciting learning environment for today’s learners. A misunderstanding between the teachers and learners in relation to their literacy levels was revealed in this study. Teachers thought that their learners are way ahead while the learners felt inadequate, creating a vicious cycle. This indicated that teachers should become more daring in computer skills and knowledge acquisition to salvage the situation by getting out of the seemingly inescapable loop so far created between the teachers and learners.

5.4 Conclusion

The availability and utilization of computers in teaching and learning will correlate positively upon the realization that the school curriculum must be reviewed with the computer as a teaching tool in the minds of the reviewers. Just like the curriculum was developed with the print media in mind, it is time to change the mindset by including and allowing the use of the computers in teaching and learning. Further, the teacher must be the first to acquire this
technology for the classroom and with confidence such that he/she can convince the learners that it is a worthwhile technology to incorporate in teaching and learning. This therefore calls for training of the teacher trainers as well as the classroom teachers and the teachers to be on the pedagogy of the computer technology.

The novelty of computers in schools can present a challenge to teachers and a motivation to learners. The teacher’s challenges in relation to use of computers should be addressed and the learner’s motivation sustained in the same measure in order to realize the possibilities offered by the computer as an instructional tool.

5.5 Recommendations

This study will hopefully provide a starting point for looking into the integration of computers into the teaching and learning environment for all the subjects in our secondary school curriculum. The following are the recommendations of this study:

a. That the government of Kenya in consultation with all the stakeholders should review the entire school curriculum so as to integrate new teaching and learning methods that allow teachers time to integrate computers in teaching and learning. This is because this study revealed that teachers lacked the time to use computers during the teaching time allocated.

b. That the government through the relevant agencies should establish a computer supply program to teacher training institutions and schools as envisioned in Vision 2030. This would free the heads of schools of the heavy
responsibility of sourcing for the computer resources besides the administration duties that they have.

c. That teacher training institutions should incorporate actual hands-on practice with computers and related technologies in teaching and learning. This is because in this study, experienced and the not so experienced teachers unanimously agreed that they were not taught how to use computers to teach.

d. That the ministry of Education in conjunction with KICD and teacher training institutions should organize and fund the in-servicing of teachers on the use of computers in the classrooms for all teachers. This will speed up the rate of integrating computers in our education system.

e. Teachers should take the initiative of developing their teaching skills using emerging technologies such as computers, smart boards and such related technologies for classroom teaching. This can be done by taking more specific steps such as enrolling for computer courses that will eliminate the computer illiteracy that was discovered in this study.

f. The government should take up the responsibility of directly funding the initial acquisition of computers for public teacher training colleges, universities and schools through budgetary allocations in the Ministry of Education.
5.6 Recommendation for Further Research

The following are the suggested areas for further research.

a. A replication of this study on a wider geographical area in Kenya for example a county or the entire nation could be carried out.

b. A replication of this study in all the subjects in the Kenyan education system.

c. A comparative study of rural schools versus urban schools on the application of ICTs in teaching and learning.
REFERENCES


http://mytechtips.pbworks.com/f/Effects+of+Technology+Integration+Education+on+the+Attitudes+of+Teachers+and+Students+(1).pdf


http://journalofonlinelearningandteaching.merlot.org/vol6no2/ward_fig1.


APPENDIX I: INTERVIEW SCHEDULE FOR PRINCIPAL

This interview schedule will seek to get information from the principal on the computer technology hardware and software under his care in the school.

1. How long have you worked in your current assignment school?
2. How many computers are available to teachers and students in the school?
3. How do you get computers for teaching and learning in the school?
4. Do you experience any cost related constraints when acquiring computers for your school?
5. How do you deal with the changing technology?
6. In your own opinion are the computers enough for the teachers and students?
7. What ratio of computers to students do you desire?
8. Do you think that computers help in learning?
9. In your opinion do you think teachers were prepared to use computers in the classroom?
10. Are older teachers less receptive to this technology?
11. Are there any barriers or challenges towards the use of this technology in your opinion?
12. How can these challenges be overcome?
13. Do your Business Studies teachers in your school use computers to teach the subject?
APPENDIX III: QUESTIONNAIRE FOR BUSINESS STUDIES

TEACHERS

Instructions: Kindly put a tick in the box that accompanies the option of your choice in relation to the questions.

SECTION A: BIOGRAPHICAL DATA

1. Name of your school

2. Sex
(a) Male [ ]
(b) Female [ ]

3. Age
(a) 20 to 24 years [ ]
(b) 25 to 34 years [ ]
(c) 35 to 44 years [ ]
(d) 45 and above [ ]

4. Teaching experience
(a) Less than 1 year [ ]
(b) 1 to 5 years [ ]
(c) 6 to 9 years [ ]
(d) 10 to 14 years [ ]
(e) 15 years and above [ ]

5. Professional qualification
(a) S1 certificate [ ]
(b) Diploma in education [ ]
(c) Bachelor of education [ ]
(d) Masters in education [ ]
(e) Other(specify)________________

6. How many years have you taught Business Studies at secondary school level?
(a) Less than 1 year [ ]
(b) 1 to 2 years [ ]
(c) 3 to 4 years [ ]
(d) 5 years and above [ ]

SECTION B: INFORMATION ON USE OF COMPUTERS IN TEACHING BUSINESS STUDIES

Answer the following questions by ticking against your answer.

