CHALLENGES AND OPPORTUNITIES OF THE INTRODUCTION OF COMPUTER STUDIES IN SELECTED JUNIOR SECONDARY SCHOOLS IN CHIPILI DISTRICT, ZAMBIA.

By

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A Dissertation Submitted to the University of Zambia and Zimbabwe Open University in partial fulfillment of the requirements for the award of the Degree of Master of Education in Education management.

THE UNIVERSITY OF ZAMBIA
LUSAKA

Copyright Declaration

Declaration

This project is my original work and has not been submitted for a degree or any other award in any other university. Besides, the work is an original version by me and all the material used has been dearly acknowledged.

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Certificate of Approval

This dissertation of Chanshi Bornventure has been approved as partial fulfilment of the requirements for the award of Master of education in Educational Management by the University of Zambia.

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Abstract

The Zambian government has introduced the policy on ICT learning in junior secondary schools. It states that all secondary schools must offer computer studies as a compulsory subject at grade eight and nine and it must be examinable. Therefore, the purpose of this subject was to examine and evaluate the challenges and opportunities of the introduction of computer studies in selected junior secondary schools of Chipili district. The objectives of this study were to determine the availability of ICT and human resources in the teaching and learning of computer studies, to establish the benefits and opportunities acquired and to examine the challenges faced by teachers and pupils in teaching and learning of computer studies. The study adopted a qualitative design. The target population was four junior secondary schools in the district as there were only five schools which were offering computer studies. The sampled schools provided four headteachers, eight computer studies teachers, four head of departments and forty-eight pupils. The DEBS was also part of the respondents. Therefore, the total sample size was 65. Data was collected through semi-structured interview schedule and questionnaires. The study used content validity to measure the relevance of the research instrument. The findings indicated that there were no qualified computer studies teachers in Chipili district and the ICT equipment were not enough for the smooth learning of pupils. Besides, one of the major findings was the absence of computer laboratories. In fact, the educational standards of learning computer studies in those schools were below par. On the other hand, learning computer studies can assist the learners to benefit by opening their own internet café and becoming entrepreneurs. The study findings were significant in that the findings might be used by educational researchers, educational planners and other scholars of ICTs as it would hopefully increase their awareness of the values and opportunities of computer studies to both teachers and learners. Furthermore, the result of the study could help policy makers and educational planners to make adjustments that enhance performance and improve the educational standards in the country.

From the study, it was concluded that the selected schools under study had no trained teachers for computer studies and materials for computer studies were inadequate for the smooth learning of the subject. Besides, the learner lacked the background information on ICTs; therefore, teachers had great challenges in putting the technical concepts across. The researcher, therefore, recommended that the government through the Ministry of General education should take kin

interest in the teaching and learning of computer studies so that trained teachers are sent and more computer resources are provided to schools as it is a policy that computer studies should be offered at junior secondary school.

Dedications

This research is dedicated to my wife Mwape Charity and my daughters Chanshi Monica and Mwansa Rabecca for their understanding while I was out and busy compiling data without paying much attention to them. Furthermore, I dedicate my research to my younger brother Dr. Mwansa Joseph for encouraging me to do this programme.

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List of Abbreviation and Acronyms

DEBS	District Education Board Secretary
DESO	District Education Standard Officer
ECZ	Examination Council of Zambia
GRZ	Government of the Republic of Zambia
HOD	Head of Department
ICT	Information and Communication Technology
MDG	Millennium Development goals
MOE	Ministry of Education
RSNDP	Revised Sixth National Development plan
SNDP	Seventh National Development plan
UNDP	United National Development Programme
UNESCO	United Nation, Education, Scientific and Cultural Organisation
ZICTA	Zambia Information and Communication Age

CHAPTER ONE

1.1 INTRODUCTION

This chapter presents the background of the study, statement of the problem, purpose of the study, specific objectives of the study, research questions, significance of the study, theoretical framework, conceptual framework and definitions of operational terms.

1.2 Background of the study

The twenty-first century is already turning out to be the century of the computer age for most people around the globe**.** The computer revolution that started after the Second World War is now increasing exponentially and computers are beginning to influence and take over nearly every aspect of our lives, be it at home or at a place of work.

In a rapidly changing world, basic education on ICT is essential for an individual to be able to access and apply in our daily lives. The Economic Commission for Africa had indicated that the ability to access and use information is no longer a luxury, but a necessity for development.

Unfortunately, many developing countries, especially in Africa, are still low in Information and Communication Technology (ICT) application and use (Aduwa, 2005) as cited by (Adomi & Kpagbani, 2010). The ability to use computers effectively has become an essential part of everyone's education. This has even made those workers who did not learn ICT in their early lives to go back to school and learn the new technology.

The demand for computer-ICT-literacy is increasing in Zambia, because most employees in various sectors of government departments realize that computers and other ICT facilities can enhance efficiency. On the other hand, most employees have also become computer literate.

According to Zainally (2008), ICTs provide several facilities and possibilities for people to perform their tasks with easy in their various working places. This is the reason why ICT is receiving focus at various platforms as demonstrated by the United Nations Millennium Development Goals now known as Sustainable Development Goals and The World Summit on the Information Society (Ministry of Communication and Transport (MCT), 2006).

Mwale, Chilala and Kumar (2011) opined that in Zambia the significance of ICT in education is demonstrated by its inclusion in the Fifth National Development Plan, 2006 - 2010, by the

country's participation in the e-African Commission, the enactment of the ICT policy and the Ministry of Education Draft ICT policy. Furthermore, commitments are shown by ICT emphasis in the Vision 2030, the Revised Sixth National Development Plan (RSNDP), 2011-2016 and Seventh National Development Plan, 21-2021. Presently, Computer Studies is offered as one of the core subjects at junior secondary school level in Chipili district, Zambia.

There are various goals for ICTs; however Zambian Report (2007) identified three of them, namely:

a) Protecting the vulnerable through service delivery and improving the living standard of the society,
b) Creating an enabling environment for diversification and exportation of the economy, and
c) To provide an efficient and effective society through the use of new technology.

The need to face the challenges in education was recognised by the policy, and these were: There was lack of standardization and certification of programmes in ICT throughout the nation; Very few industries of ICT, low levels of ICT literacy and high cost of technology acquisition, limited local ICT industry, and inadequate institutional capacity and 'brain drain' resulting in inconsiderable loss of skilled manpower.

In 1998, the policy on computer studies as one of the subjects was introduced. However, some private schools and not public schools by then were able to offer Computer studies. Furthermore, the introduction of computer studies in schools had several challenges which led to it not to be offered in public schools at that time. Some of the challenges identified were inadequate awareness on the benefits of integrating ICTs in schools, financial and technological resource constraints, and the high costs and lack of coordination from the headquarters to the lower organs. While the policy did not provide clear guidelines on how the challenges were to be confronted, it suggested the need to scale up the introduction of computer studies in schools and to focus on research and development on products to service the local market and ICT Policy in Education (Zambia Report, 2007).

Besides, with the support of the International Institute for Communication and Development (IICD), the Commonwealth of Learning (COL), and the United States Agency for International Development (USAID), the Zambian Ministry of General Education had developed a draft ICT policy for education by October 2006 and an implementation strategy by January 2007 (MOE, 2007). Hence, an extension of Zambia's national education and national ICT policies was

represented. The vision was for ICTs to contribute towards reaching innovative and lifelong education and training in Zambia by 2030.

The guiding principles of policy include the following:

• It must fit into national policies on education and ICTs

• There is a commitment to establishing strategic partnership with stakeholders

• There is a combined effort with government, the private sector, and NGOs

• The policy reflects general standards that the Ministry of Education wishes to uphold

• An integrated approach must be adopted so that it integrates all aspects of the value chain in the education process.

The policy also provides an overview of goals, objectives, and government commitment in key programme areas of ICT infrastructure to education institutions, content development, curriculum integration, teacher training, distance education, administration and support services, and finance. Linked to the policy is an implementation framework that sets out in detail the implementation objectives, activities, time frames, and budgets for each of these programme areas. It also outlines the ministry's commitment to promote collaboration between the private sector and education institutions and to establish appropriate structures to facilitate the integration of ICTs in the education system.

In addition, the policy endeavors to integrate ICT in the teaching and learning at all levels to assist improve the quality of education delivery system. Besides, the ICT policy has provided support to alternative electronic stand alone or distance education systems, thereby increasing access to education (Mwale, Chilala and Kumar, 2011). The policy indicates that in the sphere of education, ICTs have the potential to improve the quality of education. Government vision is to have information and communication technology that will contribute towards achieving the objective of providing innovative and productive life long education and training accessible to all by 2030. In line with policy direction and in order to enhance the opportunities of computer studies to the learners, some initiatives and projects are currently running and these include, 'eBrain Forum' which is a non-profit membership-based organization that promotes ICTs for development in Zambia. Its objectives are to lobby, advocate, build capacity, and conduct research on ICT for development issues. 'Computers for Zambian Schools Trust,' the Computers for Zambian Schools is a registered trust established by the local educational and ICT specialists, representatives from the British Council, Ministry of Education, and the Beit Trust. It operates as a partnership between

the Computers for African Schools, which is a UK-based registered charity, the British Council, the British High Commission, the Beit Trust, SchoolNet Zambia, MTN, ZamNet, and the Zambian Ministry of General Education.

In fact, SchoolNet Zambia is being supported by SchoolNet Africa and its partnership with Multichoice Africa and the Open Society Initiative for Southern Africa (OSISA). With the support of Multichoice Africa and Multichoice Zambia, SchoolNet Zambia was able to promote access to satellite television and video in a few schools in order for learners and teachers to access education channels such as Mindset Learn, Discovery Channel and National Geographic. With the support of OSISA and in partnership with Computer for Zambian Schools, it extended the personal computer (PC) refurbishment centers throughout the main Centre of the country. The University of Zambia and Copperbelt University have also contributed to the growth of ICT in Zambia by investing in ICT infrastructure. These two universities offer computer science as a study area. The University of Zambia has installed PCs with internet connectivity in its regional offices and has opened e-library where its members can access both old and latest information. The Copperbelt University has developed a curriculum for grades eight and nine.

1.3 Statement of the problem

The government introduced computer studies in schools with the aim that it would improve the educational standards in the country. In fact, computer studies as a subject was to be integrated in each and every subject so that pupils can understand fully the concepts involved in computer studies. Furthermore, the Ministry of education, with the support of government, directed that all grades eight and nine classes should learn computers. Besides, the government directed that the subject be examinable and it had to be compulsory at junior secondary school. Since it was a directive, even junior secondary schools without equipment were made to teach pupils and examine them from abstract.

Currently, the government has embarked on distributing computer materials and equipment to schools. Electricity is also being taken to these rural schools. Donors, non-governmental organisations and other well wishers donate some computer materials to schools. The government and private colleges and universities are training teachers of computer studies.

Despite the fact that Zambia's ICT policy advocates for effective integration of ICT within the entire education sector to support teaching, learning and research (Ministry of Education, 2007),

there are still various challenges in the introduction of computer studies more especially in rural junior secondary schools of Zambia.

This lack of concise certainty on the usage of ICTs in rural secondary schools turns out to be a problem because educational planners in the Ministry of General Education, policy makers, corporate partners', donor agencies and others are not well informed on the challenges, opportunities and on the availability of ICT resources in rural junior secondary schools.

Besides, when we look at the word education, education can be defined as an act of imparting or acquiring particular knowledge or skills, as a profession. Another definition of education is that education is a field of study involved in the pedagogy of teaching and learning. It is a well-known fact that education is important to the society as no human being can survive without education. Also education can help anyone to develop his or her potential to a maximum extent.

Therefore, computers have had a huge influence in the advancement of the use of new technology in education. There are many challenges and opportunities in using computers and technology to facilitate the teaching and learning of pupils (Bass & Ritting, 2009).

In education, the uses of computers are now integrated with the teaching and learning process. While some people agree that computers could enhance the teaching and learning process, others stress that the integration of the computers in the teaching and learning process might bring some challenges. It was on this background that the research was carried out to examine the challenges of Computer Studies and look at the opportunities and availability of ICT resources in junior secondary schools of Chipili district, Zambia. It was also aimed at evaluating the computer literacy level of teachers of computer studies in junior secondary schools of Chipili district and essentially highlighting the challenges of introducing computer studies in the teaching and learning process. Furthermore, the research also aimed at accessing and evaluating educational standards in those schools where computer studies had been introduced.

