

**EXPERIENCES OF TEACHERS AND LEARNERS IN THE TEACHING AND  
LEARNING OF COMPUTER STUDIES AT GRADE 9 LEVEL IN SELECTED  
SECONDARY SCHOOLS IN LUANSHYA DISTRICT, ZAMBIA**

**BY**

**KABUNDULA PELEKELO**

**A Dissertation submitted to the University of Zambia in partial fulfillment of the  
requirements for the award of the Degree of Master of Education in Educational  
Psychology**

**The University of Zambia**

**Lusaka**

**November, 2017**

## **COPYRIGHT**

All copyrights reserved. No part of this dissertation may be reproduced, stored in any retrieval system, transmitted in any form or by any means, electronic, recording, photocopying or otherwise without prior permission in writing, from the author or the University of Zambia.

© 2017

## DECLARATION

I, **Kabundula Pelekelo** do hereby declare that this piece of work entitled, '*Experiences of teachers and learners in the teaching and learning of computer studies at grade 9 secondary school level in Luanshya District*' is my own, and that all the works of other persons have been duly acknowledged, and that this work has not been previously presented at the University of Zambia and indeed at any other University for similar purposes.

Signature (Candidate)..... Date..... 2017

Signature (Supervisor)..... Date..... 2017

## CERTIFICATE OF APPROVAL

This dissertation of **Kabundula Pelekelo** has been approved as a partial fulfillment of the requirements for the award of the Degree of Master of Education in Educational Psychology of the University of Zambia.

NAME OF EXAMINER	SIGNATURE	DATE
1. ....	.....	..... 2017
2. ....	.....	..... 2017
3. ....	.....	..... 2017

## **ABSTRACT**

The thrust of the study was to investigate experiences of teachers and learners in the teaching and learning of computer studies at junior secondary school level in three selected secondary schools of Luanshya District. The objectives of the study were to: Investigate experiences of teachers and learners in the teaching and learning of computer studies, establish the benefits of teaching and learning of computer studies and ascertain challenges faced by teachers and learners in the teaching and learning of computer studies in Luanshya District. A sample of nine (09) teachers and thirty (30) learners was purposively drawn from three secondary schools in Luanshya District. Interpretive phenomenological research design was utilised. Data was collected through face-to-face interviews, focus group discussions, and non-participant observation. Data was analysed using interpretative phenomenological analysis.

The study found that teachers and learners experienced the teaching and learning of computer studies was done twofold, theory and practice and this positively empowered them with various long life technological skills such as browsing, typing and researching via internet. The study also revealed benefits of computer studies to teachers and learners such as; increased participation in research; modified methods of teaching and learning from teacher-centred to learner-centred promoted individualised learning, interactive atmosphere, communication skills, new administration functions, teaching and learning of other subjects; and shaped the entrepreneurial career aspirations.

Furthermore, the study found that teachers and learners faced challenges such as lack of teaching and learning equipment other ICT facilities; incidences of power outages; lack of modern school computer laboratories; inadequate trained personnel; negative attitudes from parents toward the teaching and learning of computer studies; lack of funding from Government; limited time; overcrowding of classes; and high rate of theft of computers in schools.

In view of the foregoing, the study recommended that Ministry of General Education should embark on more sensitisation campaigns through the holding of educative workshops of computer studies, purchasing of relevant teaching and learning materials, incorporating the teaching and learning of computer studies for teachers at university and college levels in order to enable them fully utilise available computer and ICT facilities in schools, empowering schools with funds to purchase generators and need for modern and well equipped school computer laboratories.

**Key Words:** Experiences, Computer Studies, Junior Secondary School Level, Teaching

## **DEDICATION**

I am indebted to my wonderful family for the moral and financial support they have rendered to me, not only through the completion of this dissertation but throughout my life. Therefore, I dedicate this dissertation to my loving, patient and understanding wife, Exildah, who accommodated the pressure for all the years of my study. I must also thank my caring and loving father Mr. Moses Kabundula; mother Mercy Nawa; terrific sister, Ruth and brothers, Chrispin, Kahilu, Kabundula, Nalishebo, and Brian who helped me so much and gave me their fullest understanding by foregoing the attention and support they needed most from me and believed in diligence and pursuit of academic excellence.

## ACKNOWLEDGEMENTS

I would love to thank the Almighty God for giving me this rare opportunity to pursue my postgraduate studies with success. I shall always remain indebted to him for it is only in God that all things are made possible.

I would like to express my sincere and heartfelt gratitude to my able supervisor Dr. Sylvia Mwanza Kabaghe for her invaluable assistance, guidance and encouragement during the undertaking of my study. She determinedly advised and groomed me so well that I have become a better intellectual in the realm of educational psychology. I appreciate and value her remarks and submissions that molded and polished my academic work. I learnt so much, and for this, I will remain indebted to her. I profoundly realise that this dissertation would not have been successful without her constant commitment. Her seriousness and dedication toward academic work and life in general is a virtue I will live to emulate.

Special gratitude is also extended to Dr. P.C. Manchishi, Dr. B. Matafwali, Dr. S. Kasonde-Ng'andu, Dr. G. Masaiti, Dr. B. Kaani, Dr. E. Munsaka, Dr. A Akakandelwa and EDR 5010 lecturers in the School of Education for their wonderful lectures that helped me understand the various aspects of research and proposal writing. Further, I would be failing in my duties as a researcher if I did not thank the office of the District Educational Board Secretary (DEBS), Luanshya for the wonderful support they rendered during the undertaking of this study. Furthermore, I wish to thank all the participants who were teachers and learners for participating in this study and not forgetting school administrators for allowing me to use their school facilities in collecting data. Without them, this study would have been in vain.

Not forgetting my entire programme colleagues especially Mr. Emmanuel, Mr. Brian, Mr. Genesis, Mr. Kabungo and Ms. Likando for their cordial and valuable contributions as well as

the spirit of team work towards this dissertation. For this, I say thank you very much and may God bless you and your families.



## TABLE OF CONTENTS

COPYRIGHT .....	i
DECLARATION .....	ii
CERTIFICATE OF APPROVAL.....	iii
ABSTRACT.....	iv
DEDICATION.....	v
ACKNOWLEDGEMENTS.....	vi
LIST OF TABLES.....	xi
LIST OF FIGURES .....	xii
LIST OF APPENDICES.....	xiii
ACROYNMS.....	xiv
<b>CHAPTER ONE: INTRODUCTION.....</b>	<b>1</b>
1.1. Overview .....	1
1.2. Background to the study.....	1
1.3. Statement of the Problem.....	3
1.4. Purpose of the Study .....	4
1.5. Objectives of the Study .....	4
1.5.1. General objective.....	4
1.5.2. Specific objectives.....	4
1.6. Research questions .....	4
1.7. Significance of the Study .....	5
1.8. Theoretical Framework .....	5
1.9. Delimitations .....	7
1.10. Limitations .....	7
1.11. Operational Definition of Terms.....	7
1.12. Summary of the Chapter .....	8
<b>CHAPTER TWO: LITERATURE REVIEW.....</b>	<b>9</b>

2.1. Overview .....	9
2.2. Global Literature on Computer Studies in Education .....	9
2.3. African Literature on Computer Studies in Education.....	17
2.4. Zambian Literature on Computer Studies in Education.....	24
2.6. Summary of the Literature review .....	28
<b>CHAPTER THREE: METHODOLOGY .....</b>	<b>29</b>
3.1. Overview .....	29
3.2. Philosophical Paradigm.....	29
3.3. Research Design.....	30
3.4. Study Population .....	31
3.5. Sample Size .....	31
3.5.1. Demographic characteristics of the participants .....	32
3.6. Sampling Techniques .....	35
3.7. Research Instruments .....	37
3.7.1. Semi-Structured Interview Guide (SSIG).....	37
3.7.2. Focus Group Discussion Guide (FGDG).....	37
3.7.3. Non-Participant Observation (NPO) .....	38
3.8. Data Quality Assurance (DQA) .....	38
3.9. Data Collection Procedure .....	39
3.10. Data Analysis .....	40
3.11. Ethical Considerations.....	41
3.12. Summary of the Chapter .....	41
<b>CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS .....</b>	<b>43</b>
4.1. Overview .....	43
4.2. Experiences of teachers and learners in computer studies. ....	43
4.2.1. Teachers' experiences.....	44

4.2.2. Learners' experiences .....	48
4.3. Benefits of teaching and learning of computer studies in schools .....	54
4.3.1. Views of teachers.....	54
4.3.2. Views of learners .....	56
4.4. Challenges faced by teachers and learners in computer studies in schools. ....	58
4.4.1. Views of teachers on challenges faced in computer studies .....	58
4.4.2. Views of learners on the challenges faced in computer studies .....	59
4.5. Summary of the chapter .....	60
<b>CHAPTER FIVE: DISCUSSION OF FINDINGS.....</b>	<b>62</b>
5.1. Overview .....	62
5.2. Experiences in the Teaching and Learning of Computer Studies .....	62
5.3. Benefits of Teaching and Learning of Computer Studies .....	66
5.4. Challenges Faced by Teachers and Learners in Computer Studies .....	73
5.5. Summary of the Chapter .....	80
<b>CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS .....</b>	<b>82</b>
6.1. Overview .....	82
6.2. Conclusion.....	82
6.3. Recommendations .....	83
6.4. Areas for further research.....	84
<b>REFERENCES.....</b>	<b>85</b>
<b>APPENDICES .....</b>	<b>92</b>

## LIST OF TABLES

Table 1: Teachers' gender .....	32
Table 2: Learners' gender .....	33
Table 3: Teachers' Age .....	33
Table 4: Learners' Age .....	34
Table 5: Teachers' qualifications .....	34
Table 6: Teachers' number of years in service.....	35
Table 7: Teachers' responses on whether computer studies was taught.....	44
Table 8: Number of periods allocated for computer studies in a week .....	47
Table 9: Class enrolment for computer studies in the three sampled schools .....	48
Table 10: Computer equipment and accessories per school .....	50
Table 11: Responses of learners on the benefits of computer studies .....	56
Table 12: Challenges faced in computer studies as observed by learners .....	59

## **LIST OF FIGURES**

Figure 1: Learners presenting using power point .....	46
Figure 2: computer laboratory for school A .....	51
Figure 3: computer laboratory for school B.....	52
Figure 4: A view of school classroom used as a computer laboratory at school C .....	53
Figure 5: Views of teachers on challenges faced in the teaching of computer studies.....	58

## **LIST OF APPENDICES**

<b>APPENDIX A:</b> Consent Form .....	92
<b>APPENDIX B:</b> Semi-Structured Interview Guide For Teachers.....	94
<b>APPENDIX C:</b> Focus Group Discussion Guide For Learners .....	96

## ACROYNMS

CS	Computer Studies
DEBS	District Education Board Secretary
DPEP	District Primary Education Programme
DQA	Data Quality Assurance
FGDG	Focus Group Discussion Guide
ICS	Information Computer Studies
ICT	Information and Communications Technology
ICTs	Information and Communications Technologies
MoCT	Ministry of Communication and Transport
MoE	Ministry of Education
MoGE	Ministry of General Education
MoESVTEE	Ministry of Education, Science, Vocational Training and Early Education
MoT	Ministry of Transport
NEPAD	New Partnership for African Development
NGO	Non-Governmental Organisation
NPO	Non-Participant Observation
PEOs	Provincial Education Officers
PC	Personal Computer
PTA	Parent Teacher Association
SSIG	Semi-Structured Interview Guide

TEHAMA	Teknolojia ya Habari na Mawasiliano
UNEB	Uganda National Examination Board
WSIS	World Summit on the Information Society
ZPD	Zone of Proximal Development



# CHAPTER ONE: INTRODUCTION

## 1.1. Overview

This chapter focuses on the background to the study, statement of the problem, purpose of the study, objectives, research questions and significance of the study. Furthermore, it covers the theoretical framework, delimitation, limitation and operational definition of terms used in this study.

## 1.2. Background to the study

World over, there is a strong call for the general populace to be well vested with knowledge and skills of computers. As such, computers have become part and parcel of peoples' lives and work in today's world (MoE, 2011). As a skill-based subject, computer studies is designed to meet the needs of this modern world. In this vein, the need for computer studies cannot be overemphasised especially for third world citizens who need to compete for jobs in the same market where would-be employers insist on essential skills for their employees. On this premise, it is imperative that education should come in as an equalising force to foster the acquisition of the essential skills required by teachers and learners (Guyen, 2008).

Zambia's' ICT policy through the implementation of computer studies within the entire education sector is meant to support administration, teaching, learning and research (MoCT, 2006). The vision is to contribute towards reaching innovative and lifelong education and training in Zambia by 2030. The Education Strategy intends to harness the potential of information technology to significantly improve policy formulation, planning, management and the delivery of education services and to provide managers, teachers and learners with the

opportunity to access vast sources of information. Computer-aided education was initially introduced in Zambia as an innovative activity under the District Primary Education Programme (DPEP). Information Communication Technology (ICT) entered the education sector through DPEP.

Through the initiative of ICT and computer studies, the Government thought of improving the education system in Zambia by changing the curriculum. “The Zambia Education Curriculum Framework has two career pathways namely, academic and vocational (MoESVTEE, 2013). In line with this approach is the desire by the Ministry of General Education to improve the quality of education in Zambia to ensure that the Ministry contours with the fast growing pace of technological advancement. The Zambia Education Curriculum Framework is among other innovations that have been introduced due to the new areas of knowledge and skills such as computer studies. With these changes, teaching and learning of computer studies is now compulsory at junior secondary level be it in the community, Government or private schools (MoESVTEE, 2013).

The big question however, was what measures did the Ministry of General Education put in place to ensure that there was successful teaching and learning? While the introduction of computer studies is welcome and being taught in most schools, the teaching of computer studies still remains a daunting assignment in both rural and urban schools. This is because, most rural and urban schools country wide have no infrastructure, trained teachers or enough equipment to support the teaching and learning of subjects such as computer studies and yet teachers and learners in these disadvantaged schools are required to teach and learn computer studies (MoESVTEE, 2013).