7. Do you use computers? Yes [ ] No [ ]
8. Do you use computers to teach? Yes [ ] No [ ]
9. If your answer for number 8. Above is yes, state the extent to which you use computers.
   Often [ ] Once in a while [ ] Rarely [ ]
10. Have you ever been taught how to use computers to teach? Yes [ ] No [ ]
11. Do you access the internet? Yes [ ] No [ ]
12. What device do you use to access the internet?
    (a) The computer in school [ ]
    (b) Own laptop [ ]
    (c) Own mobile phone [ ]
    (d) All the above [ ] (e) None [ ]
13. How would you rate your computer literacy?
    (a) Beginners level [ ]
    (b) Intermediate level [ ]
    (c) Advanced level [ ]
14. How often do you have access to a computer?
    (a) Daily [ ]
    (b) 2-3 times a week [ ]
    (c) Once a week [ ]
15. Do you communicate with other teachers on the internet in relation to your teaching?
   (a) Yes [ ]  (b) No [ ]

16. Do you have any experience in using computers for your professional/teaching work?
   (a) Not at all [ ]
   (b) A little [ ]
   (c) A lot [ ]

17. What professional work do you do using computers?
   (a) Preparing schemes of work
   (b) Preparing lesson notes
   (c) Preparing tests and exams
   (d) Other (specify) ____________________________

18. How would you rate your students’ computer literacy?
   (a) Poor [ ]
   (b) Average [ ]
   (c) Good [ ]
   (d) Very good [ ]
SECTION C:

In the table below tick in the correct box concerning the statement given.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 In the school I teach there are enough computers in the library and or lab for teaching purpose.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 In the school I teach, teachers have access to a computer in the staffroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 The school encourages teachers to use computers for preparation of professional documents and teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Our school has a projector to be used with a computer for any teacher who wishes to do so.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 I think my Business Studies students would enjoy being taught using computers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Class time is too limited to allow the use of computers in teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>23 Computers are just one more distraction in the classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>24 Computers can’t help students retain and sustain attention during a lesson.</td>
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<td></td>
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<td></td>
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<tr>
<td>25 Our school has employed a person to help teachers use computers effectively in their teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>26 Teaching with computers offers a real advantage over traditional methods of instructions.</td>
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<td></td>
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<tr>
<td>27 I feel that I was not prepared during my training for the use of computers in the classroom.</td>
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</tr>
</tbody>
</table>
28. What is the most serious challenge that you would need to overcome in order to use computers in teaching Business Studies effectively?

________________________________________________________________________

29. Suggest a way of overcoming the challenge stated above.

________________________________________________________________________

30. What is the best topic to teach using computers in the entire Business Studies syllabus?

________________________________________________________________________
APPENDIX IV: QUESTIONNAIRE FOR BUSINESS STUDIES STUDENTS

Instructions: Kindly put a tick (✓) in the box that accompanies the option that you consider appropriate.

SECTION A: BIOGRAPHICAL DATA

1. Name of your school.

________________________________________________

2. Sex  (a) Male [ ]  (b) Female [ ]

3. What class are you in?

(a) Form 1 [ ]
(b) Form 2 [ ]
(c) Form 3 [ ]
(d) Form 4 [ ]

4. Is Business Studies an elective subject in your school?

Yes [ ]  No [ ]

5. When do you choose the subject?

(a) On admission to Form 1 [ ]
(b) At the end of Form 1 [ ]
(c) At the end of Form 2 [ ]

6. How many students are in your class presently?

___________________

SECTION B: INFORMATION ON USE OF COMPUTERS IN LEARNING
BUSINESS STUDIES

7. Do you use computers?  
   Yes [ ]  
   No [ ]

8. Do you use computers to learn?  
   Yes [ ]  
   No [ ]

9. How often do you use computers to learn?  
   (a) Very often [ ]  
   (b) rarely [ ]

10. Have you ever been taught how to use computers to learn?  
    (a) Yes [ ]  
    (b) No [ ]

11. Do you access the internet?  
    (a) Yes [ ]  
    (b) No [ ]

12. What device do you use to access the internet?  
    (a) The computers in school [ ]  
    (b) The computer at home [ ]  
    (c) A mobile phone [ ]  
    (d) None of the above [ ]  
    (e) None of the above [ ]

13. How would you rate your computer literacy?  
    (a) Beginners level [ ]
14. Do you communicate with other students on the internet in relation to your learning?

(a) Yes [ ] (b) No [ ]

15. Do you have any experience in using computers for learning Business Studies concepts?

(a) Not at all [ ]
(b) A little [ ]
(c) A lot [ ]

16. How would you rate your fellow students’ computer literacy?

(a) Poor [ ]
(b) Average [ ]
(c) Good [ ]
(d) Very good [ ]

17. How would you rate your teacher’s computer literacy?

(a) Poor [ ]
(b) Average [ ]
(c) Good [ ]
SECTION C: INFORMATION ABOUT THE ATTITUDE HELD IN
RELATION TO THE USE OF COMPUTERS.

In the table below tick in the correct box concerning the statement given

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 In my opinion our school has enough computers to be used for teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 The school avails the computers for students to use for learning purpose.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Students are allowed to use computer in the lab and/or in the library.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>18 The teachers don’t encourage us (students) to use computers for assignments.</td>
<td></td>
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<tr>
<td>19 I would enjoy being taught Business Studies using computers.</td>
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<tr>
<td>20 I think computers are just one more distraction in the classroom.</td>
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<tr>
<td>21</td>
<td>Computers can help students retain attention in a lesson.</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>22</td>
<td>Computers cannot help students in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Our school has employed a person to help students use computers effectively in the learning.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>In my school computers are not available to students at all.</td>
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<td></td>
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</tr>
<tr>
<td>25</td>
<td>Teachers should be compelled to use computers in the classroom.</td>
<td></td>
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</tr>
</tbody>
</table>

26. What is the most serious challenge that you would need to overcome in order to use computers in learning Business Studies?  
__________________________________________________________________________

27. Suggest a way of overcoming the challenge stated above.  
__________________________________________________________________________

28. What is the best topic to that you would enjoy if your teacher used computers to teach?  
__________________________________________________________________________