1.4 Specific Objectives

(i) To determine the availability of ICT and human resources in the teaching and learning of computer studies in junior secondary schools of Chipili district.

(ii) To establish the benefits and opportunities acquired in learning computer studies.

(iii) To examine the challenges faced by teachers and pupils in the teaching and learning of computer studies in selected junior secondary schools of Chipili district.

1.5 Research Questions

(i) Are there available ICT and human resources in the teaching and learning of computer studies at junior secondary school in Chipili district?

(ii) What are the benefits and opportunities of learning computer studies?

(iii) What challenges do teachers and learners face in computer studies at junior secondary school in Chipili district?

1.6 Purpose of the study

The purpose of the research study was to examine and evaluate the challenges and opportunities of the introduction of Computer Studies among teachers and learners of junior secondary schools in Chipili District of Luapula province, Zambia, especially as it affects the teaching and learning process.

1.7 Significance of the study

The findings of the study would be very significant. It would be important to the stakeholders in the educational system which includes the government, educational policy makers, teachers, students and the entire society. This was so because the result of the research would help all the stakeholders to determine the computer literacy level of teachers and students of junior secondary schools in Chipili district and to find ways of bridging the gap in the knowledge if any, and appreciate both the challenges and benefits of the introduction of Computer Studies in the teaching and learning process. Furthermore, it would enable the stakeholders to understand the importance of integrating Computer Studies in junior secondary education system and highlight their importance in enhancing the teaching and learning process, and it would provide the necessary infrastructure, support materials, skills and strategies required to achieve the needed benefits of Computer Studies among teachers, students and the society at large if there would be any. Finally, researchers would be provided with the necessary information and knowledge to carry out their research for those interested in this area of study.

1.8 Limitations of the study

The study was confined to selected secondary and primary schools with junior secondary classes in Chipili rural district and the findings may not be the representative of all secondary and primary

schools in the country and therefore similar studies may need to be carried out in other urban secondary and primary schools.

1.9 Theoretical framework

The study was guided by the modernization theory. This theory was used because Information and Communication Technology has come to Zambia and Africa as a whole very recently. Besides, ICTs in Zambia and Chipili in particular is very modern because everyone seemed to be embracing it hence modernization theory was the best to apply in this research (Kunst, 2014). Modernization theory is the oldest term that had been evolved in the 18th century. The word modernization has two different meanings and these are: the process of becoming the newest, latest and most sophisticated as well as the state of having the process finalized. Modernization, in social sciences, states that there is a conversion of a theory, it is viewed as an international completion and civilized modification (He, 2012).

The Western countries started focusing on the enhancement of economic development in developing nations after the end of world War two. Around that time, development was regarded as entirely economic growth, as linear process and as universal process which did not differentiate between single nations (Bull, 2016). Immediately after considering development as economic growth, Western Scholars created the modernization theory as it was the only way of developing modern world. It was assumed that former colonies lacked economic, technological and social development hence the reason that modernization model needed to be applied and used in order to get rid of old methods (Ahmed, 2013). The model of modernization is anchored on the connection between modern merits, behaviours and societies, economic development and modernizing organisations. The first theoretical approach that dealt with the benefits of transferring technology was done by using modernization theory. It was enforced by the Western scientists Rodgers (1969) and Schramn (1964) who viewed technologies as a principle supporter of economic development in the Third World countries (Obijiofor, 2015). In fact, within this theory, international communication is considered as indispensable to promote modernization and with its development.

Furthermore, the world is moving towards latest technology everyday at a breakneck pace; therefore, modernization has made ICTs to develop at the fastest rate. People nowadays are eager to create a modern world through ICTs. Hence, ICTs have the driving force to convert societies

and whereby modernize them. Furthermore, ICTs have turned people from traditional way of operation to a modern and current lifestyle of which every human being is grieving for. Consequently, new technology is used in every aspect of the professional lives of current human being (Sandyarani, 2011).

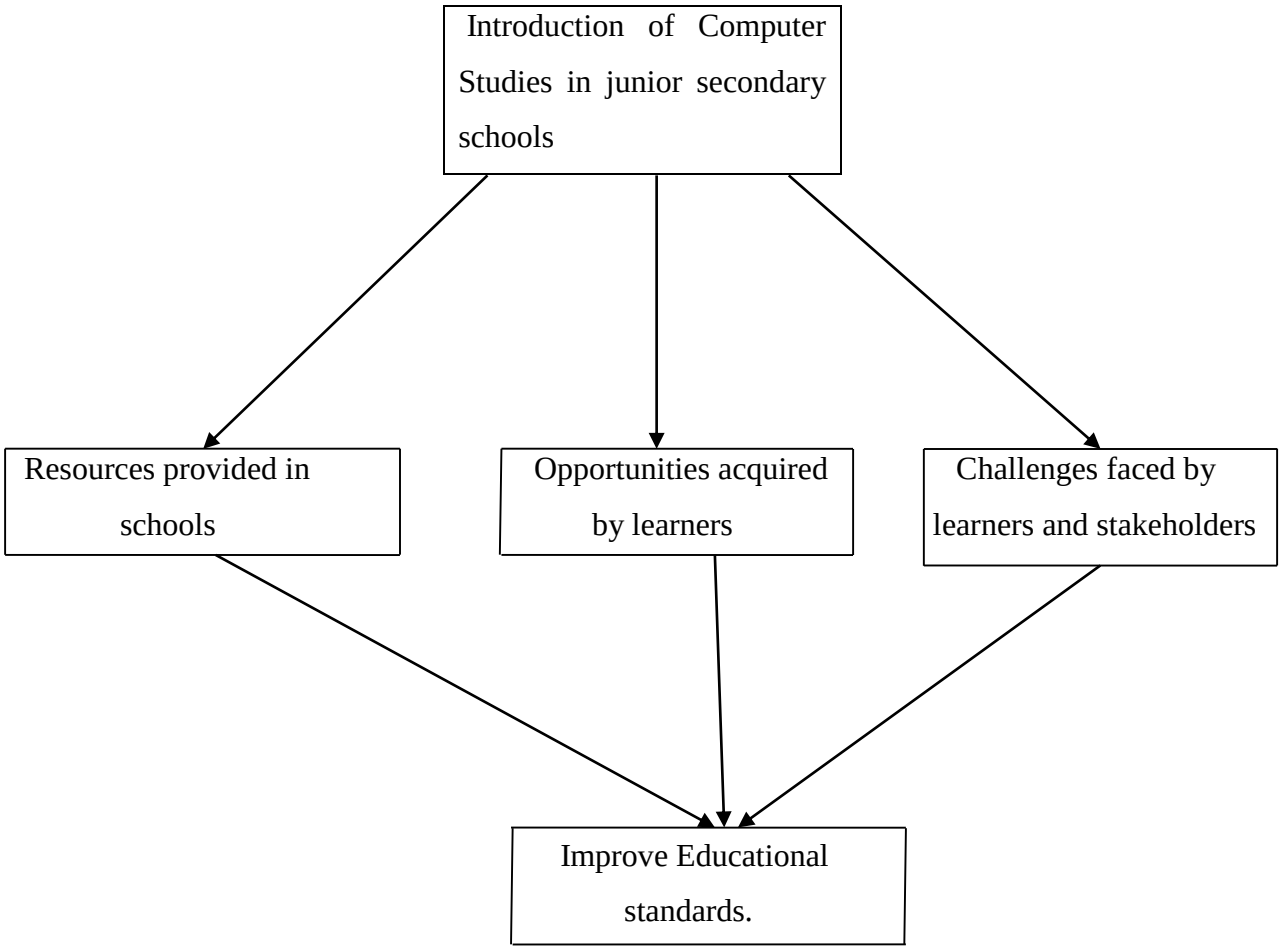
Modern society is characterized by its structural specialization, technological sophistication and economic power which are entirely in liaison with modernization theory. Besides, modernization leads to social changes and the establishment of democratization of traditions (Crawford, 1998). In fact, modernization has made individuals connected to everyone in the world instantly. Moreover, ICTs coupled with the internet can allow for a faster way to communicate globally. The chance to understand international or different cultural perspectives on the same direction is enhanced in the new modern technology (Sandyarani, 2011). The introduction of ICTs in junior secondary schools was considered to be the most indispensable way of accelerating development in the modern world. In Zambia, it was assumed that the constant flow of ideas amongst the students through ICTs was imperative in acquiring modern knowledge. Consequently, modernization theory is the ideal theory to be used in trying to find out the challenges and opportunities in the introduction of computer studies in junior secondary schools. In this research modernization theory was used as a theoretical framework in order to investigate how computer studies was viewed in terms of the challenges faced and opportunities gained in junior secondary schools of Chipili district.

1.10 Conceptual framework

Ogula (1998) defined a conceptual framework as a description of the main independent and dependent variables of the study and the relationship among them. Independent variables which are also known as predictor or explanatory variables were the factors that a researcher thought could explain variation in the dependent variable. According to Kombo and Tromp (2006) independent variables are just causes.

In this study the independent variables are the challenges faced by teachers and pupils in the teaching and learning of computer, the benefits acquired in learning computer studies and the availability of ICT resources in the teaching and learning of computer studies. On the other hand, dependent variables are conditions that appear to change as the independent variables are introduced or removed. In this study the dependent variable is computer studies in junior secondary

school which is dependent on the infusion of ICT tools. Diagrammatically, the conceptual frame work can be illustrated as follows:



1.11 Definition of Operational Terms

The following were the terms used in the context of conducting this particular research.

Communication: This refers to the transmission of information from one person to another within or out of the school using mobile phones, emails and other ICT tools.

ICTs: In this study, ICTs refer to any electronic device and technology that are used to transmit, communicate, store, create and share information in the school context. These include computers, printers, photocopiers, internet, mobile phones and many others.

Junior Secondary school: A formal teaching and learning institution that runs from Grades eight up to nine.

Student: This refers to a learner or pupil in a junior secondary school.

Computer studies: Is a teaching subject that is taught at junior secondary school as a new subject.

Challenges: These are the problems being encountered in the process of learning computer studies.

Benefits: These are the opportunities that are accrued after learning computer studies at junior secondary school.

2. CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews studies and other related literature on the topic of study under the following sub-headings: Global studies, African Studies and Zambian studies on the challenges and opportunities of the introduction of computer studies.

2.1 Global Studies

According to Selwood and Pilkington (2005) the general domain regarding ICTs in schools has gathered significant research momentum in the recent years. Furthermore, Windschitl (2002) states that in the 21st century, the new vision of education is to make learning accessible to all, but it was hard to achieve this goal using traditional method. Globally, research studies about the infusion of ICTs in education had been conducted. However, not much research had been done in Zambia specifically for computer studies in junior secondary schools. In fact, these pint-sized researches done in Zambia mainly focuses on learning computers in schools in general. Thus, the current study was trying to reduce the knowledge gap by focusing on the teaching and learning of computer studies in junior secondary schools and try to establish if educational standards has improved due to the introduction of computer studies.

Dawes (2010) observed that the 21st century has witnessed tremendous advancements in technology which had led to far-reaching developments in the use of computer system. As a result, cost effective technology combined with the flexibility in learning activities was essential in enhancing efficiency. Dawes's (2010) view is supported by Kawade (2012) who contended that the use of ICTs in the field of education is regarded as an effective and efficient facilitator in creating, accessing, storing, manipulating and transmitting or sharing various forms of information, such as audio, visual and word formats due to the proactive environment presented by ICTs. Hence, there was great need for technological innovations into computer studies in junior secondary schools.

The research did investigate if ICTs integration in junior secondary schools has some opportunities in people's lives. Besides, the research went further to find out and understand the professional

training junior secondary school teachers underwent in ICTs usage and how that training influence their attitude towards the subject and around the environment at large (Lortie, 1975).

Research done by Ball (1990) and Lortie (1975) indicates that teachers tend to teach the way that they were taught because of lacking modern methodology. Thus, if we expect head teachers, computer studies teachers and Head of Departments in schools, junior secondary schools in particular, to perform in their respective tasks using technology, we need to teach and train them using new technology (Vrasid and McIsaac, 2001). Indeed, the studies by Ball (1990) and Lortie (1975) were similar to the current study because they addressed the issues of teacher training in computer technology.