Current times have called for an integration of education with computer studies because ICTs create new learning and teaching possibilities. Therefore, gone are the days when a computer was a luxury, it is now a necessity for education development due to high demand for basic computer knowledge and skills in most careers and in order for one to be competitively functional in the Zambian society today (Sichone, 2011).

The debate is no longer whether to use computers in education in Zambia, but how to do so and ensure equitable access for teachers and learners, whether in urban or rural settings because computer studies was implemented amidst numerous challenges (MoESVTEE, 2013). Therefore, it was imperative to conduct this study which investigated the experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 level of selected secondary schools in Luanshya District.

### **1.3. Statement of the Problem**

Worldwide, the importance of computer literacy has been recognized. This has prompted a number of countries to ensure that their general populaces are well vested with computer skills. Zambia is not an exception to this, for instance, the revised curriculum is among other innovations that have been introduced to ensure that learners are exposed to computers as early as possible. A number of studies done in Zambia have shown the importance of ICT and computers in the education sector (Hadlee and Tamilenth 2013; Mulima, 2014; Lufungulo, 2015 and Phiri, 2016) but none of these studies endeavoured to give an insight on experiences of teachers and learners in the teaching and learning of computer studies in schools in Zambia particularly Luanshya District, a knowledge gap that this study intended to address. It was important to note that without proper research to investigate the experiences of teachers and learners in teaching and learning of computer studies, Government efforts to have a computer

literate population would be in vain as no clear documentation of literature would show the experiences of teachers and learners which are essential for successful implementation of the programme.

#### **1.4. Purpose of the Study**

The purpose of this study was to investigate the experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 level of three selected secondary schools in Luanshya District.

#### **1.5. Objectives of the Study**

##### **1.5.1. General objective**

To investigate the experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District.

##### **1.5.2. Specific objectives**

1. To investigate the experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District.
2. To establish the benefits of teaching and learning computer studies at Grade 9 secondary school level in Luanshya District.
3. To ascertain the challenges faced in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District.

#### **1.6. Research questions**

1. What are the experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District?

2. What benefits does the teaching and learning of computer studies have on teachers and learners at Grade 9 secondary school level in Luanshya District?
3. What challenges are faced in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District?

### **1.7. Significance of the Study**

It is anticipated that greater knowledge on the realities of teaching and learning of computer studies in Zambia's educational institutions like schools may enhance the potential for national and international development in today's globalized world. As such, the researcher may disseminate the study's findings to the Department of Educational Psychology at the University of Zambia and to the selected schools involved in the study as first beneficiaries.

It is also envisaged that the findings of the study may be of great value to policy makers in the Ministry of General Education and other stakeholders as it may enlighten them on the teaching and learning of computer studies in schools. This is because computer skills are compulsory for participation in a more global and international society.

Furthermore, it is hoped that the findings of the study may add value to the existing literature, make recommendations and provide valuable information for further and future academic research because other researchers might build on the knowledge gaps and limitations of the current study.

### **1.8. Theoretical Framework**

The study made reference to the social constructivism theory promulgated by Vygotsky (1978). The theory holds that people construct their own understanding and knowledge of the

world through experiencing things and reflecting on their experiences. This implies that learning is an active, contextualised process of constructing knowledge rather than acquiring it. From this perspective, learners draw upon, connect and analyse their prior knowledge and experiences through self-discovery and interaction with other students and with the teachers. The primary rule is to engage students in inductive, hands-on- activities, group work and integration of knowledge involving more capable people guiding those less capable to understand ideas beyond their developmental level. Vygotsky describes this as the Zone of Proximal Development (ZPD). In this case, an assumption was that teachers and the knowledgeable others in the teaching process of computer studies may act as scaffolds leading learners to the Zone of Proximal Development (ZPD).

Building on the Vygotskian framework, all mental functions are first experienced socially, mutually built, and constructed through social interaction with others. In this way, experiences in social context provide an important mechanism for the development of students' critical thinking, creativity, interactions, communication and understanding (Moran and John-Steiner, 2003).

This study was an attempt to investigate the experiences of teachers and learners in the teaching and learning of computer studies. Therefore, the selection of this theory was based on the appreciation that human beings construct knowledge and meaning from their experiences in the social context and on its goal which relies, as much as possible, on participants' views of the situation being studied. This theory was the most valuable for conceptualizing the optimal teaching and learning experiences of teachers and learners in computer studies in a more persuasive manner, given the purpose of the study at hand.

### **1.9. Delimitations**

The scope of the study was restricted only to three selected secondary schools in Luanshya District which included Grade 9 secondary school teachers and learners of computer studies.

### **1.10. Limitations**

Msabila and Nalaila (2013) postulate that, limitations of a study include potential challenges anticipated or faced by the researcher. Likewise, this study could not be conducted without limitations. Therefore, since the participants sampled for this research were only 39 in Luanshya District of the Copperbelt Province, the number of participants in the study was small compared to the target population of the province and the nation at large. Therefore, the findings of this study might not be generalised to other public secondary schools in the District and Zambia at large.

### **1.11. Operational Definition of Terms**

**ICTs:** This is a broad term that encompasses any communication device which includes phones, computer and networks.

**Computer:** An electronic device that stores, retrieves, and processes data, and can be programmed with instructions and composed of hardware and software, and can exist in a variety of sizes and configurations.

**Computer Studies:** A subject offered under the school curriculum at junior secondary school levels. It explains computers and their application to education and equips learners with relevant survival skills.

**Experiences:** These are reactions, feelings, opinions and stories that participants attach towards a certain phenomenon. In this instance, these were the reactions, feelings, opinions

and stories teachers and learners have had towards the teaching and learning of computer studies.

**Junior secondary school level:** Refers to the formal or school education provided at Grades 8 and 9.

**Established schools:** Schools built with a status of a secondary from onset.

**Up-graded schools:** Schools initially built as primary but up-graded to secondary status.

### **1.12. Summary of the Chapter**

This chapter gave the background to the study on experiences of teachers and learners on the teaching and learning of computer studies in educational schools. The chapter also presented the statement of the problem, purpose of the study, research objective and questions, significance of study, theoretical framework, delimitation, limitations and operational definition of terms used in this study. The next chapter endeavours to review various literatures deemed relevant to the study based on the Global, Africa and Zambian context.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1. Overview**

The previous chapter highlighted on the introduction to the study which gave the background to the study, problem statement, purpose, objectives, research questions, significance theoretical framework, delimitation, limitation and operational definition of terms. This chapter reviews some important literature on the experiences of teachers and learners in the teaching and learning of computer studies in the education system. The literature is based on a Global, Africa and Zambian context.

### **2.2. Global Literature on Computer Studies in Education**

Over the past decade, the world has increasingly adapted to the innovation of implementing computer studies in education systems through schools. The idea of having computer studies as a subject permeates the enormous expanse of teaching and learning technological advancements that move the ever-greater volumes of computer skills, knowledge and competencies among teachers, learners and the general populace around the world (Hewitt de Alcantara, 2001).

The advent of digital Information and Communication Technologies (ICTs) through the teaching and learning of computer studies has changed the lives of all people around the globe (Hilbert and López, 2011). This implies that the current generation is privileged because they are trying to link up and get connected through the experience of interacting with computers. Hence, they have the responsibility to live through and shape an era in which information and communication has become the driving force of human progress as it is the most powerful and tangible tool to exploit the resultant opportunities of teaching and learning.

An increase in the global recognition and efforts of teaching and learning computer studies through the role played by the new innovation of ICTs in the recent past has led to the rapid development and changes in adaptation to educate the masses with the technological skills of computers. This has led to a new face of the education system and new experiences for teachers and learners at the various levels of education (Moon, 2004). Hence reason enough for this study to investigate the experiences of teachers and learners in Grade 9 classes.

The changes in the education spheres have been used as a springboard and have prompted many countries to experience new trends of teaching and learning through the re-designing and restructuring of school curriculum as a fundamental component that sets the parameters and gives a direction to the education system in order to accommodate the innovation of teaching and learning computer studies in schools (Marker, McNamara and Wallace, 2002). Therefore, the novelty of computer studies in the Zambian curriculum makes the study of experiences of teachers and learners in the teaching and learning of computer studies inevitable.

Globally, in schools today, both teachers and learners carry with them different technological devices such as Ipads, mobile phones and computers to complement the efforts of teaching and learning computer studies. This entails that computer studies is making dynamic changes in society that influence all aspects of life experiences. The impact of ICTs is felt more at schools because ICTs provide both learners and teachers with more opportunities in adapting to the new learning and teaching methods in schools and society (Volman, 2005).

The new innovation in the teaching and learning process has caused a paradigm shift in the education system which has affected the experiences of school administrators, teachers and

learners. However, for teachers and learners, the most challenging experience is adjusting to the 21<sup>st</sup> century ICT method of teaching and learning which requires computer studies. Most teachers and learners have long been inclined to the traditional classroom routine of using a pen and paper but now, there is a strong call for everyone plugged into technology (Castells, 2001).

Volman (2005) further comments that computer studies as a subject is making dynamic changes in society that influence all aspects of life and these are felt more and more in schools because they provide both learners and teachers with opportunities in adapting learning and teaching to individuals, society and schools' needs. However, Castells (2001) contends that many studies have been conducted in the area of ICTs and education in general and very few in the teaching and learning of computer studies in schools especially in Grade 9, a knowledge gap that the current study addresses.

Acikalin and Duru (2005) conducted a study titled the use of computer technology in social studies classrooms in the United State of America. The purpose of the study was to review computer and internet supported instructional strategies. It also analysed the degree of application of those strategies in the social studies classroom. The findings indicated that there were; lack of skills and knowledge in using computer-based instructional strategies among social studies teachers; the use of computers in schools foster students' critical thinking, creative thinking, problem solving and decision making skills; reinforced the constructivist classroom environment; and that teachers used the computers and internet facilities basically for personal purposes rather than teaching and learning activities in the classroom.

The aforementioned study was insightful in that it demonstrated how computer technology improves the teaching and learning of school based subjects like social studies. Furthermore, the study highlighted some vital trends and benefits of using computers in the teaching and learning of social studies. However, while the reviewed study focused on the use of computer technology in social studies classrooms in the United State of America, the current study focused on the experiences of teachers and learners in the teaching and learning of computer studies in Zambian schools particularly in Luanshya District. Another important aspect from Acikalin and Duru's (2005) study is the finding that teachers used computers and internet facilities for personal purposes rather than teaching and learning activities in the classroom which begs the question as to whether this was correct for Zambian teachers as well.

Similarly, Toyama (2010) carried out a study on human computer interaction (HCI) and global development. The results revealed that computers were an appropriate technology, sometimes also called "intermediate technology," the name given to a concept that was popularized in the 1970s and 1980s that focused on designing technology that met the constraints of the local populations it was meant for. It was concerned with "the social structures, human interactive processes, and motivation techniques for social participation and action by individuals and groups in analyzing situations, making choices and engaging in choice-implementing behaviours that bring about change in a classroom.

The Toyama (2010) study has shown the importance of human computer interaction with respect to global development. It also notes that human computer interactions are important not only to the local population but also to teachers, learners, parents and school administrators in forming different social participatory structures in the education system. Similarly, human computer interactions have also been exhibited in Zambia by the general

populace in the area of social structures as a way of appreciating this appropriate computer technology. However, one weakness of the aforementioned study was that it had ignored to clarify and provide the most cardinal information on the specific type of end users involved in the human computer interactions. Therefore, the current study differs from Toyama's study as it specifically focused on the experiences of teachers and learners in the teaching and learning of computer studies as a subject.

The Government of India (2010) had compiled a report review on Information and Communication Technology for Education in India and South Asia: ICT in School Education from Primary to Secondary level. The report revealed that international trends in application of ICTs and computers in schools are directly related to the development of schools on the teaching and learning environment by increasing tendency to use computer technology to enable access to education. For instance, the Government of India, announced an ambitious program titled '*Vidya vahini*' that is to create computer laboratories with facilities like internet access, an online library, academic services and web-casting across 60 thousand schools in the country in 2003. Therefore, it is no longer necessary for teachers and students to be physically in proximity, due to innovations of technologies such as teleconferencing and distance learning, which allow for synchronous learning. However, despite administrators and experts alike recognizing the potential of ICT and computers in improving access to quality education, the utilization of ICTs objects in school education in the South Asian countries is still not at a very advanced stage. This is due to lack of access to infrastructure that could provide opportunity to develop the expertise to use the machines and software tools. The trends also indicate policy-makers, administrators, and teachers are using a variety of tools

and strategies to improve access to learning opportunities, improve the teaching and learning experience for teachers and students, and make effective use of limited resources.

The foregoing Indian report (2010) has demonstrated the importance of information communication technology in the education system as being directly related to the development of the teaching and learning environment by increasing the tendency to use computer technology for easy access to education. India and some other South Asian countries have registered extensive implementation of computer technology through information communication technologies in schools. Their significance is also widely recognised on the part of teachers and learners. While it was established that other countries such as India and South Asia had computer technology policies guiding in the teaching and learning environments, it was not known whether the same trends were obtaining in Zambian schools, particularly in Luanshya District.

In Japan, the Curriculum Development Council and the Hong Kong Examinations Authority Computer Studies Subject Committees (1999) outlined a design of a syllabus for secondary schools in computer literacy which recommended for use in Hong Kong secondary schools at junior secondary level. This is because computers are now a daily fact of life and there is a desire that a general education curriculum should provide chances for students to learn about computers in order to become “computer literate” and to be better prepared for the fast changing information society as it would lead them to explore and discover.

Furthermore, as a subject, computer literacy is intended to give students opportunities to acquaint themselves with computers and gain some hands-on experience in using computers and develop computer literacy with an understanding of fundamental concepts of computers;

appreciate the contemporary development of information technology; develop problem solving skills and cultivate positive attitudes toward the ever changing society with widespread utilisation of computers.

In this case, computer literacy is intended to give students opportunities to play around with computers and gain some hands-on experience in using computers. The computer as a teaching and learning tool aims at providing an opportunity for students to understand fundamental concepts of computers. These activities may help motivate students and enliven the learning atmosphere in the classroom without ruling out certain constraints. It is therefore essential for teachers to provide their students with an environment which allows them to explore and discover.

The benefits that the cited computer curriculum design report has revealed can be of great help to teachers and learners in the teaching and learning of computer studies in schools. Benefits such as the development of information technology skills and problem solving skills create an interactive atmosphere and cultivate positive attitudes toward the ever-changing society. The above computer curriculum report is not only applicable and prominent in Europe but in Zambia as well. For instance, the Zambia Curriculum Development Centre revised the curriculum and came up with a new approach to teaching and learning computer studies in schools at junior secondary school level, a scenario that gave the researcher impetus to investigate experiences teachers and learners have in the teaching and learning of the subject as a new phenomenon. While the stated benefits may be prevailing in Zambia, the benefits of teaching and learning computer studies by teachers and learners in secondary schools of Luanshya District were not known hence the need for this study.

A report on Information Communication Technologies (ICTs) and Education Indicators (2006) which explored the core indicators based on meta-analysis of selected International School Surveys, reported that perception of ICTs as fundamental development tools of the 21st century rests on several assumptions such as achievement of universal primary education, which was one of the basic Millennium Development Goals, which can be facilitated by emerging technologies with its new apparatus of computers, as well as the old ICTs such as radio and television. Therefore, there is a growing need for cross-nationally comparable indicators in the area of information and communication technologies (ICTs) in education through the teaching and learning of computer studies. The Plan of Action that was decided on at the Geneva phase of the World Summit on the Information Society (WSIS) in 2003, identified two targets which were directly related to education and these included; to connect universities, colleges, secondary and primary schools with ICTs, and to adapt all primary and secondary schools curricula to meet the challenges of the Information Society, taking into account national circumstances. However, this poses a great challenge in the context of developing countries due to lack of computers, proper facilities, adequately trained teachers and gender sensitive education. Even in the contexts of some developed countries where there has been remarkable growth in the ICT industry, there are large pockets of the population that are as yet untouched by computers, the Internet and other modern ICTs. Furthermore, the report also revealed that there was a ratio of one computer for every five students in Canada.

The findings of ICTs and Education Indicator of Meta-analysis report in Canada (2006) indicated that there is growing need and desire of having information and communication technologies (ICTs) in education through the teaching and learning of computer studies. This is not an exception to Zambians' education system as the only way to meet the demands of the



21st Century learners. Furthermore, the study brought out a number of challenges that can seriously pose a threat to the teaching and learning of computer studies. Challenges such as lack of computers, lack of proper computer facilities and inadequate trained teachers. These challenges may affect the teaching and learning process of computer studies. While the said challenges may be prevailing in Canada, the challenges teachers and learners faced in teaching and learning of computer studies in Zambia, particularly in Luanshya District in Grade 9 were not known hence the study.

The global literature on ICTs and computer studies in education is vital to this study in that it provided focus and direction in depicting similar trends in teaching and learning patterns that prevailed in Zambia's education system especially in Grade 9 where the teaching and learning of computer studies was evidently increasing.

### **2.3. African Literature on Computer Studies in Education**

The US Internet Council (2000) comments that compared to global trends, African education lags behind in many aspects such as computer education delivery, curriculum design, teaching pedagogies, teaching and learning tools and resource libraries. This is because; the level of technology penetration in Africa is low compared to developed countries. However, most of the African countries have identified the education sector as a priority area for the deployment and the exploitation of computers to broaden access to education, improve quality of educational delivery, promote efficiency in the administration of the educational system and reduce costs of education delivery (Dzidonu, 2010). In Zambia however, it was not known whether or not teachers and learners experiences' in the teaching and learning of computer studies broadened their access to education at grade 9 level, hence the current study.

Mikre (2011) conducted a study on the role of information communication technologies in Ethiopia. The findings were that Information Communication Technologies (ICT) play salient roles in work places, business, education, and entertainment. Moreover, many people recognize ICTs as catalysts for change; change in working conditions, handling and exchanging information, teaching methods, learning approaches, scientific research, and in accessing information. In the case of Ethiopia's education system, ICT use, particularly the computer, improves the teaching and learning process not just in schools but also in other government departments for effective and efficient working culture.

Furthermore, the use of ICTs in education also shifts the learning approaches. As put by Bransford, Brown, and Cocking, (1999), there is a common belief that the use of ICTs in education contributes to a more constructivist learning and an increase in activity and greater responsibility of students. This limits the role of the teacher to supporting, advising, and coaching students rather than merely transmitting knowledge. The gradual progress in using computers changes from learning about computers, to learning computers, and finally to learning with computers (Volman, 2005). For one to do this, there is need to investigate the experiences attached to learning of computers.

Nonetheless, the most challenging condition to implementing ICTs and computer studies strategy in Ethiopian schools is inadequacy of existing infrastructure, policy, planning, infrastructure, learning content, language, capacity building and financing. Even though integrating ICT use in the teaching-learning process was given due recognition in the implementation strategy, only about 40 percent of schools in the country had computers, and most of which were in Addis Ababa, causing a rural-urban divide to equity and access for

quality education. Moreover, those schools, which had computers, experienced limited or low access to internet connections.

From the study done by Volman (2005), it had been observed that in Ethiopia the implementation of information communication and technology through the teaching and learning of computer studies was being recognised and their importance was being realised. As such, some intervention strategies were being considered and areas in which ICTs benefited them such as work places, business, education, and entertainment. Furthermore, the study highlighted challenges affecting the implementation of ICT and computer studies strategy. In Zambia, particularly in Luanshya District, similar trends of recognizing and realising the importance of teaching and learning of computer studies were taking place in schools. However, what was not clear was whether the challenges faced in the Ethiopian education system were the same in Zambia.

Garegae (2012) conducted a study on the issues and concerns about integration of ICT into the teaching and learning of mathematics in Africa: A case of Botswana. The study revealed that ICT in teaching and learning of school subjects, particularly mathematics, is critical for improving the quality of performance and classroom experiences of teachers and learners (Nabbout and Basha, 2000). It is for this reason that both developed and developing countries aim at harnessing the potential in ICT to improve mathematics performance. African countries including Botswana subscribed to this journey of teaching and learning computer studies at senior secondary school level. However, there are constraints that counteract the realization of the envisaged ICT subject integration in schools, resulting into some issues and concerns in the implementation of ICT integration in the teaching and learning of mathematics in

Botswana schools such as having only one computer laboratory in each school. Moreover, 20 PCs are not enough for classes of over 40 students and are required to share a computer.

The outcome of the aforementioned study have shown the significance of ICT in the teaching and learning of other school based subjects like mathematics and the importance other countries like Botswana also attach to it. However, Garegae (2012)'s study differs from the current study in that it focused on the role of ICT in the teaching and learning of mathematics while the current study explored the experiences of teachers and learners in the teaching and learning of computer studies in Zambia.

Another study conducted by Aduwa-Ogiegbaen and Iyamu (2005) on using ICT in secondary schools of Nigeria and investigating its problems and prospects revealed that in Nigeria; the cost of computers is high; there is unstable and unreliable electricity supply; lack of information infrastructure and fewer Internet connections. The study also revealed a number of benefits such as enhancement of educational efficiency, problem-solving skills especially in subjects such as mathematics. Similarly, Smith (1989) also added by stating that computers serve administrative functions such as use for expenditure, writing correspondences and reports, assigning students to classes, reporting students' progress and testing students and scoring tests which help to reduce paper work, used for individualized learning, change pedagogical practices, which depended heavily on the traditional lecture method and improvement in the techniques of research. However, what was not known was whether the same benefits and constraints were evident in Zambian secondary schools particularly in Luanshya District in Grade 9 classes of computer studies, hence the current study.

Eme, Emmanuel and Ernest (2015) carried out a study on computer studies and its impact in secondary schools of Nigeria. The study exploited 40 students and 80 teachers as respondents. The purpose of the study was to examine the impact of computer studies among teachers and students in secondary schools. They used one method of data collection which was a questionnaire under the descriptive survey design which made the study quantitative.

The results of the study indicated that computer studies had positive impact in the teaching and learning process and increased pupils' computer literacy levels in schools. The results of the study also showed that equipment and infrastructure such as computers and other information and communication technology (ICT) facilities were lacking in schools to facilitate the acquisition of basic computer skills among teachers and students to increase their computer literacy level.

The current study had a lot to learn from the aforementioned study in that both studies involved teachers and learners experiencing the impacts of computer studies in schools. Some constraints that teachers and learners encountered in the teaching and learning process were clearly brought out. This implied that the constraints faced by teachers and learners in the previously mentioned study might be the same. However, this study is different in that it employed several methods of data collection such as interviews, focus group discussion and non-participant observation under an interpretive phenomenological design making it qualitative in nature as opposed to the Nigerian study which was more of quantitative.

A study by Tayo, Ajibade and Ojidokun (2009) on the use of computers and their relevance to teaching and learning in Nigerian educational system revealed that in using computers for instruction, the teacher's role was hypothesized as having changed from informer to learning

facilitator. It further indicated that computers help students to learn at their own pace, control over the rate and sequence of their learning, raise student motivation and provide appropriate record-keeping to monitor student progress. However, this could have not been without challenges such as problems of exorbitant price of computers and epileptic power supply in Nigeria (Uyouko and Wong, 2015). In Zambia, particularly in Luanshya District, it was not known how teachers and learners were going about the teaching and learning of computer studies, a justification for the current study.

Madzima, Dube and Mashwama (2013) carried out a study in which they investigated ICT Education in Swaziland secondary schools: Opportunities and Challenges faced in its implementation. The results were that ICT as a tool promoted socio-economic, political, and sustainable development. Furthermore, there were challenges in the implementation of ICT delivery. These included lack of adequate planning, adoption and integrating of ICTs in schools, inadequate expertise and lack of technical support and inadequate infrastructure. While Madzima, Dube and Mashwama (2013)'s study outlined the above constraints in ICT Education in Swaziland's secondary schools, the challenges teachers and learners faced in Zambian education system of teaching and learning of computer studies were not established.

Farrell (2007) carried out a survey on the implementation of ICT education in Kenyan schools. It revealed that Kenya recognises the importance of ICT in which learners appreciate the computer system. However, a majority of the schools in Kenya were without internet, computer access, frequent power breakdowns, increased cost of owning ICT infrastructure and high student-computer ratio to access and use of ICT in education. In Zambia on the other hand, it was not known whether the same constraints established in Farrell's (2007)

report were encountered in the teaching and learning of computer studies especially in Luanshya District.

UNEB (2005) further states that computer information and communication technology was introduced in Ugandan secondary schools in order to enhance one's productivity and development of creative skills for problem solving and efficiency. The subject's benefits include; equipping learners with knowledge and skills in the use of ICT, which they can apply in other subjects, ability to use different computer technologies to access, analyse, interpret process and disseminate information. In Zambia however, despite having introduced computer studies in schools, no empirical evidence in literature was documented on experiences of teachers and learners in the teaching and learning of computer studies, hence the study.

Bukaliya and Mubika (2012) conducted a study on factors militating against the introduction of computer education in Zimbabwean secondary schools. The study adopted the descriptive survey design and 40 secondary schools were involved. Data were gathered through the use of questionnaires and interviews. The study revealed that there were no budgets for computer procurement in schools. Funds were inadequate for computer procurement. However, stakeholders were willing to contribute towards the purchase of computers for computer education. This study was in contrast with the current study which investigated the experiences of teachers and learners by involving only three secondary schools. It also used interviews, focus group discussion and non-participant observation which were purely qualitative as opposed to the Zimbabwean study which was quantitative.

## **2.4. Zambian Literature on Computer Studies in Education**

Zambia has participated in a number of global and regional events that are focusing on ICTs as a tool for sustainable growth and development. Among the notable ones are the Declaration of Principles and Plan of Action from the World Summit on the Information Society and the NEPAD E-Africa Commission. This policy sets the framework for Zambians' participation in the global economy through the adoption of ICT and the teaching and learning of computer studies (MoT, 2006).

The cradle of computer studies in Zambia dates back to 1998, the period when computer studies was introduced as a subject in schools and produced ICT literate students (Habeenzu, 2010). Since then, the penetration levels of ICTs in Zambia's education institutions remain thin. The integration of ICTs in learning and teaching practice has been limited but the introduction of computer studies as a school subject has begun to change this trend (MoESVTEE, 2013), a reason enough to make this study worth undertaking as it investigated the experiences of teachers and learners in the teaching and learning of computer studies.

The Zambian Government through the Curriculum Development Centre in 2011 designed a senior secondary school Computer Studies syllabus for Grades 10, 11 and 12 which acknowledged computers as becoming part and parcel of peoples' lives and work. Furthermore, the Zambia Education Curriculum Framework of 2013 also encourages and advocates for the teaching and learning of computer studies. Since computer technology is extremely dynamic and significantly impacts on the way people live, learners should be made to appreciate the constantly changing computer technology and its complexities. However, it is not known how this desire by the Ministry of General Education to spread computer



technology is done in schools. Therefore, it was cardinal to investigate how the teaching and learning of computer studies was done in schools through teachers' and learners' experiences in Luanshya District.

A study by Hadlee and Tamilenth (2013) on ICT and computer education established that there was lack of national policy on ICTs and weak stakeholder base. The study also provided information on the basic requirements of computer studies and efforts of the Zambian government to develop computer education in schools. A reason good enough to investigate the experiences of teachers and learners in the teaching and learning of computer studies in Grade 9 in Luanshya District.