A survey report by Merireng (2013) on the opportunities of using of computers in United States, Australia, Britain, Mexico and Netherlands indicated that ICT had enabled effectiveness in the teaching and learning of computer studies in schools. The report further noted that, the important driver in the ICT developmental success in USA was the adoption of an ICT policy and the existence of an ICT strategy. The survey report by Merireng (2013) indicated that, it was important to the current study since the researcher wanted to find out how ICT through computer studies was being utilised in schools and the community at large in aspects of learning and student advancement of knowledge. Besides, Merireng (2013) conducted a survey in United States, Australia, Britain, Mexico and Netherlands. These countries were very much advanced in terms of technological advancement and looking at countries like United States of America and Britain, these were among the first countries to include ICTs in education sector (Benzie, 1997). However, the findings were not the same or similar to rural junior secondary schools in Chipili district but gave direction to the research conducted.

The teachers' positive attitude towards the teaching and learning process of computer studies is important for the successful of ICTs (Al-Zaidiyean et al, 2010 and Albirini, 2006). Moreover, the study attempted to confirm Al-Zaidiyean et al (2010) and Albirini's (2006) findings that teachers' beliefs, attitudes and practices in teaching computer studies were important for understanding and improving educational process by exploring the matter using teachers of computer studies in Chipili district. Currently, it is almost impossible to ignore the pervasiveness of information technology within education and that technology has become a valuable resource to educators (Ayas, 2006). Technology integration in the classroom has become an important aspect of

successful teaching because it allows students to learn more in less time and allows schools to focus on global learning environments if used appropriately (Almekhlafi and Almeqdadi, 2010).

Moreover, globally, studies had been conducted with the aim of evaluating and analysing strategies, proposals and ICT devices to promote a paradigm shift in education more especially for teaching and learning that enhances the schools in Spain that were involved in e-learning. Besides, Spain focused on developing a new model that would complement the traditional models in education in e-learning, but the current study looked at the challenges and opportunities of computer studies in junior secondary schools (Cano and Garcia, 2013).

According to Crawford (1999), computer studies as a subject, not only give learners the benefits to control their own learning process but also provides them with ready access to a vast amount of information over which the supervisor has no control. Probably the current scenario dictates that education should embrace technology so that educational technology could facilitate unique learning environment or could contribute unique characteristics in order to make it more powerful and effective globally.

Benzie (1997) as quoted by Merireng (2013) carried out a study in Malaysia in 1994 under the Malaysia smart school initiative, it was found that ICT policy plan had been evolved, but had not been fully integrated in various fields of school system. The study by Benzie (1997) was in line with the current study due to the fact that in 2006 Malaysian Ministry of Education launched the ICT policy and in the same year, the then Ministry of Education now Ministry of General Education developed a Draft ICT policy on education and an implementation strategy by January 2007. Besides the ICT policy on education was still in its draft form. Hence, carrying out the research would inform educational planners, policy makers and educational stakeholders on how ICTs were being used and introduced in the form of a subject as computer studies in junior secondary schools of Chipili district.

The study by Saiti and Prokopiadou (2009) discovered that in Greece, the implementation of new technologies in secondary education had rapidly increased and that adoption of ICT reinforced not only the teaching process but also facilitated the learning process. The study also gave a firm ground to the current study because the study also attempted to find out how ICT enhanced the challenges and opportunities of the introduction of computer studies in junior secondary schools in Chipili district.

The global studies on ICTs in education, and to be specific in junior secondary schools, were important to the study in that they described a similar trend in computer studies patterns that existed in Zambia then and also offered a platform on which the study was built.

2.2 African Studies

Waema (2002) observed that several African countries like Egypt, Mauritius, Rwanda and South Africa had developed comprehensive national policies and strategies to fully integrate ICT in various institution of learning. On the other hand, Farrell and Isaac (2007) carried out a study on ICT and education in Africa and noted that some African countries had made efforts to integrate ICT in educational institutions. For example, South African government had come up with ICT policies which had facilitated proper computer studies in secondary schools.

The observation by Waema (2002) and the study by Farrell and Isaac (2007) provided a firm ground upon which the research study was to be carried out. In 2006, the government of the republic of Zambia through the Ministry of Communication and Transport (MCT) launched a National ICT Policy which addressed several sections including Human Resource Development, agriculture; education; E-Commerce and E-government. There was also need to state that it was the section on promoting ICT in education, Research and Development that had to set out the objective pertaining to ICT and education. The relevant objectives in this section states that government shall modernize the educational delivery system with the aim of improving the quality of education and training at all levels and to strengthen the use of computers in educational system, including primary schools (MCT, 2006). Furthermore, the research done by Mikre (2011) on the role of ICTs in education revealed that regardless of all the challenges characterizing the use of ICTs is of imperative to the benefits of learners and the education system in that it assists in providing the modern education system. The study of Mikre (2011) was also important because it had some basis on the current study. However, there seemed to be pint-sized researches that had been carried out in order to see how those objectives were being realized. Therefore, the research conducted added knowledge to some already researches done.

In addition, the availability of ICTs resources in secondary schools and the influence of the application of ICT innovations in teaching and learning of computer studies were investigated by Arinze et al (2012). The research carried out by Arinze et al (2012) was similar to the current research because they both looked at the availability of ICTs in schools. However, the only

difference between the two was that the current one was researched on junior secondary schools in Chipili district of Zambia while the other one focused on secondary schools in West Africa and investigated competence levels of students in the application of ICTs in the learning of social sciences. In fact, the West African study was very broad and it was in a different country.

In a study by Ziraba (2012) on the role of Information and Communication Technology which was far much different from the current study because he looked at management of computers in selected secondary schools in Central Uganda and the current one dealt with the challenges and opportunities of computer studies as a subject in a Zambian perspective. Furthermore, Ziraba's study looked at the use of available ICTs resources in communication in enhancing management of computers and student's record keeping using computers. His study was at least broader and it covered the entire central region of Uganda. The findings of Ziraba were that before introduction of electronic computing, report forms used to be marred with errors such as missing marks which led to problems in grading systems and determining promotions to the next level. That problem was attributed to the fact that marks obtained by each student were not put together but instead were put on separate piles of papers which ended up got missing.

Unlike Uganda, a more technologically advanced country in Africa, Zambia is still struggling on how best ICTs can be integrated in classroom teaching and learning. Besides, the foregoing study was imperative in that it guided the current study on what to base on in the teaching and learning of computer studies at classroom level.

2.3 Zambian studies

ICT is no longer a luxury but an indispensable necessity for national development of any nation. This sentiment was echoed by the then communication permanent secretary of the Ministry of Transport and Communication of Zambia, Misheck Lungu, when he spoke during the official opening of a dissemination meeting of the findings of the 2015 survey on access and usage of ICT among households and individuals at Southern Sun Hotel in Lusaka that, 'ICTs are no longer a luxury in the process of economic progress but are an integral part of development', (The Post Newspaper, March 2016: 10).

With various support from international organization such as the commonwealth of Learning (COL), the International Institute for communication and development (IICD), the United States Agency for International Development (USAID), the Ministry of General Education (MOE)

together with the Ministry of Communications and Transport developed a National information and communication Policy (MCT, 2006) with a long vision 'to enable all schools in Zambia to have access to ICTs by the year 2030' (UNESCO, 2016). This aimed at providing lifelong education and training for all. The policy for ICT was formulated in line with the Firth National Development Plan. The Zambian government launched the ICT national policy in 2007 under the theme, 'ICT-For accelerated wealth and job creation'.

However, Isaacs (2007) reported that the penetration levels of ICTs in Zambia's educational institution remained low with those schools that were equipped mostly utilizing second-hand and refurbished computers. He continued to state that the recent adoption of a national ICT policy for education and an associated implementation framework provided an enabling policy environment to promote far greater access and use of ICTs across all sectors of Zambia's education system. Although Isaacs (2007) stressed that the recent adoption of a national ICT policy for education and an associated implementation framework provides an enabling policy environment to promote far greater access and use of ICTs across all sectors of Zambia's education system, the current research tried to probe on the challenges and opportunities of computer studies in junior secondary schools. The study by ZICTA in partnership with Central Statistics Office (CSO) was in line with the current study since it also looked at the available ICTs devices in selected rural secondary schools. Kelso and D'Souza (2004) argued that having access to the technology does not necessary mean that they are used, and using does not necessarily mean they are used effectively. Furthermore, Balanskat, Blamire and Kefala (2006) added that although educators did acknowledge the value of ICTs in school, difficulties continued to be encountered during the process of adopting the technologies. Therefore, the study looked at the availability, challenges and opportunities of ICTs in junior secondary schools in Chipili District and determined whether or not Mathematics Head of Departments and teachers of computer studies used them effectively in the teaching and learning of computer studies so as to prove or disapprove the argument by Kelso and D'Souza (2004).

Lufungulo (2015) carried out a study on Primary School Teachers' attitudes towards ICT integration in Social Studies. Though the study concentrated much on primary school teacher's attitudes towards ICT integration in Social Studies, her studies established that two senior teachers from two primary schools confirmed that they faced some challenges in terms of teaching and learning of computers in social sciences. She discovered that of the two senior teachers who used ICTs for convenience purposes, only one convincingly spoke about how she used her email

address, shared knowledge, and acquired new knowledge from friends via internet sources with minimum challenges. She thus concluded that despite passionately welcoming the integration of ICTs in schools some senior teachers and class teachers were not actively involved. She further concluded that the use of ICTs was only limited to teaching and learning purposes and not used for co-curricular activities such as clubs and in Physical Education.

The study by Lufungulo (2015) gave a firm ground upon which the study was carried out since her study touched the issues of the use of ICT in schools at various grades. Besides, she conducted her research on primary schools which were under a pilot programme. Therefore, carrying out the current research was inevitable since it wanted to find out the challenges and opportunities of using computer studies in education of rural junior secondary schools. As such some research findings might not be the same since these two researches were on different areas of study.

The study conducted by Imasiku et al (2012) on the use of ICTs in education in selected urban-based secondary schools in Lusaka and the research by Chaamwe (2012) on ICTs for Zambia's Distance Education, concluded that the major challenges of ICTs in the education sector included teachers' inexperience and negative attitude towards the adoption of ICTs in the teaching and learning of computer studies. Besides, the state of ICT infrastructure-computer laboratories- was pathetic.

Having looked at literature around the globe, on African and Zambian context, the next chapter is about the methodology and instruments used in gathering data during the actual research.

The different literatures had also been linked to the current study by way of highlighting similarities, differences, relationships and gaps that existed.

3. CHAPTER THREE

METHODOLOGY

3.1 Overview

This chapter presents the methodological approach that was used to carry out this study. Orodho (2003) looked at methodology as the scheme plan that is used to generate the needed responses to research questions. The chapter further includes the description of the research design, targeted population from where the sample size was drawn as well as the sampling procedures and research instruments. In addition, this chapter describes the data collection procedures which were employed and how the data collected was analyzed in order to answer the research questions. Reliability, validity and ethical consideration were also considered and finally a summary of what the chapter attempted to cover was provided.

3.2 Research design

The study was largely qualitative in nature and took the form of descriptive survey design in order to achieve the objectives and address the problem under the study. A descriptive survey design attempts to picture or document current conditions or attitudes. Orodho and Kombo (2009) forwarded that a descriptive design is used when collecting information about people's attitude, opinions, habits or any of the variety of education or social issues. Since the study focus was on the challenges and opportunities of the introduction of computer studies in junior secondary schools, descriptive design was used in accordance with Orodho (2003).

Creswell (2009) stated that a qualitative research is a means of exploring and understanding the individual or group attributed to a social human problem. This means that an individual or a group such as a school becomes the centre point of the study. Ndhlovu (2012) went on to say that qualitative research is a system of collecting, analysing and interpreting the given data to enhance the description and accounts of social events and objectives of research while up-holding the natural environment. It should be acknowledged that such study did not influence the respondent's natural environment but instead undertook the study right in its natural state.

It is important to note that qualitative was largely used in this research. Triangulation was also applied in the collection of data. Triangulation is the mixing of data or methods so that diverse

viewpoints or standpoints cast a light upon a topic. Besides, the mixing of methodologies, for example, mixing the use of survey data with interviews, is a more profound form of triangulation. Silverman (1993) acknowledged that triangulation results in a stronger research design and also provides more valid and reliable findings. Thus the advantage of one method compensates for the disadvantage of the other. In addition, the studying from different perspectives provided a fuller and clear picture of the work.