Mulima (2014) conducted a study on perceptions of teachers and learners on the role of ICTs in the teaching and learning of Religious Education in Kabwe District. It involved the head teachers, teachers and learners. The study employed three methods of data collection which included; interview guide, focus group discussion and a simple observation checklist. Additionally, a qualitative approach and case study design were employed for the study. Results revealed that the schools had computer programmes like Bible Pro, and the levels of ICTs usage varied. Mulima's (2014) study was insightful and vital to this study in that it brought out the role of ICT in the teaching and learning of Religious Education in schools and its constraints. However, the current study looked at the experiences of teachers and learners in the teaching and learning of computer studies. It also departed from Mulima's study as it only involved teachers and learners not head teachers as participants and non-participant observation under qualitative and interpretive phenomenological design which was not used in Mulima's study.

Another study by Lufungulo (2015) on primary school teachers' attitudes towards ICT integration into Social Studies in Lusaka and Katete Districts in which data was collected by interviews with head teachers and teachers, focused group interviews with pupils and observations of the lessons. Data was analysed using cross case and thematic analysis methods. The findings revealed that primary school teachers in Lusaka and Katete held positive views towards the integration of ICT in the teaching and learning of Social Studies. This was mainly attributed to the training they had undergone with iSchool and Impact Network on the usage of ICTs. Although the schools are located in different spatial dimensions, the urban and rural setup, the teachers' attitudes were positive. Furthermore, teachers across the schools regarded ICT as advantageous over traditional methods of instruction and as suitable for the curriculum.

The study further reported that although the ICTs were available in the schools, they were not adequate to the extent that each pupil could have had one and use at the same time in the classroom. Thus the teachers called on the Ministry of Education, Science, Vocational Training and Early Education to subsidize the purchase of ICT tool and resources, as this would benefit both the pupils and teachers.

The aforementioned study was important and educative to the current study in that it provided vital information on ICT integration into the teaching and learning of Social Studies by involving two districts which included head teachers as participants as well as invoking on two data analysis techniques. However, it was at variance with the current study because it did not include the views of head teachers and was only conducted from one district with an interpretative phenomenology technique for data analysis.

Similarly, a recent study by Phiri (2016) on pupils' and teachers' perception toward the use of ICT in the teaching and learning of Mathematics in schools of Central Province revealed that, both pupils and teachers showed a positive perception towards the use of ICTs in the learning and teaching of mathematics. However, the use of ICTs was marred with a number of challenges such as lack of ICT facilities, unsupportive curriculum, high cost of procuring ICT materials, deficits in electricity supply and maintaining ICT tools and lack of internet connectivity. The current study deviated from Phiri's (2016) study in that it did not focus on perceptions of teachers and learners in the teaching and learning of mathematics. However, it considered to investigate the experiences of teachers and learners in the teaching and learning of computer studies in Luanshya District. This made the two studies different from each other.

## **2.5. Synthesis of literature gap**

The aforementioned reviewed literature both from developing and developed countries had a lot to offer to the current study in that it has clearly shown that no country would ever attain its objectives of adopting technology through the teaching and learning of computer studies aimed at providing of quality education to the 21<sup>st</sup> century teachers and learners in absence of qualified teachers, appropriate educational materials, proper funding, suitable school computer infrastructure and community participation. Although many studies world over have clearly shown the role of ICT in education, no clear documentation of comprehensible literature was found by the researcher on experiences of teachers and learners in the teaching and learning of computer studies. This study thus investigated the experiences of teachers and learners in the teaching and learning of computer studies particularly among Grade 9 classes in Luanshya District.

## **2.6. Summary of the Literature review**

This chapter discussed the literature review. It began by reviewing studies done at global level. This was followed by studies conducted within Africa with an exception of Zambia. Eventually, studies done in Zambia were reviewed. From the foregoing review of literature, it was observed that at global, African and Zambian levels, the importance of teaching and learning of computer studies was recognised. This was clearly demonstrated by the various findings that had been revealed in this chapter. It was also observed in Zambia, particularly Luanshya District, that studies in the teaching and learning of computer studies had been inadequate thereby creating knowledge gap that the current study intended to address. The next chapter discusses the methodology employed in this study.

## **CHAPTER THREE: METHODOLOGY**

### **3.1. Overview**

The previous chapter gave a review of some important literature on computer studies from a Global, Africa and Zambian context with respect to the experiences of teachers and learners in the teaching and learning of computer studies in educational settings. The current chapter presents the methodology used in the study which included the philosophical assumption, research design, population, sample and sampling techniques. The chapter further explains the research instruments, data quality assurance as well as data collection and analysis procedures. This section ends with ethical considerations.

### **3.2. Philosophical Paradigm**

The study adopted a social constructivism worldview advanced by Mannheim and works of men such as Berger and Luekmann's (1967) social construction of reality and Lincoln and Guba (1985)'s naturalistic inquiry. The assumption of this worldview is that individuals seek understanding of the world in which they live and work as they develop subjective meanings of their experiences towards certain phenomena. These meanings are varied and multiple thereby leading the researcher to investigate the complex views as opposed to few ideas. The researcher operating on this worldview constructs the truth based so much on participants' views of the situation being studied (Crotty, 1998). This provides a concrete platform for participants to construct the meaning of a situation through experiences in a general and more open-ended method of questioning.

In so doing, the researcher made the questions general and open-ended so as to carefully listen to participants' experiences by using interviews and focus group discussions. It was from this

viewpoint that the experiences of teachers and learners in the teaching and learning of computer studies at the three sampled secondary schools of Luanshya District were appreciated in the study.

### **3.3. Research Design**

Kombo and Tromp (2006) define a research design as glue like structure that holds all the elements in a research project together. Orodho (2003) defines it as the scheme, outline or plan that is used to generate answers to the research problem. This study utilised an interpretive phenomenological research design with the intention of conducting a “direct exploration, analysis, and interpretation of a particular phenomenon emphasising the richness, breath, and depth investigation as interpreted by participants in detail (Creswell, 2009). Further, Heidegger (1962) refers to interpretive phenomenology research design as one which seeks to uncover the subjective understanding, which individual human agents ascribe to their social situation. Furthermore, Heidegger maintains that reality is only found in the minds of the social actor (participant) hence interpretive phenomenology or hermeneutic.

With interpretive phenomenological research design therefore, the researcher was able to tap into teachers’ and learners’ classroom experiences regarding the teaching and learning of computer studies by bracketing or applying the principle of “epoche”, his own experiences thereby taking the information as it came from participants through verbatim reporting. Since the study focused on teachers’ and learners’ experiences in the teaching and learning of computer studies in secondary schools, the said design appropriately guided the generation of interpreted information on classroom shared experiences of Grade 9 teachers and learners. Therefore, the study was purely qualitative in nature and took the form of a case of three selected secondary schools in Luanshya District.

According to Kombo and Tromp (2006) a qualitative approach involves interpretation and description; it seeks to interpret, describe and analyse the culture and behaviour of humans by collecting verbatim statements from participants in view of the fact that open-ended questions allow participants to offer responses within their unique context, and the value of the information provided can be exceptionally high. This approach was appropriate for this study because it sought information on the experiences of Grade 9 teachers and learners in the teaching and learning of computer studies in selected secondary schools in Luanshya.

### **3.4. Study Population**

Population is defined as a group of individuals and objects from which samples are taken for measurement (Kasonde-Ng'andu, 2013). The population for this study consisted of all teachers and learners of computer studies in Grade 9 classes at three selected secondary schools in Luanshya District, Copperbelt Province.

### **3.5. Sample Size**

Kothari (2011) indicates that sample size refers to the number of participants selected from the population with common characteristics, know-how and accessible to help in the study under investigation. However, Sandeloski (1995) points out that in determining the sample size in qualitative research, there is no specific formula. It is ultimately a matter of judgment and experience on the part of the researcher, and researchers need to evaluate the quality of the information collected in light of the uses to which it will be applied. Therefore, the researcher used his own personal judgment to determine the sample size in this study. Furthermore, Cohen, Manion and Marrison (2000) explain that in a qualitative study, a small number of sample size suffices. In view of the above, the researcher selected 39 participants to constitute the sample for the study. This sample comprised nine (9) teachers of computer

studies, three (3) per school and thirty (30) Grade 9 learners of computer studies, ten (10) from each of the three participating secondary schools in Luanshya District. This sample size sufficed because in qualitative studies, there is an issue of data saturation limits which ranges from 1 to 15 items and beyond it, no more new information could be added. Therefore a sample size of 39 participants in this study was appropriate because it was within the data saturation limit as new and first hand information was obtained.

### 3.5.1. Demographic characteristics of the participants

Participants in the study were asked to state their gender and the information gathered is presented in the tables below.

**Table 3.5.1. Teachers' gender**

<b>Teachers</b>	
<b>Gender</b>	<b>Frequency</b>
<b>Male</b>	7
<b>Female</b>	2
<b>Total</b>	9

**Source:** Field work (2016)

Table 3.5.1 shows teachers who were drawn from three schools by gender. Out of nine (9) teachers who participated in the study, seven (7) were male and two (2) were female.



**Table 3.5.2. Learners' gender**

<b>Learners</b>	
<b>Gender</b>	<b>Frequency</b>
<b>Boys</b>	15
<b>Girls</b>	15
<b>Total</b>	30

**Source:** Field work (2016)

Out of 30 learners who took part in the study, 15 were boys and 15 were girls.

Further, the participants were asked to avail data according to their age and the table below shows the information collected.

**Table 1.5.3. Teachers' Age**

<b>Age range</b>	<b>Frequency</b>
<b>20-30</b>	4
<b>31-40</b>	3
<b>41-50</b>	2
<b>Total</b>	9

**Source:** Field work (2016)

Table 3.5.3 shows the frequency distribution of participants according to age. The table indicates that, most of the teachers were relatively young, between the age group of 20- 30 followed by the age group of 31-40 of the sample size. It further indicates that two (2) of the teachers were in the age range of 41-50.

**Table 3.5.4. Learners' Age**

<b>Age range</b>	<b>Frequency</b>
<b>5-10</b>	<b>0</b>
<b>11-15</b>	<b>19</b>
<b>16-20</b>	<b>11</b>
<b>Total</b>	<b>30</b>

**Source:** Field work (2016)

As for learners, it is clear that 19 were in the age range of 11-15 while 11 were in the range of 16-20 and none were in the age range of 5-10.

Furthermore, teachers were required to submit their qualifications and below in the table is the information submitted.

**Table 3.5.5. Teachers' qualifications**

<b>Qualification</b>	<b>Frequency</b>
<b>Master</b>	<b>0</b>
<b>Degree</b>	<b>6</b>
<b>Diploma</b>	<b>3</b>
<b>Certificate</b>	<b>0</b>
<b>Total</b>	<b>9</b>

**Source:** Field work (2016)

Table 3.5.5 shows the frequency distribution of teachers according to qualification. From the table, six (6) teachers had a qualification of a degree in mathematics while three (3) held a diploma in computer studies and none of the teachers had either master or certificate.

To find out how long teachers have been in the service of teaching, they were asked to submit the number of years they have been in service and below is the table showing data.

**Table 3.5.6. Teachers' number of years in service**

<b>Years in service</b>	<b>Frequency</b>
<b>1-5</b>	<b>1</b>
<b>6-10</b>	<b>2</b>
<b>11-15</b>	<b>3</b>
<b>16-20</b>	<b>3</b>
<b>21-30</b>	<b>0</b>
<b>Total</b>	<b>9</b>

**Source:** Fieldwork (2016)

Table 3.5.6 shows the frequency distribution of teachers according to their years in service. Out of nine (9) teachers, one (1) of them had been in service for maximum of 5 years, while two (2) had been in service for the period between 6 to 10. The age range of service 11-15 only constituted three (3) of the teachers and three (3) served between the range of 16-20.

### **3.6. Sampling Techniques**

Sampling techniques are classified into non-probability and probability. However, this study applied non-probability sampling techniques with the intention of selecting individual

participants for the sample that does not give all the individuals in the population equal chances of being selected (Msabila and Nalaila, 2013).

### **3.6.1. Purposive Sampling**

The study employed purposive sampling which involves purposely handpicking individuals from the population based on the researcher's knowledge and judgment (Msabila and Nalaila, 2013). However, to be specific, the study used typical sampling among other types of purposive sampling because the study sample involved teachers and learners who were potentially familiar with the teaching and learning of computer studies in schools. Orodho and Kombo (2002) state that the power of purposive sampling lies in selecting information rich in cases for in-depth analysis related to the central issues being studied.

Black (1999) observes that purposive sampling ensures that those people who are unsuitable for the sampling study are already eliminated, so only the most suitable candidates remain. This means that the results of purposive sampling are usually expected to be more accurate than those achieved with an alternative form of sampling (Orodho and Kombo, 2002).

### **3.6.2. Convenience Sampling**

The researcher applied convenience sampling to select the three secondary schools because of its power to select places and participants based on their convenience, accessibility and proximity to the researcher (Msabila and Nalaila, 2013). In this case the researcher did not consider selecting schools that were representative of the entire District of Luanshya.

### **3.7. Research Instruments**

Kasonde-Ng'andu (2013) defines research instruments as tools that researchers use in collecting the necessary data. In view of this, the research used semi-structured interview guides, focus group discussion guides and non-participant observation to collect data.

#### **3.7.1. Semi-Structured Interview Guide (SSIG)**

On the Interview guide, questions are asked orally (Kombo and Tromp, 2006). One to one interviews were used to collect data from teachers on the basis that qualitative inquiry usually produces in-depth data. It is from the thick description that the researcher was able to understand teachers' experiences towards the teaching and learning of computer studies. Kombo and Tromp (2006) state that semi-structured interview guides are based on the use of an interview guide which is a list of questions or topics to be covered by the interview. Semi-structured interviews are flexible because they consist of both open and closed-ended questions. They are important because they gather in-depth information which gives the researcher a complete and detailed understanding from open ended questions. Therefore, using semi-structured interviews enabled the study to get first-hand information from teachers about the teaching and learning of computer studies holistically.

#### **3.7.2. Focus Group Discussion Guide (FGDG)**

Focus Group Discussion (FGD) guide is designed to obtain information on participants' experiences, beliefs and perceptions on a defined area of interest (Kombo and Tromp, 2006). Focus group discussion as an instrument was used in this study to collect data from learners. The rationale for choosing the FGDG for learners was to help them feel comfortable to express their opinions in the presence of their peers who were in this regard helped to create a natural environment for them. Due to this, the researcher decided to categorise them into

focused groups as the only way to elicit information as they would socialize and interact amongst themselves in a simplistic manner. According to Black (1999), a focus group discussion is a group discussion of 5-12 persons guided by a facilitator during which members talk freely and spontaneously about a certain topic. The purpose of focus group discussion is to obtain in-depth information on concepts and ideas of the group due to its open endedness that enables it to collect subjective views from participants.

### **3.7.3. Non-Participant Observation (NPO)**

The researcher also employed the non-participant observation guide in order to witness and capture the teaching and learning activities as they took place in the natural setting. This was done through lesson observations in the school computer laboratories when teachers and learners did their practical work. This allowed the researcher to have access to the school laboratories of the three participating secondary schools in which data was collected in form of descriptive accounts and helped to understand behaviour patterns in the physical and social context of participants (Kombo and Tromp, 2006).

### **3.8. Data Quality Assurance (DQA)**

The state of acceptability in terms of it being true and unique academic product was done using Guba's four trustworthy strategy which is ideal for all qualitative studies. In this study, *credibility* was ensured through the correct plan from the beginning to the end which was interpretive phenomenological design that coincided with the study title; hence quality of data was assured. *Transferability* was ensured through contextualising with other studies in which similar information was found and new information was added on to the body of knowledge hence, data quality was assured. *Dependability* was also employed through making research

instruments reliable by conducting a pre-testing or pilot study and *Confirmability* was used through "Bracketting" or "Epoche" taking the information as it came from participants through verbatim reporting (Guba and Lincoln, 1994).

### **3.9. Data Collection Procedure**

Data collection is the gathering of specific information aimed at proving and refuting some facts on how a researcher collects data and with what instruments (Kasonde-Ng'andu, 2013). Therefore, in trying to follow the data collection procedure, clearance and introductory letters were sought from the University of Zambia ethical committee and department of educational psychology, sociology and special education to allow the researcher to go for data collection, and written permission was sought from the District Education Board Secretary (DEBS). At the school level, verbal permission was obtained from the head teachers of respective schools to use their facilities before proceeding with data collection. After the researcher was given permission to go ahead with data collection by the respective head teachers, he then went on to administer focus group discussions among the learners which lasted for 60 minutes and semi-structured interviews with teachers on different days each taking 40 minutes and translated into 1 hour 20 minutes.

However, before collecting data from the participants, the aim of the study was thoroughly explained to them and assurance was given that data to be collected was purely for academic purposes. During data collection, a voice recorder was used to record the conversations to capture opinions and views of the participants in order to help the researcher with data analysis. In addition, the researcher employed non-participant observation method in order to

witness and capture the teaching and learning activities through observing lessons in the school computer laboratories when teachers and learners did their practical work.

### **3.10. Data Analysis**

Kasonde-Ng'andu (2013) defines data analysis as a manipulation of the collected data for the purpose of drawing conclusions that reflect on the interest, ideas and theories that initiated the study so as to uncover the underpinning structures and extracting cardinal variables thereby testing any underlying assumptions. However, the appropriate methods of data analysis are determined by the data type, variables of interest and the number of cases. Therefore, the data collected from the field through semi-structured interviews and focus group discussion on teachers and learners' experiences regarding the teaching and learning of computer studies was qualitatively analysed using the Interpretative Phenomenological Analysis (IPA) method.

Smith and Eatough (2006) argue that the IPA method is a suitable approach for analysing qualitative data when one is trying to find out what experiences individuals have towards a particular situation they are facing, and how they make sense of their personal and social world. The method is especially useful when one is concerned with the complexity, process and novelty of a phenomenon; in this regard computer studies in the education system. This method of analysis allowed the researcher to categorise the collected raw data and generate themes from it in line with the objectives of the study. Therefore, the analysis of raw data enabled the researcher transform it into meaningful information.



### **3.11. Ethical Considerations**

Cohen, et' al. (2000) explained that ethical issues are matters which are highly sensitive to the rights of others. In this regard, ethical issues were upheld in the study. First and foremost, a clearance letter was obtained from the Directorate of Postgraduate Studies and the researcher sought consent from the University of Zambia ethical committee, District Education Board Secretary (DEBS), school managers from the respective secondary schools, and participants to find out whether they were willing to participate in the study. The researcher ensured that participation by the teachers and learners was voluntary. This was done by explaining to them the procedure, relevance and purpose of the study. Participants were assured that data to be collected would be kept confidential and only be used for research purposes. Furthermore, the researcher assured the participants that names and personal details would not be revealed or published and that the data collected would be kept confidential and only be used for academic research purposes. Names of schools and participants were represented by certain codes and this ensured anonymity.

Ultimately, the researcher had to take full responsibility for the study and any unforeseen consequences it could attract. All the mentioned activities were done in order to ensure that the rights of the participants were respected and their dignity as human beings was safeguarded.

### **3.12. Summary of the Chapter**

This chapter discussed the methodology employed in this study. Under methodology, the following items were captured: philosophical assumption, the research design, target population, sample size and sampling techniques, research instruments, data quality

assurance, data collection procedure, data analysis and ethical issues. Having presented the aforementioned, the next chapter presents the findings of the study from the three sampled secondary schools.

## **CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS**

### **4.1. Overview**

The previous chapter outlined the methodology employed by the researcher to come up with data by means of the stated research instruments. This chapter presents the findings of the study as was provided by the participants. The findings are presented according to the study questions. The study questions were as follows:

1. What are the experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District?
2. What are the benefits of teaching and learning computer studies at Grade 9 secondary school level in Luanshya District?
3. What are the challenges faced by teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District?

### **4.2. Experiences of teachers and learners in the teaching and learning of computer studies.**

The researcher took time to interact with the participants through interviews and focus group discussion so as to appreciate their personal experiences in the teaching and learning of computer studies. The presentation of the first question of what are the experiences of both teachers and learners in the teaching and learning of computer begins by addressing teachers' experiences and thereafter learners'.

#### 4.2.1. Teachers' experiences

Teachers being the implementers of most education programmes through the teaching and learning process were key participants in this study. This was because they played a major role in facilitating the teaching and learning of computer studies among learners in schools and gathering the views over their experiences in computer studies was extremely important. In line with this therefore, teachers were asked to state whether or not computer studies was taught as a subject at the three participating schools and the following emerged as shown in table 4.1.1

**Table 4.2.1. Teachers' responses on whether computer studies was taught as an independent subject**

Reponses	Frequency
Agreed	9
Disagreed	0
Total	9

**Source:** Field work (2016)

Table 4.2.1 shows the responses of teachers on whether computer studies was taught as a subject in schools. All the nine (9) teachers who participated in the study agreed having computer studies as a subject taught.

Teachers were further asked to explain how computer studies was experienced in schools. The study found that the experiences of computer studies were two-fold namely; theory and practice. Teachers reported that the theory part was conducted from the classroom just like

any other subject. One teachers further stated that; ‘*During theory, we experience the teaching of computer studies based on writing notes on the board and administering class exercises.*’Furthermore, they stated that the theory part required a lot of materials such as text books prescribed to support its delivery. In their explanations, they added that computer studies was very interesting and captivating in nature. To support this, one teacher from school C made the following remarks:

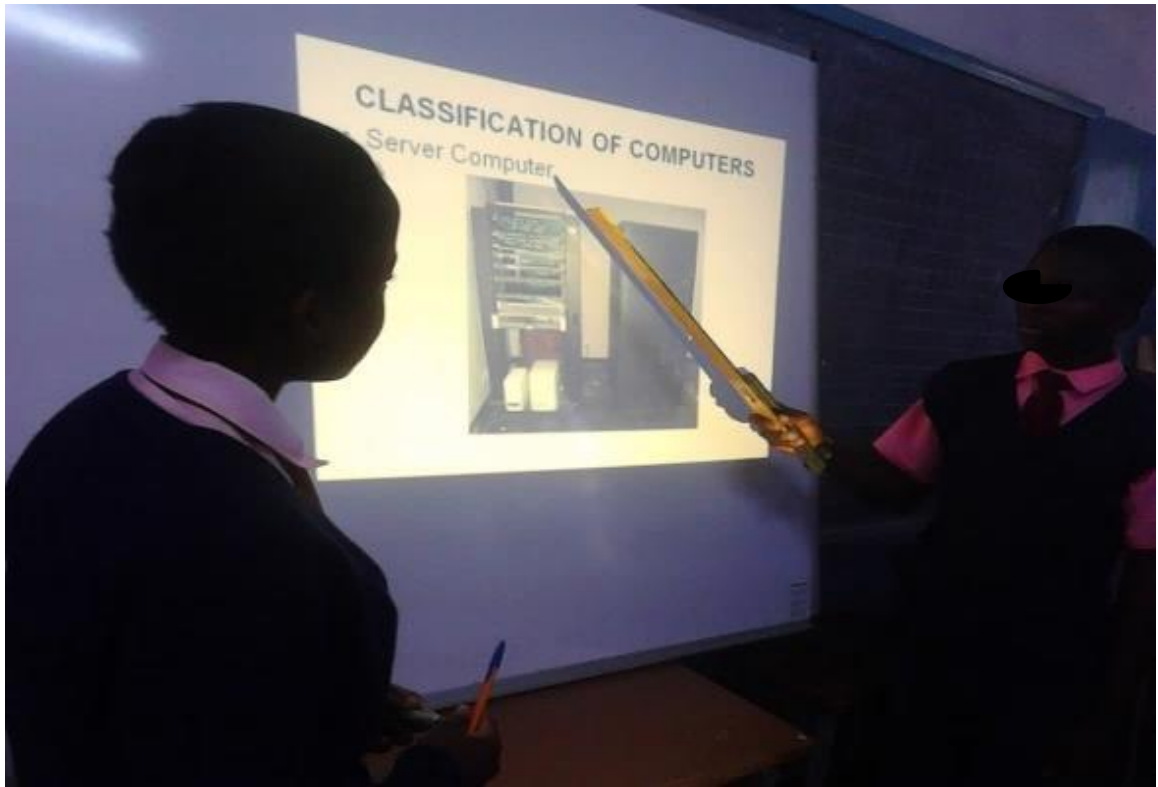
*Despite having a lot of shortcomings, my experience of teaching computer studies is inviting, appealing and profound because it imparts various knowledge and survival skills such as typing, acquaintance of operating different computer systems, printing and injects the know-how concept of all the application system of the computers.*

Further, teachers reported that they experienced computer studies through practical teaching. Teachers stated that the practical part was conducted from computer laboratories with the help of computer equipment such as *Computers, printers, photocopiers, furniture, computer laboratory and internet.* Furthermore, the study found that most of the practical activities in computer studies were done in groups. Shedding more light to this, one teacher had this to say:

*Whilst in the computer laboratory, the teaching and learning of computer studies is characterised with power point presentations with the aid of electricity. These presentations are done in groups. This makes the whole process enjoyable as learners share different experiences and ideas with us (teachers) in an interactive fashion with each other and this contributes to the best manner in which knowledge and skills are acquired.*

To support the above finding, figure 1 shows learners doing their power point presentations in groups.

**Figure 4.2.1. Learners presenting using power point**



**Source:** Field work (2016)

When teachers were asked to explain how the periods were allocated for computer studies in a week as part of their experiences, they stated that they did so with respect to the departmental time table. Table 4.2.2 shows their responses.

**Table 4.2.2. Number of periods allocated for computer studies at the three sampled schools in a week.**

<b>Names of schools</b>	<b>Hours per week</b>	<b>Number of Periods per week</b>
<b>Secondary school A</b>	<b>2 hrs</b>	<b>3</b>
<b>Secondary school B</b>	<b>2 hrs</b>	<b>3</b>
<b>Secondary school C</b>	<b>1hr. 20 min</b>	<b>2</b>

**Source:** Fieldwork (2016)

Table 4.2.2 shows the number of periods allocated to computer studies in a week per individual school. From the table above, school **A** and **B** allocated three (3) periods to computer studies in a week while school **C** allocated two (2) periods to computer studies. This shows that school **A** and **B** had more number of periods for computer studies as opposed to school **C**.

Furthermore, participants were asked to submit class enrolment for computer studies in their respective schools. Table 4.2.3 provides information on this below.

**Table 4.2.3. Enrolment per class for computer studies in the three sampled schools**

Name of School	Enrolment in computer studies		Total
	Boys	Girls	
<b>A</b>	<b>63</b>	<b>52</b>	<b>115</b>
<b>B</b>	<b>59</b>	<b>43</b>	<b>102</b>
<b>C</b>	<b>51</b>	<b>65</b>	<b>116</b>
<b>Total</b>	<b>173</b>	<b>160</b>	<b>333</b>

**Source:** Field work (2016)

According to Table 4.2.3 it is clear that school **A** had a total of 115 learners taking computer studies. Out of 115, 63 were boys and 52 were girls. School **B** had a total of 102 learners in computer studies classes of which 59 were boys and 43 were girls. School **C** had a total of 116 learners of which 51 were boys and 65 were girls.

The overall number of learners at the three participating schools was 333 of which 173 were boys and 160 were girls. This shows that there were more boys than girls in computer studies classes at the three sampled schools.