3.3 Target population

A population is a group of individuals who have characteristics common to the entire group from which samples are taken for measurement (Kombo and Tromp, 2009). Strevens (2003) insists that all members or individuals or groups that are expected to be represented in the study form a target population. The population of the study consisted of, all school Head-teachers, teachers of Computer studies, Head of Departments of Computer studies and pupils at schools where computer studies were offered in Chipili district. Besides, the District Education Board Secretary (DEBS) of Chipili district was targeted. The population of the study was drawn from the district DEBS office and four (04) schools of Chipili district which was offering Computer studies.

3.4 Sample size

Generally, a sample has a smaller group or sub-group obtained from the accessible population (Mugenda and Mugenda, 1999). However, this smaller group must be carefully and meaningfully selected in order to be representative of the whole population with some commonality characteristics. Each member in the sample was referred to as a subject or respondent or interviewees. The sample size was sixty-five altogether: four head teachers (one from each secondary school), four Head of Department for ICT (one from each secondary school), eight teachers of Computer studies (two from each secondary school), forty-eight pupils (twelve from each school) and one District Education Board Secretary (DEBS). The small number was preferred since the research study was more qualitative as opposed to quantitative. Cohen et al (2007) contend that small sample size is adequate in qualitative research. The composition of the study sample was summarized in the table below.

Table 1: The number of respondents in the research

POSITION OF RESPONDENTS	TOTAL NUMBER OF RESPONDENTS
Head teachers	04
Head of Department of ICT	04
Teachers of ICT	08
DEBS/DESO	01
Pupils	48
TOTAL	65

3.5 Sampling techniques

According to Kasonde (2013) sampling technique is a research plan that explains how the respondents for the study are to be selected from the population. It is also a process that will help the researcher select respondents, places or things to study on. To obtain the necessary sample units, purposive and simple random sampling techniques was employed. The study used purposive sampling because it sought information-rich cases and made it easy to study in depth rather than breadth (Buchanan & Bryman, 2009). Purposive sampling which is a principal form of non-probability sampling (Grosof & Sardy, 1985). The DEBS, the four HODs of ICT, four Head teachers and eight teachers of computer studies was selected using purposive sampling technique. While for the forty-eight pupils, a simple random sampling was employed for selection assuming that they could give adequate information about the challenges and opportunities of computer studies.

3.6 Instruments for data collection

In view of the fact that the study was intended to be a descriptive survey, qualitative data was collected. The principal instruments for data collection were self-administered questionnaires using open ended and closed questions and semi-structured interview schedule. According to Bell (1993), a self-administered questionnaire is the only way to elicit self-report on people's opinion, attitudes, beliefs and values.

3.7 Data collection procedures

The introductory letter was collected from the UNZA/ZOU office which introduced the researcher to the DEBS in Chipili. Then a research permit was obtained from District Education Board secretary that was used as an introductory letter to head teachers in schools. The researcher personally administered the questionnaires to the respondents. The selected head teachers, teachers of computer studies, Head of departments of ICT, and the DEBS, were visited in their schools and offices respectively and the questionnaires administered to them. The respondents were assured of strict confidentiality in dealing with the responses. The respondents were given about one week to fill in the questionnaires after which the filled questionnaires were collected. Face to face interviews was then conducted with all the selected respondents using interview schedule.

3.8 Data analysis

Data collected was analysed using quantitative and qualitative methods. Quantitative data was analyzed using Microsoft excel to obtain descriptive statistics such as frequencies and percentages (Best and Kham, 2002). Qualitative data was analyzed using content analysis techniques. Under content analysis approach, information was sorted out, classified and categorized. Based on the project findings, conclusions and relevant recommendations were made. Data was also presented using tables and charts among others.

3.9 Reliability and Validity

Triangulation is a method of checking data collected for correctness. It is a technique that is common in qualitative research, in which the researcher relies in multiple sources of data (Creswell, 2009). This technique has gained a wide acceptance among qualitative researchers as a means to strengthen the research rigor through the combination of multiple methods (David, 2011). Therefore, this research used the method of triangulation in which the researcher used a variety of sources to collect data. The relevant data was collected through the distribution of questionnaires and administering the semi-structured interviews to the respondents. All that was done to make sure that collected data was correct and verifiable.

3.10 Ethical consideration

To make a collection of data easier as per obligation in research, consent to carry out the study was sought from pertinent authorities at the University of Zambia, the District Education Board Secretary's Office and the Head teachers of respective secondary Schools. All data collected during the study was used exclusively for the intention of the study, and was kept strictly secret. Moreover, approval was sought from respondents and no informant was forced to participate in the study. Besides, names of the respondents and institutions will not be disclosed in any way. Furthermore, the research was fully explained to the subjects in advance and "be-briefed" to them afterwards.

4. CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Overview

The previous chapter described the methodology employed in this study. This chapter presents the findings of the study. The data was collected from the population sample which included the DEBS, headteachers, ICT subject teachers, HODS and the pupils. The findings are presented according to the objectives. In particular, the following were the objectives of the study: To determine the availability of ICT and human resources in the teaching and learning of computer studies, to establish the benefits and opportunities acquired in learning computer studies and to examine the challenges faced by teachers and pupils in the teaching and learning of computer studies in selected junior secondary schools of Chipili district. However, before each objective is presented in this chapter, demographic characteristics of the respondents will be presented. The following were considered in the demographic characteristics: Gender, age, educational level and experience of computer studies teachers.

4.2 Demographic characteristics

This section represents the demographic characteristics of the sampled schools including head teachers, HODS, teachers of Computer studies, the DEBS and the pupils. The sampled schools were two secondary schools and two primary schools that offer computer studies at junior Secondary.

4.2.1 Gender of the respondents

The respondents were requested to indicate their gender in brackets in the interview guide. The results are presented in figure 2.

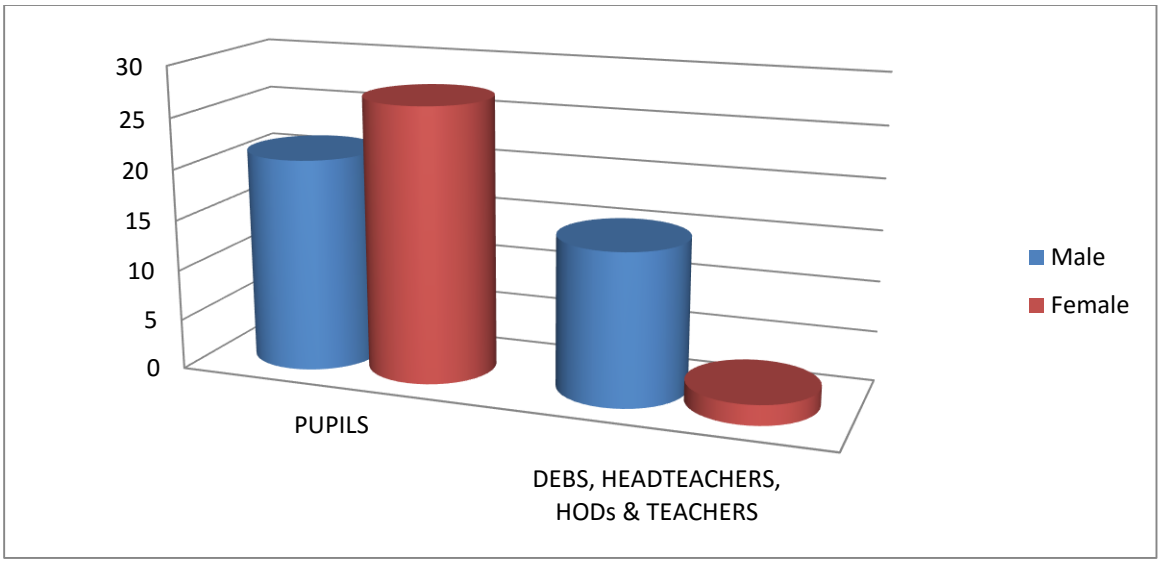


Figure 2: Gender of respondents

From figure 2, it was found out that there were 21(43.8%) males and 27(56.2%) out of 48 pupils. The male respondents among the Headteachers, HODS, teachers and the DEBS were 11(88.2%) as compare to 2(11.8%) female respondents. This shows that there were more male respondents than females among the DEBS, Headteachers, HODS and teachers.

4.2.2 Age of the respondents (pupils).

The participants, particularly pupils, were requested to indicate the age. The results are presented in figure 3.

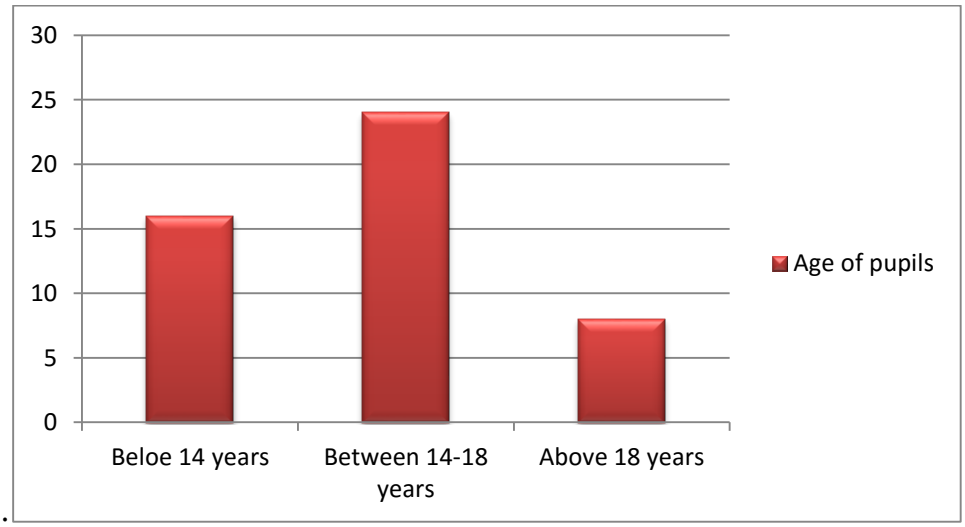


Figure 3: The age range of pupils

From figure 3, it was found out that 16(33.3%) pupils were aged below 14 years, 24(50%) pupils were aged between 14-18 years and 8(16.7%) of them were aged above 18 years. It can be stated therefore that majority of the pupils in Chipili district who are taking computer studies are aged between 14 to 18 years.

4.2.3 Educational level of the teachers and HODs of computer studies.

The respondents, teachers and HODs of computer studies, were asked to indicate their professional qualifications pertaining to the subject they teach. The results are presented in figure 4.

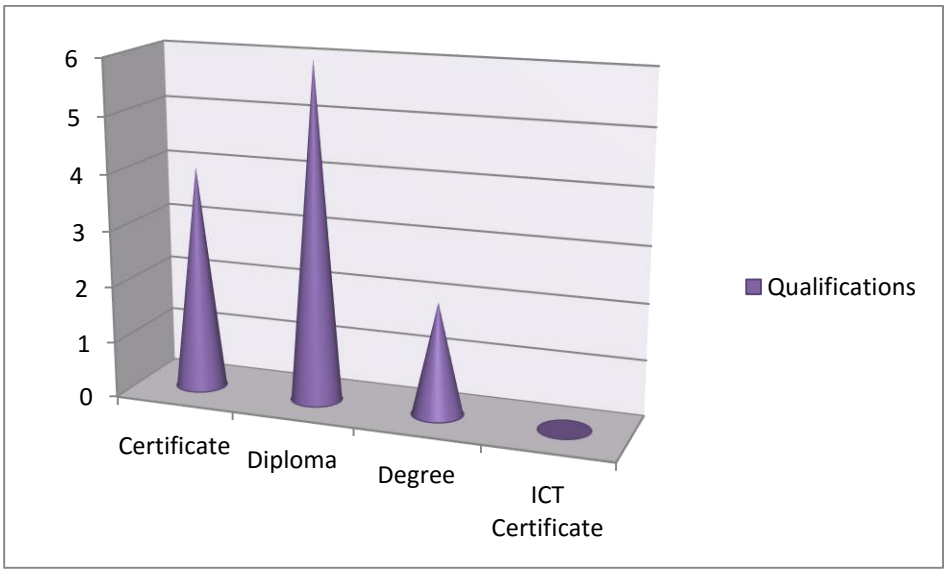


Figure 4: Educational level of teachers and HODs.

From figure 4, it was shown that there were 4(33.3%) teachers and HODs with certificates, 6(50%) with diplomas and 2(16.7%). Furthermore, there were no teachers of computer studies and HODs with ICT qualification. This shows that in Chipili district there were no qualified teachers of computer studies.