#### **4.2.2. Learners' experiences**

Learners being the direct beneficiaries of the teaching and learning of computer studies in schools, it was imperative to interact with them in this study gathering their experiences in the teaching and learning of computer studies.



Concerning the question of learning computer studies in the three schools, learners affirmed that computer studies was experienced in two parts which were theory and practice. With regard to theory, during a focus group discussion learners reported that it was conducted from the classrooms with respect to the daily routine of the school time table. The study found that the learning was done with the help of text books as stipulated in the school syllabus content. Further, learners reported having had experienced the learning of computer studies. To support this, one learner made the following remarks:

*My experience over the subject is great and awesome. It is really enjoyable because it gives me the freedom to interact with others and make sense of the real learning in a free atmosphere.*

Furthermore, the study found that the learning of computer studies was faster because learners were involved in the actual teaching and learning of the subject. They stated that its practical nature made the acquiring of knowledge and skills easy.

On whether time was adequate in their experiences of computer studies, learners stated that time allocated for computer studies was limited. To support this finding, one learner reported that:

*Time allocation for computer studies is not adequate as we all know that the subject demands more time due to its nature. This compels us in most cases to come back for lessons in the afternoons and sometimes even on weekends when teachers ask of us for the sake of covering the content. This means that we experienced it with limited time.*

Concerning the number of teachers to handle computer studies, learners reported that teachers were not enough. Further, learners were quoted saying the following words: *We are too many*

*in our classes and sometimes teachers fail to attend to all of us during learning time. Furthermore, they reported that some of the teachers who handled them in computer studies were the same teachers who taught them mathematics.*

Learners were further asked whether computer studies equipment and accessories were available in schools. Table 10 shows the information given by learners.

**Table 4.2.2. Computer equipment and accessories per school**

Computer studies	School A		School B		School C	
	✓	Quantity	✓	Quantity	✓	Quantity
Computers	✓	100	✓	78	✓	18
Printers	X	00	✓	01	X	00
Photocopier	✓	01	X	00	X	00
Furniture	✓	Many	✓	Many	✓	Few
Computer lab	✓	01	✓	01	X	00
Internet	✓	Available	✓	Available		Not always

**Source:** Field work (2016)

Table 4.2.2 depicts the number of computer equipment and accessories available at the three schools with a **Tick** if available and **X** if not available. According to table 10, it is clear that school **A** had 100 computers, 01 photocopier, adequate furniture, a computer lab connected to internet. School **B** had 78 computers, 01 printer, adequate furniture, a computer lab connected

to internet and school C had only 18 computers, few furniture and intermittent internet connection. This shows that computer studies was taught well at school A and B due to availability of computer equipment and accessories as compared to school C as indicated in the table above.

Further, to support the above finding, the researcher went on to observe lessons in each of the three school's computer laboratories showing how learners were carrying out the practicals in computer studies as shown below.

**Figure 4.2.2. Computer laboratory for school A**



**Source:** Field pictures (2016)

Based on figure 4.2.2, it shows that learner-computer ratio is good.

**Figure 4.2.3. computer laboratory for school B**



**Source:** Field pictures (2016)

Figure 4.2.3 depicts a view of computer laboratory at school **B**. From the picture, it shows that learner-computer ratio is good.

**Figure 4.2.4. A view of school classroom used as a computer laboratory at school C**



**Source:** Field pictures (2016)

Figure 4.2.4 shows a view of computer lab at school C. From the picture, one can tell that learner-computer ratio is four (4) learners against one (1) computer.

With respect to the above computer laboratories, learners at the three participating schools reported that the supply of electricity was erratic and made it difficult for them to learn computer studies. They further stated that the erratic power supply made them experience the teaching and learning of the subject with difficulties especially the practical part of the subject as it dependent upon the constant flow of electricity for meaningful learning to take place.

### **4.3. Benefits of teaching and learning of computer studies in schools**

Teachers in schools especially those who were involved in the teaching and learning of computer studies were asked to state the benefits of teaching and learning computer studies.

#### **4.3.1. Views of teachers**

As regards the perceived benefits that the study unearthed from teachers, it showed that computer studies equipped teachers with administrative know-how of computer operations. Further, teachers revealed that the administrative application of the computers empowered them with the knowledge and skills for writing correspondences, reports, testing and scoring tests. Furthermore, one teacher stated that; *Computer studies makes a shift from manual and traditional way of working with a pen and a paper to softcopies which makes most of the work easier in term of preparing schemes of work or lesson plans.*

The study also found that computer studies enhanced the communication skills of teachers. With respect to this, they echoed that the component of information embedded in computers gave them a skill to enhance information collection, processing and dissemination which made them competent and good communicators in giving instructions to learners in schools.

To support this, one teacher made the following remark;

*Computer studies enriches me with innovative skill which enhances my communication ability to teach and explain certain technological concepts to learners in giving instruction. I mean! It widens the scope of understanding the information communication and technology which is a crucial element in the teaching and learning of the 21<sup>st</sup> century learners.*

The study revealed that computer studies helped and enhanced teachers' interactions with learners and improved on methods of teaching. On methods of teaching, they emphasised that it promoted learner centred method of teaching which allowed more to be done by learners

through independent exploration and team work. In tandem with the above, one teacher had this to say:

*Computer studies reduces on our busy schedules as it improves on methods of teaching and promotes learner centredness which is full of self-propelled exploration, discovery learning and a spirit of cooperation among the learners as they share different experiences and competences on a task.*

The study also revealed that computer studies increased teachers' participation and knowledge in academic research. Teachers reported that they were able to venture into the search and voyage of information by applying computer skills in research which made them be well informed and vested with the knowledge. In this regard, one teacher made the following remarks below:

*In the past years, it was difficult and researchers used to spend more time to research and author a book or journal due to lack of sources and means of processing information. This traditional way of research was too intense, hectic and sheer waste of time, however, with the emerging of technology through the teaching and learning computer studies, more sources of information such as internet and other conditions necessary to its delivery have been made available. This makes research easier and faster coupled with the acquisition of long life and relevant skills.*

Further, the study indicated that computer studies stimulated and promoted individualised learning among learners in schools. Teachers stated that this worked well for schools that had enough computer facilities and equipment due to large classes and differences in individual learning style and pace. To support this, one teacher made the following remarks:

*Although it demands for more resources and consumes a lot of time, computer studies allows Individualised attention to be given to a learner not in a group. Individualised attention involves one to one discussion over a particular lesson or topic. The essence of individual attention is to ensure that a particular learner's needs are met. An individual learner is attended to separately with a variety of contents and symbolic modes that would enhance self-reliance and total independence.*

#### **4.3.2. Views of learners**

Learners were also asked to give out their position on the perceived benefits of computer studies in schools as they were the recipient of the teaching and learning process. As regards to their perceived benefits, learners reported that computer studies benefited them in so many ways, among others the benefits are presented in Table 4.2.2.11 below.

**Table 4.3.2. Responses of learners on the benefits of computer studies**

<b>Benefits of computer studies</b>	<b>Frequency</b>
Creates enabling & interactive atmosphere	14
Enhances communication skills	12
It shapes future career aspiration ( productivity)	4
<b>Total</b>	<b>30</b>

**Source:** Field work (2016)

Table 4.3.2 shows the responses of learners on the benefits of teaching and learning computer studies in the three schools. From the table, fourteen (14) learners reported that computer studies benefited them by creating an enabling and interactive atmosphere; while twelve (12) stated that it enhanced communication skills and four (4) reported that it shaped their future



career aspiration as it made them productive in life. Further, learners mentioned that computer studies also imparted them with the knowledge and skills of academic research, changed the methods of teaching, promoted individual learning and revitalised by making the teaching and learning of other subjects possible. In view of this, one learner in a focus group discussion had this to say:

*Computer studies makes it possible for us to realise and understand the teaching and learning of other subjects such as Mathematics and English. In English for example, it improves on my spelling of English words because of automated software which corrects spellings. Because of that, it enhances and shapes my daily vocabulary through writing and reading skills.*

Furthermore, another learner citing an example of how computer studies helps them in mathematics stating that:

*In a computer, there are concepts that deal with calculations. So learning computer studies in schools has made some subjects like mathematics and commercials easier because they have the concept as those in computer studies. This makes it easier and enjoyable because we are able to relate the past knowledge from other subjects and sometimes if we do not understand, normally we ask teachers to help us as the best way to learn.*

#### 4.4. Challenges faced by teachers and learners in the teaching and learning of computer studies in schools.

##### 4.4.1. Views of teachers on challenges faced in the teaching of computer studies

When asked to state the challenges that teachers faced in the teaching and learning of computer studies in schools, teachers had their own unique views. In as much as they appreciated the benefits of computer studies in schools, teachers also identified a number of challenges as presented in the figure below.

**Figure 4.4.2. Views of teachers on challenges faced in the teaching of computer studies**

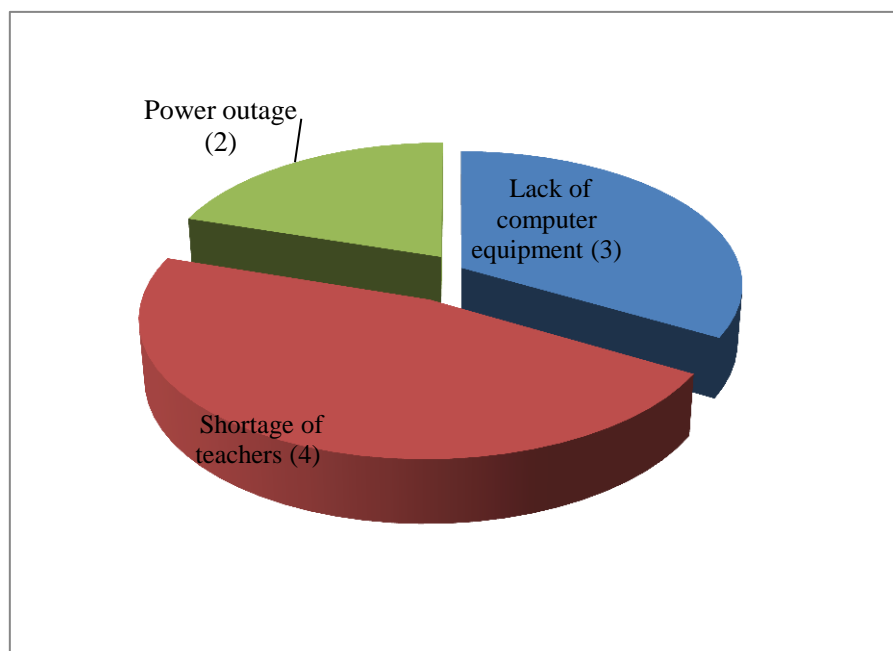


Figure 4.4.2 shows the views of teachers on the challenges faced in the teaching and learning of computer studies. The chart indicates that four (4) teachers reported that shortage of teachers was a challenge in computer studies; while three (3) of them indicated lack of computer equipment and two (2) reported power outage.

Other challenges were increased theft of computers, negative attitude from parents and lack of funds, overcrowding, lack of teaching/learning materials and computer laboratories. For example, one teacher went further to state that:

*In our school, there is no designated computer laboratory and what we have is just a classroom that has been modified and used as a computer laboratory which is not even in a good state to accommodate and support the teaching and learning of the subject because even the computer facilities are not enough posing a challenge both on us as teachers and learners.*

#### **4.4.2. Views of learners on the challenges faced in the learning of computer studies**

When questioned to state whether there were challenges faced in the teaching and learning of computer studies in schools, learners indicated different views on the challenges faced in the learning of computer studies. Among them, the following are presented in table 12 below.

**Table 4.4.2. Challenges faced in the leaning of computer studies as observed by learners**

<b>Challenges</b>	<b>Frequency</b>
Lack of learning materials	15
Lack of computer laboratory	9
Power outage	4
Overcrowded classes	2
<b>Total</b>	<b>30</b>

**Source:** Field work (2016)

Table 4.4.2 shows the views of learners on the challenges faced in the teaching and learning of computer studies. From the Table, 15 learners attributed the challenge to lack of learning materials; while nine (9) indicated lack of computer laboratories; four (4) reported power outages and two (2) settled for overcrowded classes. Furthermore, one learner stressed on overcrowding and stated that:

*Overcrowding is not good because it brings a lot of negative developments which retrogress the learning of computer studies. This is because some of us are delayed by our friends who do not have knowledge and skills to operate the computer when given individual tasks due to sharing of computers. Am not saying sharing of computers is a bad idea but sometime there are certain topics that would require you as an individual to perfect some of your skills and this requires ample time and patience.*

Another learner reported that:

*The other challenge is that because of overcrowding, in most cases time is always limited to finish our tasks and teachers also fail to manage us all due to inadequate computer equipment in school.*

#### **4.5. Summary of the chapter**

This chapter presented the findings of the study in line with the study questions. The study found that the teaching and learning experiences of computer studies by teachers and learners despite some difficulties was good and interesting because it positively empowered them with various long life technological skills such as browsing, typing and researching via internet both in theory and practice.

As regards to the benefits of teaching and learning computer studies in schools at junior secondary school level, the participants posited that computer studies increased participation

in research, improved methods of teaching/learning, promoted individualised learning, provided an interactive atmosphere, communication skills, revitalised the teaching of other subjects, encouraged new administration functions, and shaped career aspiration.

The following were the major challenges faced by the teachers and learners in the teaching and learning of computer studies; Lack of teaching and learning computer equipment, increased load-shedding, lack of modern school computer laboratories, lack of trained personnel, negative attitudes from stakeholders such as parents, lack of funding from Government, inadequate time, overcrowding of classes and high rate of theft of computers in schools.

This chapter endeavored to present the findings of the study in a coherent manner through qualitative techniques. In the next chapter, some of the foregoing findings of the study will be discussed in relation to the reviewed relevant literature across the Global, Africa and Zambian context.