4.2.4 Experience of computer studies teachers and HODs.

The computer studies teachers and HODs were asked to indicate their experience in years of their teaching computer studies. The results are presented in figure 5.

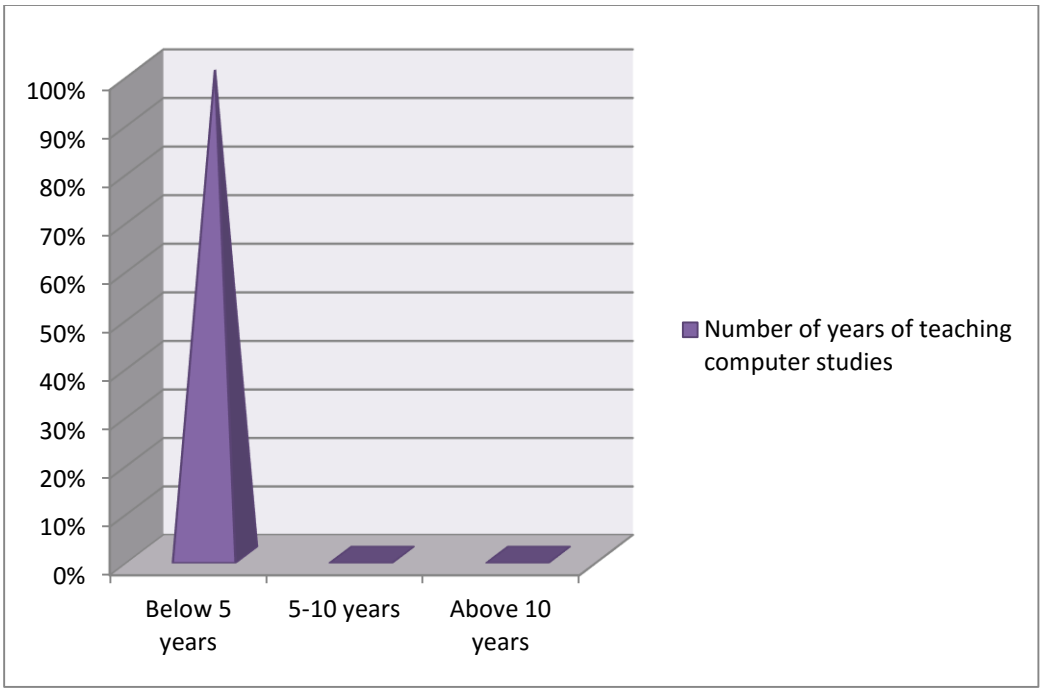


Figure 5: Experience of Computer studies teachers

From figure 5, it was found that 12(100%) of the teachers and HODs had been teaching computer studies for less than 5 years. This indicates that all the respondents under this category had less experience. One teacher of computer studies indicated that he had only taught for six months.

4.3 Objective 1: Availability of ICT and human resources in the teaching of computer studies.

The first objective of this study was to determine the availability of ICT and human resources in the teaching and learning of computer studies in selected junior secondary schools of Chipili district. To achieve this objective, a research question was formulated and it stated that: Are there available ICT and human resources in the teaching and learning of computer studies? To answer this question, the respondents were requested to respond to the questionnaire and were asked questions in the semi-structured interview. The results are as follows:

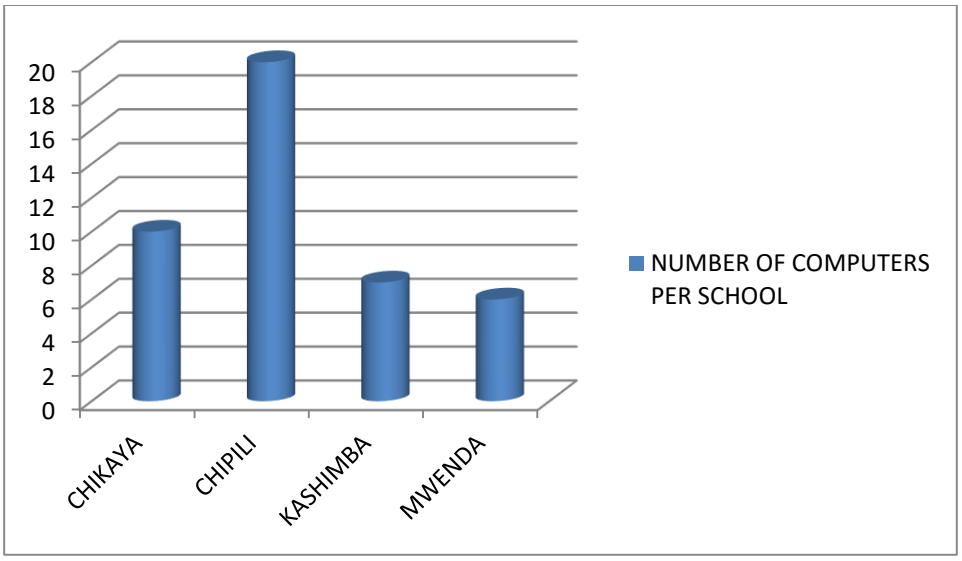


Figure 6: Number of computers found at each school.

Figure 6 above indicates that Chikaya primary school had 10 computers, Chipili secondary had 20, Kashimba primary had 7 and Mwenda secondary had 6 computers.

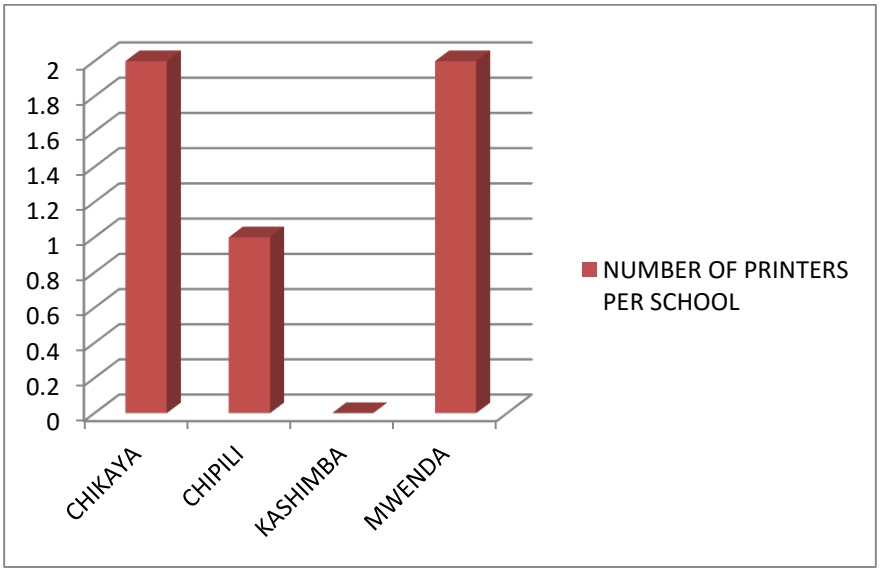


Figure 7: Number of printers found per school

Figure 7 above shows that Chikaya primary had 2 printers, Chipili secondary had one, Kashimba primary had zero and Mwenda secondary school had two printers.

4.3.1 ICT resources in Chipili district.

The first respondent to be visited was the District Education Board Secretary (DEBS) at his office. The DEBS revealed that the Ministry of General Education had only supplied ten computers for the entire district. He continued to say that these computers where distributed to schools which were connected to hydro power and those with solar energy. The Ministry through ZICTA donated twenty computers, ten tables and twenty chairs to one school. The Area Member of Parliament also contributed two computers and one printer at a named school.

However, the DEBS stated,

These ICT equipments are not enough for the entire district as these cannot be distributed to all schools in the district in order to fulfill the prevailing policy.

The policy states that all schools should start offering computer studies at Junior Secondary Schools. (MOE, 2007).

4.3.2 Types of computer studies materials noticed in the four selected schools.

The four schools visited had computers though were not enough for the other three schools. These schools had no well-furnished computer laboratories. The rooms where computers were kept, were also used as classrooms for teaching other subjects. One school used the same room for computer studies for holding meetings in addition to teaching other subjects. And at the same time it is being used as a Mathematics department. The other school used the office of the senior teachers as a computer laboratory. This office is also used for holding meetings and senior teachers operate from the same room. The findings revealed that ICT equipment found in selected junior secondary schools were as follows: all four schools had 43 computers, 5 printers are available in three schools and only one school had internet connectivity though pupils and most teachers do not have the access to it. Two schools had Riso machines for photocopying. The ICT equipment is presented in figure 8 below.

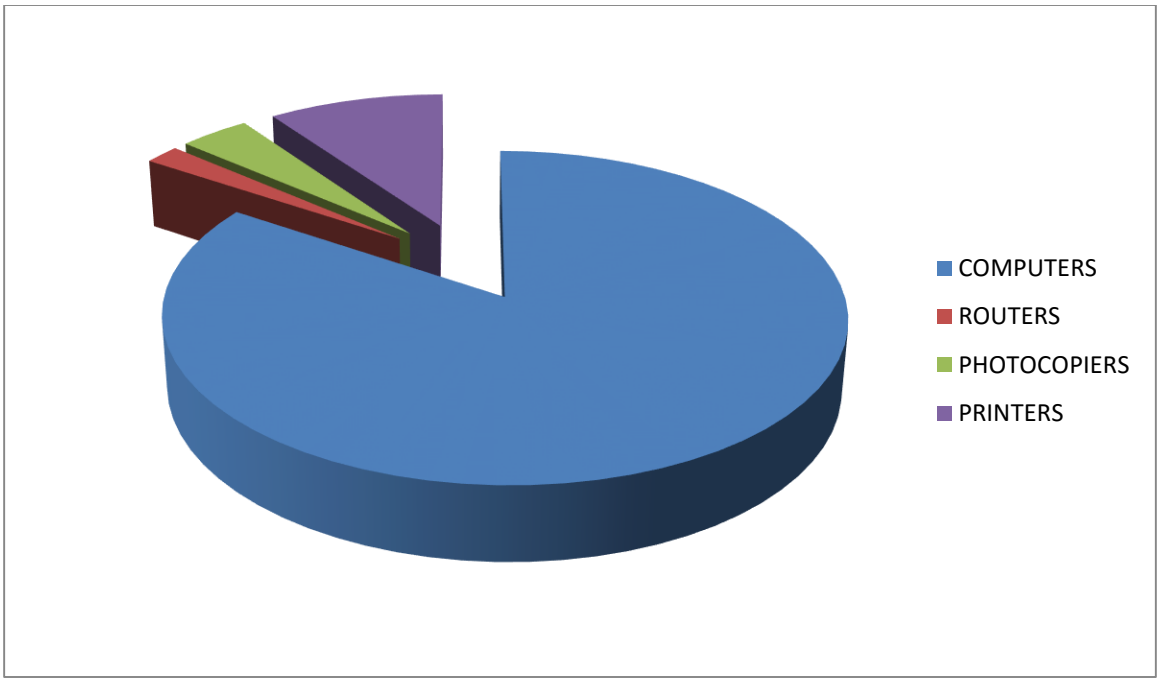


Figure 8: ICT equipment in selected schools

4.3.3 Accessibility of ICT equipment at home.

The pupils confirmed that they did not have computers at home. Neither did they access the computers at internet café as the entire district did not have any single internet café. Most learners had access to cell phones, 91.7% had access and only 8.3% had no access to cell phones. This indicates that more learners had access to cell phones than computers. The table below shows accessibility to ICT equipment.

Table 2 (a)

ICT Accessed	No. of Pupils	Percentage (%)
Cell Phones	44	91.7
No. Access	4	8.3
Total	48	100

Table 2 (b)

ICT Accessed	No. of Pupils	Percentage (%)
Computers	0	0
No. Accessed	48	48
Total	48	48

Table 2 (a) and (b): Pupils access to ICT at home

4.3.4 Availability of Human Resource

As earlier alluded to, the DEBS indicated that the whole Chipili district had no trained teachers for computer studies. When schools were visited for fact funding, the four teachers revealed that their schools had no trained teachers for computer studies. They indicated that those who were teaching the subject just had the interest in ICT. The teachers of computer studies themselves agreed that they were not trained for the subject. Instead they had other professional qualifications other than computer studies. Figure 3 on page 24 indicates educational level of computer studies teachers and HODS.

Besides, those who had availed themselves to teach computer studies just had ICT technical known-how. Others did some short courses at colleges where they had obtained their qualifications in other subject areas.

4.4 Objective 2: Establishing the benefits and opportunities acquired in learning computer studies.

The second objective of this study was to establish the benefits acquired in the learning of computer studies. To achieve this objective, a research question was formulated. The research question stated that: What are the benefits of learning computer studies? To answer this question, the participants where requested to respond to both the questionnaires and semi-structured interviews.

Two main themes emerged from the findings and these were benefits acquired by the school and the benefits acquired by learners.

4.4.1 Benefits of introducing computer studies to schools.

All respondents in the studied schools and at DEBS office were asked using questionnaires and interview schedules the benefits of the introduction of computer studies in junior secondary schools of Chipili district.

Some of the responses during the interviews with the DEBS, headteachers, HODS and teachers included the following:

The DEBS at his office narrated,

Schools are now able to collect examination data for both internal and external candidates using computers and this information is sent online. This is the fastest way of collecting data and sending directly to the Examination Council of Zambia (ECZ). Previously, the guidance teachers used to enter on the sheet of papers and send them through various officers, starting from DEBS office up to the headquarters. He further explained that in the process of sending those handwritten documents information was distorted and some of the papers missing.

One headteacher at one school had the following to say,

As a school we are able to report to higher offices through ICT gadgets such as the computers and phones. It is now very cheap to send information through Whatsap, e-mail and mobile phones. Initially, we used to travel using bicycles to deliver either verbal or written information. We also receive documents in form of softcopies on e-mail and Whatsap.

Another headteacher at one school said;

The learners and teachers of ICT are able to use the computers and access different information globally. They were even updated with global information through Facebook and Whatsap. Besides, teachers get more data on the internet for teaching pupils.

The teacher at one school pointed out that;

We are able to type information on the power point slides and present it to the class. Power point is the easiest and fastest way of teaching to pupils.

4.4.2 Benefits of introducing computer studies to learners.

The respondents in both the questionnaires and the interview schedules were compelled to state the benefits of the introduction of computer studies in junior secondary schools.

One learner at one school stated that she was able to use Microsoft word and excel when given work to do. She narrated that in the past I could just view a computer as something that could not be operated by her. In fact, she stated that at first she learned the parts of the computer.

One of the computer studies teacher at one school said that pupils were able to access the internet and retrieve the information they were interested in. He also said that learners could write the message using their phones. Learners could communicate to their friends through Facebook and WhatsApp. He added that learners acquired new concepts almost every day through the manipulation of ICT gadgets. Learners also learn small things such as how to play games on phones and computers which sharpen their thinking in the long run. They had acquired the skill of storing and retrieving data from the computer.

The District Education Board Secretary said that learners would acquire necessary skills that would help them in future even if they fail to perform well at grade twelve. He said that learners would become entrepreneurs and open their own internet cafés or work from those cafes. Others would become designers; they would be designing various cards such as wedding cards.

While the HOD at a different school said,

Learners become creative in their community since they are computer literate. They are able to assist the community in operating advanced phones which their relatives in urban areas send to them.

Another computer studies teacher at one school narrated,

I am able to go to the internet, get past question papers in form of PDF and convert them to Microsoft word. I just do few changes and prepare a test for pupils. As for me, I cannot do without ICT because am addicted.

4.5 Objective 3: Challenges faced by teachers and pupils in the teaching and learning of computer studies in the four selected junior secondary schools.

The research objective under this theme was to examine the challenges faced by teachers and pupils in the teaching and learning of computer studies in selected Junior Secondary schools of Chipili district. In an effort to achieve the mentioned research objective, the research question was formulated. The research question was,

What challenges do teachers and learners face in teaching and learning computer studies at junior secondary school in Chipili district?

Under the challenges faced by teachers and pupils in the four selected junior secondary schools, the following themes emerged: challenges faced by teachers, challenges faced by pupils and challenges faced by the district.

4.5.1 Challenges faced by teachers in teaching of computer studies.

The selected secondary schools studied had not enough computers to cater for the large class when performing computer studies practical.

One computer studies teacher at one school said,

On average, the ratio of computers to pupils is one to nine respectively. For this abnormal ratio I find it very difficult to teach practical because pupils are too many to one computer.

The teacher also complained about the time allocated on the timetable for computer studies. He said that four periods per week per class were not enough. He continued to say that the ratio was very abnormal for these few periods allocated to each class.

In support of the view of the teacher who complained about few computers, one of the HODs said,

Pupils do not learn much on practical lessons but a lot of theory is presented to pupils. Therefore, pupils find it hard to do better in ICT practical exams.

Another teacher said,

The school has no supporting devices that enhance the teaching of computer studies. He gave example of devices such as router, printer, photocopiers to mention but a few. He said that during the computer studies examinations, we hire a printer from one of the teachers at a nearby school. He added that there was no router for internet connectivity at that very school.

One teacher of computer studies at another school said the following,

The pupils' books brought by the Ministry of General Education are of high level for the pupils to comprehend the content. The language in which they are written is too technical and hard for the pupils of low calibre to understand. Therefore, as a teacher, to explain the content to the pupils is really challenging and tiresome. Pupils' level of understanding is too low to grasp the concepts put across before them. In fact, there is no correlation between the computer studies books and the software in the computer system.

One head of department said that computers were not maintained regularly for their effective functioning. He continued to say that ant viruses were not in stored as the school had failed to purchase them. Hence, some of the computers had stopped working. All the respondents said that it was challenging for arranging a room whenever you want to carry out a computer studies practical.

4.5.2 Challenges faced by pupils when learning computer studies.

The following were some of the responses of the respondents in the selected junior secondary schools with regard to the challenges faced by pupils.

One pupil said the following,

We don't carry out computer studies practical; we only write notes every time. We don't even know how to print as there are no printers at this school. We also don't know how to connect computers to power and start typing.

All the pupils said that they did not have computers at their homes where they could practice once they were given notes in computer studies. For that reason, they pointed out that home work in computer studies practical were not given for practicing.

One of the headteachers at one school had the following to say,

Most pupils fail to grasp the concepts because the teachers of computer studies at this school are not qualified to teach the subject hence they fail to explain to the pupils. The language used in text books is too technical for a lay teacher to explain to the level of the pupils to understand.

In support of the sentiment stated by the headteacher above, one pupil had this to say,

Our teacher likes telling stories to us instead of teaching what we are supposed to know in computer studies. The teacher can tell us stories for almost an hour. Then the remaining few minutes, he just gives us notes to write.

Almost all the pupils interviewed in the selected schools complained of not having enough computers for computer studies. They said that they scrambled for who should do the practical first as they were allocated one computer to eight or nine.

One head teacher at one school said that for the entire school, only one class had a solar power. That class was used for computer studies practical and it was used for other activities at the same time. Consequently, computers were not kept in that room every day. Computers were connected during the computer studies practical and disconnected at the end of the lesson. Hence, the pupils were inconvenient and did not learn much where practical lessons were concerned. He continued to say that reading materials (pupil's text books) were not enough for a computer studies lesson.

4.5.3 Challenges faced by the district in the introduction of computer studies as a compulsory subject at Junior Secondary School.

The district had so many challenges in the implementation of computer studies as a compulsory subject in all the junior secondary schools. The District Education Board Secretary had this to say;

- *There is inadequate information and communication technology equipment and accessories. The district had only received ten computers from the government through the Ministry of General Education. Other donations are from the area Member of Parliament and ZICTA. However, these donations were not enough to cater for the entire district.*
- *The district has no standard computer studies laboratory constructed.*
- *The district is lacking well trained teachers in computer studies. Those teachers who are teaching computer studies have qualification in other subject areas rather than computer studies. These teachers just have interest in computers.*

- *Most schools in the district are not connected to either solar or hydro power. There are only two secondary schools and four primary schools in the district that are connected to power. Out of all these six schools connected to power, only five schools offer computer studies. Besides, only one school has a router for internet.*
- *Lastly, the performance as a district in computer studies is very poor because the subject lacks so many things for effective teaching and learning. The pupils also lack the background information as the subject only starts at grade eight.*

Table 3 Availability of computer studies infrastructure, ICT and human resources.

School	Computers	Computer Laboratory	Printer(s)	Text Books	Router(s)	Photocopier(s)	Trained Computer Studies Teachers	Comments
A	✓	**x**	✓	✓	✓	✓	**x**	**At least** **No laboratory** **Not enough** **Not enough** **Present** **present** **Not there**
B	✓	**x**	✓	✓	**x**	**x**	**x**	**Not enough** **No laboratory** **Not enough** **Not enough** **Not present** **Not present** **Not there**
								Not enough **No laboratory** **Only one**

C	✓	**x**	✓	✓	**x**	**x**	**x**	**Not enough** **Not present** **Not present** **Not there**
D	✓	**x**	**x**	✓	**x**	**x**	**x**	**Not enough** **No laboratory** **Not present** **Not enough** **Not present** **Not present** **Not there**

Table 4 Computer literacy level of pupils

Key

✓ = Available

X = Not available

S/n	Use of computers	No. of pupils	Percentage (%)
1	Access to computer at home or internet café	0	0
2	Ability to connect and use computer alone	10	20.8
3	Access to phones at home	44	91.7
4	Exposure to computers at primary school	12	25
5	Access to text books for computer studies	12	25

4.6 Other comments from various respondents.

The District Education Board Secretary said,

As the DEBS, I would like to thank the government to have introduced ICT in schools because it will make everything possible in terms of communication and having updated information globally. It will also enhance interaction amongst learners. Besides, the learners, teachers and administrators will be able to interact at any time and specifically on the part of learners, it will improve their learning.

One head teacher stated,

We are living in a modern society where computer literacy is very much needed. It is evident that everything in the world will be operated electronically. The coming of e-payslip and the application of teachers' licenses online will force everyone to learn computer and thus this will make the learners encouraged because they will see old teachers learning computer technology.

One head of department explained,

We need to have a computer laboratory where all the teachers at school can have access to these computers as many of them are still incompetent in operating computers, we need human resource competent in handling computers who can equally capacity-build the pupils and other people who have challenges when using these computers.

One teacher of computer studies stated,

ICT has come to stay. Therefore, the Ministry of General Education and stakeholders should make sure that ICT is taken seriously and be embraced.

This chapter presented the research findings from four selected schools in Chipili district in line with the research objectives. The following chapter discusses the research findings.

5. CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Overview

This chapter discusses the research findings as guided by the objective of the study and in line with the format of chapter four of this dissertation. The chapter is divided according to the three objectives and the objectives were as followings: To determine the availability of ICT and human resources in the teaching and learning of computer studies in junior secondary schools of Chipili district, to establish the benefits and opportunities acquired in learning computer studies and examine the challenges faced by teachers and pupils in the teaching and learning of computer studies in selected junior secondary schools of Chipili district. The discussion of findings from all the respondents has been integrated.

5.2 Availability of ICT and human resources in junior secondary schools.

The first objective sought to determine whether the much needed ICT and human resources for teaching and learning computer studies were available and adequate in Chipili district.

5.2.1 Availability of ICT resources found in selected schools.

In spite of some ICTs being available in the four junior secondary schools, they were not sufficient and easily accessible not only to teachers but also to learners. For instance, Kashimba primary school, the computers were kept in the office of the deputy head teacher, while at Chipili secondary school computers were kept in the room where meetings were held most of the time and at the same time the room was the department for Mathematics. At Chikaya primary and Mwenda secondary schools the rooms where computers were kept where also used for learning other subjects. Hence, the accessibility was very limited to both teachers and learners. In this regard, the findings for the study are similar to those of other researchers who have investigated ICTs integration in education in Zambia. For example, Isaacs (2007) noted that the penetration and availability of ICTs in Zambian education institutions remains low. Mulima (2014) stated also that the computers at Jasmine secondary school were in different rooms, a situation which made the utilisation of the ICTs at schools somewhat challenging for both the teachers and the learners. Therefore, computer laboratory is necessary for easy access by both teachers and pupils.

Besides, the ratio of the computers to pupils in the selected schools was 1 to 3 up 1 to 10 on average. There was only one school with a router even though it was not in use to the pupils and the rest of teachers. That router was only used when the careers teacher was entering data for examination classes and GCE candidates. There were two schools with two printers each, one school without a printer and one school with only a printer. Two schools had a photocopier each. The records indicated that there was low availability of basic ICT tools in those selected schools. The low number of ICT equipment such as the computer, for example, led to poor learning outcomes as stated by the DEBS and thus posing a very big challenge on the teaching and learning in those schools. This is in line with the study by Arinze et al. (2012) in which they investigated among others the availability of ICT in schools and found that ICT availability in secondary schools was low.