## **CHAPTER FIVE: DISCUSSION OF FINDINGS**

### **5.1. Overview**

The previous chapter presented the findings of the study. The present chapter discusses the findings of the study. The discussion will be done under the following sub-headings which have been derived from the research objectives:

1. Experiences of teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District.
2. Benefits of teaching and learning computer studies among the teachers and learners at Grade 9 secondary school level in Luanshya District.
3. Challenges faced by teachers and learners in the teaching and learning of computer studies at Grade 9 secondary school level in Luanshya District.

### **5.2. Experiences in the Teaching and Learning of Computer Studies**

The findings of the study revealed that teachers had experienced the teaching and learning of computer studies in two pathways, namely, theoretical and practical dimensions. Learners at the three participating schools responded in the affirmative that computer studies was taught and learnt in two parts theory and practice. This finding resonates with MoESVTEE (2013) which emphasizes that computer studies has been introduced in schools in order to equip learners with essential skills necessary for them to have basic knowledge of ICTs in both theory and practice to stimulate creative and analytical skills in entrepreneurship.

Under the theory part of the subject, the study revealed that computer studies was being experienced from classrooms where teachers could write on the board for learners to copy notes in their note books. Furthermore, the results showed that teachers and learners

experienced the teaching and learning of computer studies in the theory because it positively empowered them with various life-long technological skills such as browsing, typing and researching via the internet. Such skills would make the learners to attain progress in their educational journey. This finding resonates with the study by Eme, Emmanuel and Ernest (2015) whose findings revealed that computer studies impacted positively on the lives of teachers, learners and parents through their experiences of interacting with computers in the education system and community at large with internet and typing skills. This was because they were able to make use of the knowledge and skills acquired from the subject to solve their daily technological problems and apply the solutions to their activities in a meaningful manner. Due to this, massive skills acquired through the teaching and learning of computer studies not only in schools but in other places should be encouraged and made inevitable to the general populace.

On the other hand, practice was another dimension of computer studies experienced by both teachers and learners in the school computer laboratories. This was with an exception of school C which had no school computer laboratory but used a classroom. In this vein, the study's results revealed that the practical sessions in computer studies stimulated critical reasoning and a sense of creativity among learners because much of the learning was incumbent upon and undertaken by the learners themselves. Due to this, teacher-learner interaction in classrooms was positive in that it yielded the intended results and promoted among learners hands-on-experiences. This involvement of learners in practicals enabled them to develop informed and problem solving skills. This finding is consistent with Vygotsky (1978)'s social constructivist theory on which this study was anchored by stating that all mental functions are first experienced socially, mutually built and constructed through

social interaction with others through engaging students in inductive, hands-on-activities and group-work. This implies that there was massive participation in the lesson delivery in which learners were actively involved. This exposed and motivated them as the subject brought new technological understanding. With this background therefore, it is only necessary that practical sessions become a central and essential part of teaching and learning as they promote real learning through concrete objects to depict meaningful learning. This should be so because learners understand concepts very well if they are able to physically touch, feel and manipulate objects in the process of using them as teaching and learning aids. Therefore, both theory and practice dimensions of computer studies should be encouraged and given equal footing in schools as one way of promoting freedom of interaction and making learners to develop a sense of real learning in a free atmosphere.

On the number of periods allocated in a week for computer studies, the study revealed that the number of periods varied in the three schools. For example, it was found that, at school **A** and **B**, numbers of periods were three (3) per week translating into 2 hours and school **C** were two (2) per week and this translated into 1 hour 20 minutes. Going by the nature of the subject (computer studies) as regard to its teaching and learning standards as indicated in the revised school curriculum (MoESVTEE, 2013), it is clear that the number of periods allocated for computer studies were inadequate. In view of this finding, teachers and learners were deprived of enough time to enjoy the teaching and learning of the subject. This entailed that teachers and learners experienced the teaching of computer studies with less number of periods which affected the coverage of the content as well as understanding. This was in contrast with what was expected of them as stipulated in the Zambia Education curriculum framework of 2013 which clearly explains that the number of periods for computer studies is



four (4) per week which translates into 2 hours 40 minutes. This therefore, created a discrepancy between the study's findings in the participating schools and what the Zambia Education curriculum framework stipulates. However, for computer studies to be delivered diligently and meet its standards of being taught and learnt appropriately in schools, there is need to harmonise and reconcile the number of periods allocated to computer studies in schools in order to suit that which is highlighted in the Zambia Education curriculum framework of 2013. This way, the teaching and learning of computer studies would be appreciated by teachers and learners because it would have been made realistic and achievable.

In terms of school enrolment, the study found that the number of learners enrolled was extremely big at the three sampled schools. For example, the study revealed that at school **A**, the total number of learners taking computer studies was 115, implying that per class, there were 58 learners while at school **B** the total number was 102 of which 51 learners were allocated per class and at school **C** the total number was 116 translating into 58 learners per class. Considering these figures established by the study, it was clear that teacher-learner ratio was high at these schools. This high teacher-learner ratio disturbed the teaching and learning of computer studies thereby making teachers' teaching and learners' learning experience difficult as it compromised the quality of teaching and learning. This finding is in contrast with National Policy document on Education, *Educating Our Future* (1996) which stressed that for quality education to be in schools, each classroom should house only 45 as the maximum number of learners which was not the case according to the findings of this study.

The high teacher-learner ratio was coupled with high learner-computer ratio. For instance, at school **C**, there were only 18 computers against 58 learners. Therefore, the teaching and

learning experiences of teachers and learners were marred with a lot of difficulties and frustrations. This finding is in agreement with a global ICT (2006) report done in Canadian schools which revealed that there was a high student-computer ratio of one computer against five students and this made it hard for teachers and learners to enjoy the teaching and learning of ICT in schools. This implies that, due to the big number of learners, computer equipment and accessories available in schools were not enough to cater for each and every learner and this made the teaching and learning of computer studies ineffective. However, for effective teaching and learning of computer studies to be witnessed in the real sense in schools, the government through the Ministry of General Education should make computer equipment and accessories available in schools to support and provide a concrete platform for the proper delivery of the subject.

### **5.3. Benefits of Teaching and Learning of Computer Studies**

In terms of the benefits of teaching and learning computer studies, the study's findings showed that computer studies equipped both teachers and learners with knowledge and skills to participate in academic research. This finding was in line with Mikre's (2011) findings in Ethiopia on the role of ICTs in education in the use of computers and internet and revealed that, Information Communication Technologies (ICTs) were viewed as catalysts for exchanging and accessing information through scientific research by teachers and learners in schools. Further, Smith (1989) contended that computers in schools were used to enrich individuals with knowledge and skills to understand and improve on the techniques of research in order to survive in the technological world. Furthermore, the UNEB (2005) Ugandan report posited that equipping learners with ICT through computer knowledge and skills enables them to have access, process, analyse, interpret and disseminate information on

their own through research. This entails that as critical and demanding as research was, the subject provided teachers and learners with relevant competencies to venture into the search for information by applying computer skills. This helped them to gather relevant information which made them to be well informed and vested with the knowledge of how to solve research problems. This acquisition of research skills through computer studies in schools helped teachers and learners to be knowledgeable of computer lessons. This was because in the past years, it was difficult to search for information as such researchers used to spend more time to research and document a book or journal due to lack of sources and ways of processing information. This traditional way of research was too intensive and hectic. However, with the emerging of computer studies, more sources of information such as the internet and other facilities necessary for its delivery have been made available thereby making research easier and faster coupled with the acquisition of long life and relevant skills.

The findings of the study also revealed that teachers and learners benefited from the teaching and learning of computer studies as it enhanced their communication skills. They reported that the subject in question had been used as a tool through which information and communication technology (ICT) was channeled to the masses. For example, the results of the study indicated that computer studies exposed and equipped teachers and learners with most of life-long technological and communicative skills. These included typing, reading, browsing and printing using computers which later on improved their communication skills and enabled them to cope up with the world of technology. This finding is in tandem with Hilbert and López (2011) who suggested that the advent of information and communication technologies (ICTs) through the teaching and learning of computer studies imparts people with abilities and skills to e-mail, browse and write as communicative skills. This means that communication

has been made easier not only in schools but also in communities due to the innovative nature of the subject. Such competencies have changed the general way people communicate around the globe. This is because they can use internet information through e-mailing, browsing, and whatsapping, typing or writing a message to somebody as a way of communicating information. This means that teachers, learners and people in communities are responding positively to enormous technological changes thereby enhancing their communication skills through the teaching and learning of computer studies as initiated by the Zambia Education Curriculum Framework of 2013 in schools across the country.

The findings of the study further indicated that the teaching and learning of computer studies in schools helped teachers and learners to improve on the methods of teaching and learning. This finding is in tandem with Mikre (2011) who observed that computers in schools were recognised as a catalyst for change in the teaching and learning approaches which were more student-oriented. Smith (1989) also stated that computers help in changing pedagogical practices from teacher exposition to learners centred with an emphasis of placing learners at the centre of both teaching and learning activities as opposed to the traditional method of teaching which heavily depended on teachers rather than prioritising by addressing the learning interests of learners.

Furthermore, Bransford, Brown, and Cocking (1999) argued in favour of the same finding by contending that there is a common belief that the use of ICTs in education contributes to a more constructivist learning that increases in activity and greater responsibility of students as they are placed at the centre of the teaching and learning. Their study reported that in the teaching and learning of computer studies, methods of teaching had improved and shifted from teachers to learner-centred. The switching of methods from teacher to learner-centred is

because computer studies require that learners do much of the teaching and learning activities. This limits the role of the teacher to supporting, advising, and coaching students rather than merely transmitting knowledge. Due to this, learners are becoming more independent, self-motivated and excited about the learning process. This makes it possible for them to achieve as they put more effort and have control of their own learning activities. As a result, confidence, which promotes creativity and critical reasoning, is instilled.

Another benefit from the teaching and learning of computer studies as revealed by the findings of the study was that, it promoted individual learning in schools. This revelation is in agreement with Smith (1989)'s findings which recommended that computers in schools promote individualised learning among learners as they allow teachers to differentiate instruction in order to allow them to create lessons that use each student's individual skills to help drive the learning process. This implies that computer studies enable teachers to facilitate teaching and learning for learners to progress at their own pace and receive individual attention because of differences in learning styles and pace. These individualised instructions are very beneficial to student's success in the classroom because they consider a learner as an individual with unique learning abilities. Therefore, differentiation through individualised education plan in schools calls for a teacher to realise that classrooms must be places where teachers pursue their best understandings of learners in their teaching and learning and also to recall daily that no practice is truly best practice unless it works well for the individual learner.

The study's findings revealed that the computer studies benefitted teachers and learners in creating an enabling and interactive atmosphere that allowed them to interact as they participated in the teaching and learning process. This finding is consistent with Volman

(2005) who stated that computer studies was making dynamic changes in all aspects of life and that its impact was felt more and more at school levels because it provided both teachers and learners with more opportunities to interact. Therefore, this stimulated and impacted positively on the teaching and learning desires of teachers and learners as it presented them with freedom to ask and answer questions for easy grasping and understanding of concepts. This insight brought by the finding of this study confirmed the assertion advanced by Vygotsky (1978)'s social constructivist theory which held that learning is an active, contextualised process of constructing knowledge in which teachers and learners draw upon, connect and analyse their prior knowledge and experiences through self-discovery and interaction with others thereby integrating knowledge, and involving more capable people guiding those less capable to understand ideas beyond their developmental level. Vygotsky described this as the Zone of Proximal Development (ZPD).

The study's results further revealed that the teaching and learning of computer studies benefited teachers by empowering them with various knowledge and skills for easy running of administrative work because they were exposed to soft-copy information as opposed to hard-copy. For instance, teachers could access and use soft-copy information when setting examination questions and preparing class check-lists for learners. This finding was in line with Smith (1989) who stated that computers in schools serve numerous administrative functions such as writing correspondences, reporting students' progress, class check-lists and testing. Furthermore, Smith added that computers also play salient roles not only in education but also in other work places, business and entertainment. To further support this point, in the world today, a lot of activities whether at school, in business or entertainment fraternity require an element of computer technology. So for one to fully function, he or she needs to be

well vested with the relevant computer knowledge and skills acquired through the teaching and learning of computer studies in schools. This implies that instead of relying on hard copy information, the teachers shift to the usage of softcopy with the help of internet through the skills acquired from computer studies. This helps them to replace the laborious exercise of filing papers in filing cabinets and shelves. Therefore, this made the administrative application of computers a reality as it empowered teachers with computer knowledge and skills required in writing reports, testing and scoring tests as opposed to using a pen and paper work in schools.

Additionally, the findings of the study showed that learners at the three schools benefited from the teaching and learning of computer studies as it revitalised and made possible the teaching and learning of other subjects. In this case, they cited 'English and mathematics' as examples. This finding is consistent with Aduwa-Ogiegbaen and Iyamu (2005) who attributed the benefit of computers to making the teaching and learning of other subjects possible and easier. However, Aduwa-Ogiegbaen and Iyamu (2005) cited an example of mathematics which learners mentioned in this study as a point of reference. The reason for citing mathematics as an example was that it involves computational concepts similar to those found in computers which exposed learners to the skills of computation which were imbedded in computers. This made it easy for them to understand the concepts of mathematics.

On the other hand, computer studies still helped learners with the skills of writing correct spellings, construction of sentences and paragraphs in English. This was so because computers have automated software for correcting English spellings if at all one writes a wrong spelling. Therefore, computer studies was serving as a catalyst that opened them up to know and understand certain words and concepts from the mentioned subjects. Since

computers play a crucial role in every society, teachers and learners' abilities to internalise such skills and concepts, and their ability to apply the acquired skills in other subjects has seemingly become possible which are also part of the Zambia Education Curriculum Framework of 2013.