According to the interviews conducted to headteachers to these four selected schools, they stated plainly that the schools had no capacity to procure these teaching and learning ICT tools. They all had to depend on donors and from government through the Ministry of General Education.

5.2.2 Availability of human resource

All the respondents (100%) agreed that computer studies had to continue being taught in schools despite of numerous challenges in the teaching and learning of the subject. The teachers of computer studies, even if they had different qualifications, embraced the introduction of computer studies in junior secondary schools. For this reason, it was imperative that teachers and pupils appreciated the relevance of ICT available in schools because their appreciation shall institute a positive attitude towards these technological innovations in the teaching fraternity. Basing on this positive attitude, it is vital that a conducive atmosphere for teaching and learning is welcomed for the desired outcomes to be achieved by the government so that educational standards are improved in the nation. The main essence of imparting technological ideals in pupils is to produce the minds that are well informed socially, politically and morally in the modern society. This was in conformity with Leach (2008) as quoted by Tedla's (2012) research who indicated that the use of ICTs in schools is crucial for the development of economic and social change worldwide. Just in the same vein, kozman (2010) in Tedla (2012) who stated that ICT plays a major role in developing countries to go through economic, political, social and cultural development. Hence, the

availability of ICT tools has to be embraced as it is the only way to modern development in the teaching fraternity.

In all the schools sampled, it was seen that the introduction of computer studies as a compulsory subject had teachers assigned to be teaching even though the findings showed that the was imperative as the subject had teachers assigned to be teaching even though the findings showed that there was no qualified teacher for computer studies in the entire district. All the teachers who were teaching computer studies had qualifications in other subjects. Therefore, the introduction of computer studies as a compulsory subject in 2014 was done in the haste as there are no qualified teachers up to now. Hence, those teachers who had volunteered to teach the subject had various challenges in teaching and learners had also challenges in learning the new subject.

The study done by Tedla (2012) reviewed factors that surround ICT integration in teaching and learning and factors inhibit the use of ICTs. It was reviewed that among the inhibiting factors were lack of teacher technological literacy, competence, confidence, and lack of pedagogical skills. Furthermore, the study by Tedla reviewed that ICT integration was far behind in the East African schools because of ICT absence of well qualified teachers. The East African challenges had been also seen in Zambian schools, more especially in rural district such as Chipili district schools. Suffice to state that the study findings by Imasiku et al (2012) confirm that the major challenges of ICT in the education sector include teachers' inexperience. It can be deduced that for good performance to be achieved and to minimise the challenges, teachers must be equipped with necessary knowledge and skills in ICT.

5.2.3 The needed available resource materials for teaching and learning of ICT.

In order for the performance of pupils to improve, the Government through the Ministry of General Education and other stakeholders must provide much needed resources such as providing of basic necessary ICT tools and construction of standard computer laboratories. It can be noted that the teaching and learning in the Ministry of General Education had been influenced by the technological changes taking place in the modern society. This is equally supported by what is stated in the revised curriculum of 2012 which states," policy has since become the basis of all educational strategies that ensure the provision of quality education through suitable teaching and learning of education system. The curriculum review need to take into account the challenges that prevail in education and opportunities that are gotten after one has completed basic education,"

(MOE, 2012). Just in the same vein, the study conducted by Mikre (2011) also pointed out that ICTs were making dynamic changes in society and were influencing all aspects of life. ICTs provided both teachers and learners with more opportunities in adapting their teaching and learning to individual needs, forcing schools to aptly respond to this technical innovation taking place in the modern society. Moreover, according to the studies done, the usage of ICTs in schools required teachers to have knowledge for it to be fully implemented. Similarly, Rogers (2003) conquers with this view, "the innovation decision process starts with knowledge usage. In this step an individual learns about the existence of an innovation and seeks information about the innovation." This entails that the comprehension of the innovation (ICT) is too technical to determine the teachers' attitude towards it. The research also revealed that teachers of computer studies in those schools needed knowledge on ICTs available, intensive training and had to continue upgrading their knowledge as technology is equally not static. Cavas et al (2009) argues that ICTs can have a useful effect on teaching and learning if used correctly and if it comes from the right source.

5.3 Establishing the benefits and opportunities acquired in learning computer studies.

The second objective study sought to establish the benefits and opportunities acquired in learning computer studies.

5.3.1 Benefits of introducing computer studies in schools.

The findings revealed that the introduction of computer studies in junior secondary schools had various benefits to schools. The subject teachers of computer studies in the four junior secondary schools revealed that computers had made it easy and convenient to prepare test items even at short notices. This was because the same test items prepared were kept in the computer as soft copy which made it possible to refer to them in future. They also revealed that the typed test were of improved quality and standards because they were able to download on the internet past examination papers and refer to them. The findings were similar to that of Matovu (2009) who found that teachers utilised ICT in preparation of test questions. The findings were also similar to that study of Mkwara (2014) which revealed that 95% of sampled schools used ICT in typing of internal examination. The study further established that the use of ICTs had great impact on the registration of examination candidates. With regard to the statement availability of ICT facilities makes ECZ registration of candidate to be convenient. The headteachers also had the opinion that ICTs had very great impact on the registration of candidates. As such it was conclusively

discovered that ICTs had impacted greatly on examination registration in the studied schools. Similarly, the study of kitoo (2012) found that computers assisted in the preparation of test in secondary schools.

Furthermore, the research revealed that ICT cut across disciplines affecting society and countries around the globe, therefore, its importance cannot be underestimated if the education system is to produce critical thinkers. The findings were similar to viitanen's in Tedla (2012) thinking that ICTs provide opportunities to stimulate learning and increase motivation that enables teachers and pupils to interact productively with other communities and global economies in a wider and higher scope. This could be achieved through making computer studies a compulsory subject.

5.3.2 Benefits of introducing computer studies to learners.

It was evident that computer studies added value to the pupils who were learning it. The two headteachers at two schools pointed out that learners become well informed citizens who are able to critically reason, solve societal and personal problems and are able to contribute to the growing economy of the country. Similarly, the ideas of MCT (2006) points out that ICTs are enabler to build information centre society where everyone can create, access, utilise and shared information and knowledge. Besides, this would lead to greater productivity, comprehensiveness and sustainable growth which eventually will reduce the poverty level, particularly, among the youths in society.

In the same vein, the DEBS of Chipili district stated that learners would acquire necessary skills in computer studies (ICT) that would assist them in future even if the performance at grade twelve is very poor. He added that the learners would become entrepreneurs and become self reliant.

Generally, computer studies in all the schools visited was absolutely used for teaching and learning. Pupils were not exposed to various aspects of ICTs but only for learning purposes. There was no respondent starting from the DEBS to the learners who mentioned co-curricular information being applied in sports particularly in physical education. ICTs could still be applied in co-curricular activities; however, at the time when study research was conducted was not the case. These findings were similar to Lufungulo (2015) who also found that ICTs were limitedly used for co-curricular activities such as clubs hence the need to extend is necessary in the modern

society. This implies that there is need to ensure that sports association, clubs, stadiums and other sports facilities manage knowledge and information more effectively and efficiently using ICTs.

5.4 Examining challenges faced by teachers and pupils in the teaching and learning of computer studies in selected junior secondary schools of Chipili district.

The third objective study sought to identify the challenges faced by teachers and pupils in teaching and learning of computer studies in the four selected junior secondary schools of Chipili district.

The findings revealed that the introduction of computer studies as a subject in Chipili district had come to stay even though there had been challenges facing the teachers, pupil and the district as the whole. The main challenges identified in the introduction of the computer studies in Chipili district were lack of qualified teachers, lack of infrastructure, lack of time, insufficient funds, lack of enough resources, lack of internet and maintenance.

5.4.1 Lack of ICT, financial and human resource.

The findings revealed that the schools selected for the research had insufficient resources to support the introduction of computer studies. For instance, the common ratio of computers to pupils in the four selected schools visited was one to seven. Only one school had a reasonable ratio of one to two. It was discovered that due to the abnormal ratio, it was actually difficult for the inexperienced teachers of computer studies to teach practical as the pupils were too many to one computer. Furthermore, there were other resources that these schools lacked in the teaching and learning of computer studies. Such devises like printers, scanners, photocopiers, projectors, to mention but a few were lacking in the studied schools. The school may have the computers and printers but the other resources were not available. One school had only computers without having other valuable devises.

Schools' lacking essential resources was regarded as one of the biggest challenges in Chipili and that hindered the performance of learners. Resources, on the other hand, are vital for the successful implementation of teaching and learning of computer studies at junior secondary schools. Besides, everything revolves around sufficient resources provided.

The study results as well reviewed that the entire district did not have trained teachers of computer studies. For this reason, it was noted that teachers of computer studies failed to explain fully the

basic concepts to the pupils. Furthermore, teachers' lack of knowledge and skills were the main hindrances in the effective teaching and learning of computer studies in schools (Tapan, 2012). A study of four schools surveyed showed that 100% of the teachers that teach computer studies in those schools had not acquired the right qualifications. Lack of knowledge regarding the teaching of computer studies and lack of skills on ICT devices and software have also limited the use of ICT devices in teaching and learning of this subject. Tapan (2012) states that if there is lack of appropriate staff training and quality training for teachers the results will always be very poor.

It was revealed that 75% of the schools studied did not have a router for the internet. The school which had a router did not connect the teachers and learners to the internet. The router was only used once per year that is when registering the internal and external candidate for examinations. The schools were not connected to the internet because they could not afford the high fees charged by the internet service providers such MTN Zambia, Airtel, and Zamtel. It was clear that schools did not have enough funds for the maintenance and support of the computing facilities. One school confirmed that it had even failed to repair the broken printer due to lack of funds at school as the government had stopped supplementing the funds paid by pupils. Goktas et al (2011) state that effective and efficient use of technology depend on availability of hardware, software and having access to resources by teachers, learners and administrative staff.

It was discovered that in those schools it was hard when it came to implementing technology into education system because it involved substantial funding by the government. Moreover, the teaching aids for ICT demanded a lot of funds and setting up the infrastructure, maintenance and support of ICT facilities were some of the problems that schools were facing.

5.5 Relationship of conceptual and theoretical framework in teaching and learning of computer studies in junior secondary schools.

The research was premised on the conceptual framework which enabled the researcher to examine the resources and identify the challenges surrounding the introduction of computer studies. Besides, theoretical framework is based on the modernization theory as a way of modernizing the teaching and learning in junior secondary schools.

5.5.1 Conceptual framework in relation with the challenges and opportunities of introducing computer studies.

In the process of the conceptualization, different scholars had adopted different approaches to comprehend the nature and dimension of it. These formulations can be broadly classified into various categories but according to this category, technological formulation was adopted. Figure one shows how the concept was used to determine the challenges and opportunities of computer studies in modern society, specifically in the selected junior secondary schools. To overcome the challenges all, the appropriate resources should be available and be used appropriately. In such formulations, therefore, modernization is associated with material inputs and developmental infrastructures, which bring about qualitative and progressive mobilization of resources.

5.5.2 Five valuable sets of modernization that make a link to teaching and learning of computer studies.

Modernity is assumed to have five sets of valuables and these, according to their progression, are as follows: modernization institution→modern value → modern behaviour → modern society→ economic development.

I. Modernization institution is linked to the services provided by MTN, Airtel, Vodacom and Zamtel. The institutions such as schools, colleges and universities are also link to modernization institutions.

II. Modern values are values that are learned through the teaching and learning from modernization institutions.

III. Modern behavior. In the recent years, technology has changed the behavior of most people from tradition way of manipulating things to modern. Therefore, modern behavior is the way in which modern technology is transforming lives of people and the way they access information through the use of computer, via the internet. Besides, mobile phones are used for communication and accessing data from the internet.

IV. Modern society is the main essence of introducing computer studies at junior secondary so that the community at large can be computer literate through their children.

V. Economic development. The economy of any given society can develop when its citizens are able to integrate scientific and technical knowledge in their day to day work. Apart from this, the industrial development needs the labour force which is skilled with technological skills for the creation of speed economy.

5.5.3 The characteristics of modernization that are linked to computer studies teaching and learning.

I. Computer studies (ICT) is now taught globally starting from early stage that is it is taught at pre-schools.

II. ICT is operated systematically according to its operational processes and certain pattern in the system.

III. It acts as an inter-disciplinary, that is, communication can be done through various means such as internet calling worldwide, through phones, WhatsApp, chatting through Skype and messenger and many more.

IV. It is interrelation to different educational activities within the framework of one common system.

6. CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Overview

The previous chapter looked at the discussion of findings and the discussion was according to the objectives. Therefore, this chapter presents the conclusion and recommendations of the study and they were according to the objective of the study as well. The objectives of the study were: To determine the availability of ICT and human resources in the teaching and learning of computer studies, to establish the benefits and opportunities acquired in learning computer studies and to examine the challenges faced by teachers and pupils in the teaching and learning of computer studies in selected junior secondary schools of Chipili district.

6.2 Conclusion

The following conclusions were made based on the findings of the study:

1) The selected schools under study had no trained teachers for computer studies and materials for computer studies were inadequate for the smooth learning of the subject.
2) The headteachers, teachers and the learners were for the idea that computer studies must continue being offered in schools despite the shortenings faced by the schools and the learners.
3) There was ineffective and inefficiency in the teaching and learning of computer studies.
4) The schools faced a lot of challenges in the delivery of computer studies lessons in schools. These challenges included financial constraints and absence of basic infrastructure.
5) The learner lacked the background information on ICTs; therefore, teachers had great challenges in putting the concepts across.

6.3 Recommendations

Based on the results and findings of the research study, the following recommendations are hereby made:

1) Basic equipment and infrastructure such as computers and other ICTs facilities should be put in place to facilitate the basic computer skills among teachers and pupils in junior secondary schools.
2) Teachers should be encouraged to use computers whenever they are teaching practical in computer studies.
3) More qualified teachers of computer studies should be employed for effective teaching and for the subject to have the value it deserves.
4) Computer education should be taught in all primary and secondary schools. Also computer studies should be made a core subject in the senior secondary classes.
5) The government through the ministry of education should take kin interest in the teaching and learning of computer studies as it is a policy that computer studies should be offered at junior secondary school.

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APPENDICES

Appendix (i)

Questionnaires

QUESTIONNAIRE FOR SCHOOL COMPUTER STUDIES TEACHERS/HEAD OF DEPARTMENT FOR ICT

RESEARCH TOPIC: Challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia.

I am Chanshi Bornventure, a student from The University of Zambia and Zimbabwe Open University and am conducting a research on the challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia. If you could take a few minutes to complete the questionnaire I will be very grateful. This information will be purely used for academic purposes only and privacy is highly assured.

INSTRUCTIONS

1. Do not write your name on the questionnaire.
2. Tick (√) appropriately in the boxes and write in the spaces provided.

SECTION A: Background information

1. Gender

a. Male [ ]

b. Female [ ]

2. **Age**

a. Below 30 years [ ]

b. 30- 40 years [ ]

c. 40-50 years [ ]

d. Above 50 years [ ]

3. Highest academic qualification attained:

a. Certificate [ ]

b. Diploma [ ]

c. Degree [ ]

d. Masters [ ]

e. Doctorate [ ]

4. Period of teaching ICT (Grades 8 and 9)

a. Below 5 years [ ]

b. 5-10 years [ ]

c. Above 10 years [ ]

SECTION B: Status of the school

1. What kind of a school is this?

   a. Secondary
   b. Junior secondary
   c. Primary

2. When was computer studies introduced at this school? …….

3. Has the school participated in the National Examination in computer studies?

   a. Yes [ ] b. No [ ]

4. If yes, how many times? .....

5. State some of the challenges you encounter in the teaching of computer studies at this school.

a. …….

b. …….

c. …….

d. …….

e. …….

f. …….

6. State the benefits that your school as accrued in using ICTs.

a. ……..

b. ……..

c. ……...

d. ……...

e. ……

f. …….

7. State the benefits that the learners will accrue in learning computer studies.

a. …….

b. ……

c. …….

d. ……

e. …….

f. …….

8. What do you think can be done in order to improve and enhance the teaching and learning of computer studies at this school and in Zambia in general?

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……

THANK YOU

Appendix (ii)

Interview schedules

INTERVIEW GUIDE FOR EDUCATIONAL OFFICIALS

(DEBS/DESO)

Dear Sir/Madam,

I am Chanshi Bornventure, a student from The University of Zambia and Zimbabwe Open University and am conducting a research on **the challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia**. This information will be purely used for academic purposes only and privacy is highly assured. Your cooperation will be highly appreciated.

1. Gender

a. Male [ ]

b. Female [ ]

2. Computer studies resources

a). When was computer studies introduced in this district? ……..

b). Do all the schools, with grades eight and nine, offer computer studies? ……

c). What computer studies materials and equipment has the Ministry of Education provided in schools?

……

……..

d). Is there any new curriculum provided to junior secondary schools? …….

e). How many computers have been distributed to junior secondary schools in this district? …….

f). What was the criteria used to distribute computers in schools? ……

g). What teaching and learning materials has been provided for computer studies at junior secondary?

h). How many qualified teachers of computer studies are in this district? ……

i). As a district, what are some of the challenges are you facing with the introduction of computer studies in junior secondary schools?

…….

……..

……..

……

j).What are some of the benefits do learners acquire in learning computer studies?

……

……

……

……..

Is there any important information which you can give in support of this research?

If yes, please give it me.

THANK YOU.

INTERVIEW GUIDE FOR EDUCATIONAL OFFICIALS

(HEAD TEACHER)

Dear Sir/Madam,

I am Chanshi Bornventure, a student from The University of Zambia and Zimbabwe Open University and am conducting a research on **the challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia**. This information will be purely used for academic purposes only and privacy is highly assured. Your cooperation will be highly appreciated.

1. Gender

a. Male [ ]

b. Female [ ]

2. General questions

a). When was computer studies introduced at this school? …….

b). How many classes (at junior secondary) take computer studies? ……..

c).What are some of computer studies materials and equipment have you received from the donors or from the Ministry of Education?

……

……..

d). Is there any new curriculum provided to this schools? …….

e). How many computers, used for computer studies, do you have? ……

f). How many printers, used for computer studies, do you have at this school? ……...

g). How many pupils taking computer studies at junior level? ……

h). As a school, have you ever purchased computer materials or equipment?

YES [ ] NO [ ]

If yes, what are these? …….

……..

i). How many qualified teachers of computer studies do you have at school? ……..

j) What are the challenges do teachers of computer studies face?

……

……

……

k) What are the challenges do pupils who are taking computer studies face?

……

……

……..

l). As a school, what challenges are you facing with the introduction of computer studies at junior secondary level?

…….

……..

……..

……

m) Suggest ways by which the government or this school can solve these problems.

(1) Government. …….

…….

……

(2) School. …….

……

…….

n). What benefits do learners acquire in learning computer studies?

……

……

……

……..

o) Is there any need of making computer studies as a compulsory subject at junior secondary school?

YES [ ] NO [ ]

(1) If yes, what is the need? ……

……

(2) If no, give a reason. ……

……

……

THANK YOU.

INTERVIEW GUIDE FOR TEACHERS OF COMPUTER STUDIES/HEAD OF DEPARTMENT OF ICT

RESEARCH TOPIC: **Challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia.**

I am Chanshi Bornventure, a student from The University of Zambia and Zimbabwe Open University and am conducting a research on **the challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia**. This information will be purely used for academic purposes only and privacy is highly assured.

SECTION A: Background information

1. Gender

a. Male [ ]

b. Female [ ]

2. **Age**

a. Below 30 years [ ]

b. 30- 40 years [ ]

c. 40-50 years [ ]

d. Above 50 years [ ]

3. Highest academic qualification attained:

a. Certificate [ ]

b. Diploma [ ]

c. Degree [ ]

d. Masters [ ]

e. Doctorate [ ]

4. Period of teaching ICT (Grades 8 and 9)

a. Below 5 years [ ]

b. 5-10 years [ ]

c. Above 10 years [ ]

SECTION B: Status of the school

1. What kind of a school is this?
    a. Secondary
    b. Junior secondary
    c. Primary

2. When was computer studies introduced at this school? …….

3. Has the school participated in the National Examination in computer studies?

    a. Yes [ ] b. No [ ]

4. If yes, how many times? .....

SECTION C: Challenges and resources

1. What are the challenges do you encounter in the teaching of computer studies at this school?

……

……

……

……

……

2. Is there a computer laboratory at this school? ……

3. How many computers does the school have? ……..

4. Who provided these facilities (computer lab and computers) ……

5. How many classes (grades 8 and 9) take computer studies? ……

6. Are there teacher's handbooks for computer studies? …….

7. Are there pupils' books for computer studies? …….

8. Are there supplementary books for computer studies? ……

SECTION D: Curriculum and syllabus

1. Does the school have the revised curriculum?

2. Does the school have a syllabus in computer studies?

3. How many periods allocated for computer studies to each grade 8 and 9 classes?

4. Do you offer homework in computer studies practical?

SECTION E: TEACHERS

1. How many teachers of computer studies are at this school?

2. What grades do you teach?

3. What is your highest qualification do you have for teaching computer studies?

4. Where did you acquire your qualification?

5. Do the pupils have the interest in learning computer studies?

6. What is the ratio of teacher to pupil?

7. What is the ratio of computer to pupil?

8. Do pupils have computers at home?

9. Do they have access to the computers at home?

INTERVIEW GUIDE FOR PUPILS (GRADES EIGHT AND NINE)

RESEARCH TOPIC: Challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia.

I am Chanshi Bornventure, a student from The University of Zambia and Zimbabwe Open University and am conducting a research on the challenges and opportunities of the introduction of computer studies in selected junior secondary schools in Chipili district, Zambia. This information will be purely used for academic purposes only and privacy is highly assured.

SECTION A: Background information

1. SEX

a. Male [ ]

b. Female [ ]

2. **Age**

a. Below 14 years [ ]

b. 14- 18 years [ ]

d. Above 18 years [ ]

SECTION B: Miscellaneous questions

1. Where you exposed to computers in primary?

Yes [ ] No [ ]

2. At this school, do you have computers?

Yes [ ] No [ ]

3. Are they enough for all of you?

Yes [ ] No [ ]

4. Do you have a computer at home?

Yes [ ] No [ ]

5. Do you have a cell phone at home?

Yes [ ] No [ ]

6. Are you given home work on computer studies practical?

Yes [ ] No [ ]

7. If you are given, how do you answer these practical questions?

……..

……..

8. Do you have enough pupils' text books?

Yes [ ] No [ ]

9. Do you have interest in learning computer studies?

Yes [ ] No [ ]

10. Do you agree that computer studies should continue to be a compulsory subject?

Yes [ ] No [ ]

11. As a pupil, what challenges do you face in learning computer studies?

a. …….

b. …….

c. …….

d. …….

e. …….

12. What do you think can be done to better improve the standards of computer studies?

……..

……..

13. What do you think should your parent/guardian do for you to do better in computer studies?

…….

…….

14. What benefits have you acquired in learning computer studies at this level?

a. …….

b. …….

c. …….

d. …….

e. …….

THANK YOU

APPENDIX (iii)

INTRODUCTORY LETTER FROM THE DISTRICT EDUCATION BOARD SECRETARY-CHIPILI DISTRICT

All Correspondence should be addressed to
District Education Board Secretary
Email: chipilideba @gmail.com

In reply please quote
No: .....

REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION
OFFICE OF THE DISTRICT EDUCATION BOARD SECRETARY
P.O. Box 710299
CHIPILI - MANSA

7TH June, 2018

TO ALL SCHOOLS IN CHIPILI DISTRICT

REF: INTRODUCTORY LETTER – CHANSHI BONAVENTURE (TS 164467)

This serves to introduce the bearer of this letter to your school who is a student with the University of Zambia in collaboration with Zimbabwe Open University. He is pursuing a Master of Education in Education Management.

In your school, he would like to carry out a research on the challenges and opportunities of the introduction of computer studies in Chipili district of Zambia

Kindly give him the much needed support to enable him conduct his research successfully.

Mwangula G.L
District Education Board Secretary
CHIPILI

REPUBLIC OF ZAMBIA
MINISTRY OF GENERAL EDUCATION
18 JUN 2018
CHIPILI DISTRICT EDUCATION BOARD
P.O. BOX 710299