The study's findings also showed that computer studies benefited learners by equipping and imparting them with essential knowledge and skills that prepare them for entrepreneurship ventures such as running their own small businesses. For instance, a person could use the knowledge and skills acquired from computer studies to run an internet café for self-reliance. This finding is in resonance with MoESVTEE (2013) which stated that equipping learners with basic computer knowledge and skills makes them become productive and compete for the same job market and some careers in order for one to be self-functional. This implies that computer studies were acting as a tool to learners to be more productive because nowadays more and more jobs require applicants to be computer literate. As such, computers have become more prevalent in every-day life and workplaces. This helps to unlock the doors of entrepreneurship and exposes them to many opportunities to excel as they are able to express themselves freely by applying the acquired knowledge and skills. These skills make them ready and well vested with knowledge in preparation for future career aspirations and employment opportunities.

The meaning of the foregoing point is that in order to avoid overdependence syndrome, the knowledge and skills acquired from computer studies can be translated into one becoming innovative and productive by venturing into personal small scale business for self-sustenance and reliance. Therefore, using a computer has gained ground and as such, there is need to



increase the technological knowledge of people to better compete in the world of labour markets through teaching and learning of computer studies in schools.

#### **5.4. Challenges Faced by Teachers and Learners in the Teaching and Learning of Computer Studies**

The findings of the study revealed that there were a number of challenges with the prime one being the lack of computer equipment. This was explained on the premise that the effective teaching and learning of any subject is supposed to be supported by equipment. However, in the case of computer studies, teachers and learners reported that there was a shortage of computer equipment such as computers, ink, printers, and photocopiers. This finding was in line with Eme, Emmanuel and Ernest (2015) who argued that lack of computer equipment in Nigerian secondary schools had a negative impact on the flow of information and outcome of the teaching and learning process.

Owing to the aforementioned challenge, it is clear that teachers and learners faced difficulties in executing their mandate of teaching and learning the subject. However, this challenge is not peculiar to Zambian schools alone but also in the education systems of other countries across the continent. This implies that the inadequacy of computers and other equipment meant to facilitate the teaching and learning of computer studies in one way or the other disturbs the flow of information and the process of realising intended expectations. Therefore, for the teaching and learning of computer studies to thrive, the Ministry of General Education and other collaborative partners should put more efforts and prioritise computer technology through pumping more financial resources to purchase computer equipment in order to support its smooth delivery as a subject in schools.

Further, the findings of the study indicated lack of modern computer laboratories in the delivery of computer studies in the three participating schools. Similarly, Eme, Emmanuel and Ernest (2015) observed and contended that lack of ICT infrastructure such as laboratories and other facilities needed in schools for the acquisition of basic computer skills among teachers and students compromises the standards of teaching. Garegae's (2012) views also support this finding by stating that the use of ICT in teaching and learning of school subjects particularly mathematics had constraints such as lack of school computer laboratories. Additionally, he cited an example of a number of schools in Botswana each having only one small school computer laboratory which had no capacity to accommodate all the learners during the teaching and learning process.

Furthermore, Madzima Dube and Mashwama (2013) who investigated ICT Education in Swaziland secondary schools, particularly, its opportunities and challenges agree with the findings of this study by revealing that there was inadequate ICT laboratories which compelled most of the schools to conduct their practical sessions in smaller classrooms. This study indicated that computer laboratories which were present in the schools were sub-standard thereby affecting the delivery of the subject especially in the area of practicals. It was also revealed that those computer laboratories that were being used were too small and in poor condition. For instance, a classroom which was used as a computer laboratory at school C had no proper ventilation and was in a dilapidated state. This made it hard for teachers and learners to conduct and enjoy the teaching and learning of computer studies especially the practicals which by nature demanded a well-equipped and modern laboratory. This is a serious challenge which required immediate attention because without modern computer

laboratories in schools, the teaching and learning of computer studies would render the effort put by the government through the Ministry of General Education meaningless.

The findings from the study further revealed that teachers and learners at the three schools bemoaned the lack of teaching and learning materials such as textbooks, manilla paper and internet. This finding was in line with Phiri (2016) whose findings indicated that unsupportive school ICT curriculum due to lack of teaching and learning materials such as text books and other ICT facilities compromised the standards of teaching and learning as it made its objectives futile. The absence of these materials in schools made it hard for teaching and learning to be meaningful. This was so because for meaningful teaching and learning of computer studies to occur, it ought to be accompanied and supported by the required teaching and learning materials as well as other facilities. Without such ingredients, the teaching and learning process would be in vain because computer studies requires such facilities as it involves typing, drawing, reading and researching. Therefore, without textbooks and other facilities like internet the teaching and learning process would be less active and baseless because there would be no sources of information where learners could refer when given an academic task. In this instance, lack of teaching and learning materials does not only affect the role of ICT in the teaching and learning of mathematics as revealed by Phiri (2016)'s study but also the teaching and learning of computer studies. This implies that, for quality education to be achieved, it requires the availability and use of prescribed textbooks and other educational materials in that particular domain. However, without such aids to the teaching and learning of computer studies, effective teaching and learning process would be tempered with. Therefore, there is massive need for the Ministry of General Education through the relevant authorities to distribute the necessary teaching and learning materials in schools in

order to make teaching and learning in computer studies meaningful. This is because suitable materials enable learners to acquire and apply knowledge, learn at their own pace, and assess their own progress.

Another challenge that was established in this study was power failure due to load shedding which characterised the country in 2016. However, the effects of power failure were felt more during the practical part of the subject. This finding was in line with Phiri's (2016) finding which revealed that the full implementation of ICT in schools still faces huge battles such as deficits in electricity supply due to load-shedding. Aduwa-Ogiegbaen and Iyamu (2005) who looked at the use of ICT in secondary schools of Nigeria revealed a similar finding and supported it by arguing that, the unstable and unreliable electricity supply in Nigerian secondary schools compromised the smooth flow of ICT.

Further, Tayo, Ajibade and Ojidokun (2009) who conducted a study on the use of the computer and its relevance to teaching and learning in the Nigerian educational system also supported the above finding by stating that most schools which were offering computer studies in Nigeria had an epileptic power supply. This was viewed as a setback because whenever it happened, it provided the schools with no option but to wait until the time the subject would reappear on the school timetable as it could occur in the midst of the actual teaching and learning process. The situation was described as retrogressive because it retarded progress in terms of content coverage as power was a primary source for computers to operate. Therefore, there is need for concerted efforts by the Ministry of General Education with other partners to see to it that in such instances, the alternative of using generators is explored, hence the need to purchase generators and distribute them in schools.

Shortage of trained teachers to facilitate the teaching and learning of computer studies was another challenge revealed by this study. This finding was in line with a global report done in Canada on ICTs and education Indicators (2006) which revealed that there is lack of trained teachers of ICTs in schools and this compromises the teaching standards. The report further revealed that this challenge was not only in schools but also affected universities and colleges. This came to light when four (4) teachers reported that the challenge was necessitated by the manner in which the subject was introduced in schools. It was explained that computer studies was not introduced in good faith as such most teachers were caught unprepared to teach it. The study indicated that teachers claimed that the subject was imposed on them without their knowledge and best preparation in training for its implementation in schools. For example, the study found that out of nine (9) teachers who participated, only three (3) were qualified in computer studies with a qualification of diploma which was not adequate enough in teaching the subject. The remaining six (6) had degrees as their qualifications but were specialized in mathematics. Therefore, most of them did not have much knowledge and skills to impart computer skills among learners and this made their teaching questionable. However, despite the fact that the previously mentioned report was done in Canada, its findings and recommendations were insightful and applicable to this study. In other words, there is need to have teacher training institutions to train teachers in computer studies and ICT. In this manner, more teachers would be brought on board by the government to avoid this discrepancy and make the teaching and learning of the subject a success.

The results of the study also indicated lack of adequate funding from the Government to support the teaching and learning of computer studies. This finding was in agreement with Bukaliya and Mubika's (2012) findings in Zimbabwe on factors militating against the

introduction of computer education in secondary schools which revealed that the funds for computers were inadequate because there was no budget for computer procurement. However, this finding was in contrast with the observation made by Farrell (2007) that the Kenyan government was consistently in the fore front providing support in terms of funds to smoothen and facilitate the introduction of ICTs in schools. This shows that in terms of prioritising computer education, Zimbabwe and Zambia are on the same side of the coin because both countries seem not to adequately fund their education systems towards the promotion of ICTs and computer studies.

The aforementioned came to light when teachers revealed that there was lack of and inconsistency in funding of schools and this had created shortage of equipment needed to facilitate most of the school's teaching and learning activities. In view of the erratic funding, Government has fuelled slow development of school projects and other demands such as procurement of school teaching and learning equipment such as text books, chalks, computers, internets, computer ink and the construction of modern laboratories to support the teaching and learning of the subject.

In addition, the trend of not adequately funding the education system towards the promotion of computer education makes the administration of schools unstable and deprives teachers and learners of their educational rights to accessing life-long skills imbedded in computer studies. Therefore, government should prioritise the promotion of computer education by making funds readily available in schools for procurement.

The study's results further revealed that there was a negative attitude from parents toward the subject. This came to light when teachers reported that from the onset of teaching and

learning computer studies in schools, some parents had been having a negative attitude towards supporting it. However, this finding contradicts Farrell's (2007) finding which reported that parents in Kenya were very willing to offer their support to schools in order to promote ICTs facilities for their children to benefit from the teaching and learning. This initiative included other stakeholders such as Government, Non-governmental organisation and other agencies. This shows how much value parents in cited country attach to the education of their children through support rendered unlike with the findings of this study in which parents received the teaching and learning of computer studies with negative attitudes. This was because the subject demanded more technological devices such as laptops, internets and ink which were expensive for most parents. Teachers attested to this when they attended Parent Teacher Association meetings (PTA) and discovered that the teaching and learning of the subject in question was received with mixed feelings. Most of the parents were not in support owing to the fact that they could not afford to spare any extra money to purchase computer equipment whenever the need arose. Hence they failed to cooperate.

In view of the numerous challenges that surround the teaching and learning of computer studies, the study also found that teachers and learners faced challenges of overcrowding in classes and high rate of theft of computers as novel knowledge peculiar to this study. This was because after a deep synthesis of literature, it was clear that no empirical evidence from other studies reported on overcrowding in classes and theft of computers as challenges faced by teachers and learners in the teaching and learning of computer studies in schools.

Overcrowding was not conducive because it had a lot of negative developments as most of the learners were delayed by their friends who were not acquainted with the knowledge and skills to operate computers when given individual tasks due to the sharing of computers. This

situation does not imply that the sharing of computers among the learners was a bad idea. However, there were certain topics that required an individual to search for information, write and perfect some of his/her skills and this required ample time and patience. The overcrowding in classes was coupled with a high teacher-learner ratio because the classes had more than the required number of learners as opposed to the numbers of teachers to teach the subject. Furthermore, time factor was also mentioned in passing. This was viewed by learners as being a major barrier in their learning of computer studies because of being overcrowded in classes and that the individualised learning style demanded by the subject was impossible due to limited time.

Furthermore, the study revealed that the rampant theft of computers in schools had contributed to schools having very few computers and equipment to facilitate the teaching and learning of computer studies. This showed the extent to which theft of computers had reached and caused chaos in schools by paralysing the steady pace at which teaching and learning of computer studies should be conducted. This was deemed as a draw-back especially at schools **B** and **C** which suffered the most theft and disturbed the teaching and learning process of the subject.

### **5.5. Summary of the Chapter**

This chapter presented the discussion of findings of the study in line with the objectives. The study found out that the teaching and learning of computer studies was done two-fold; theory and practice. Teachers and learners experienced the teaching and learning of computer studies because it positively imparted them with technological skills such as browsing, typing and researching via internet although with some hurdles attached.



With regards to the benefits of teaching and learning computer studies, the findings revealed that computer studies increased participation in research, improved methods of teaching/learning, promoted individualised learning, encouraged new administration functions, provided an interactive atmosphere, communication skills, revitalised the teaching of other subjects, and shaped entrepreneurial career aspirations.

In terms of the challenges faced in the teaching and learning of computer studies, teachers and learners indicated lack of teaching/learning equipment, inadequate number of trained personnel, negative attitudes from stakeholders such as parents, lack of funding from Government, power outages, lack of modern school computer laboratories, inadequate time. The study also noted overcrowding of classes and theft of computers as novel knowledge among challenges faced by teachers and learners in the teaching and learning of computer studies. Therefore, based on the participants' views at the three schools represented in this study, the researcher gained a broad picture of experiences, benefits and challenges of teaching and learning of computer studies as indicated above. The next chapter presents the conclusion of the study and puts forward recommendations for future research.

## **CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS**

### **6.1. Overview**

The previous chapter discussed the findings by bringing out issues on the experiences, benefits and challenges in the teaching and learning of computer studies. This chapter presents the conclusion and recommendations of the study. However, this investigation was confined only to three selected secondary schools in Luanshya District. Furthermore, in this chapter, the conclusion is drawn on the basis of the findings of the study and thereafter recommendations based on the findings of the study are made. Finally, the chapter ends by suggesting areas for further research based on the findings of the study.

### **6.2. Conclusion**

It is evident from the study findings that both teachers and learners held both positive and negative experiences in the teaching and learning of computer studies. This is because the teaching and learning of computer studies was experienced by teachers and learners in twofold which included the theory and practice parts and that it was experienced differently as they belonged to different types of secondary schools. For instance, the established schools (school **A** and **B**) had fair experiences because they had enough computer supportive resources. This was different with up-graded school **C**.

Despite teachers and learners holding such different experiences, both were appreciative of the benefits of the teaching and learning of computer studies which included improvement in methods of teaching/learning, academic research, promotion of individualised learning, enhanced the channels of massive communication skills, revitalised the teaching and learning understanding of other subjects provided them with an interactive atmosphere in classes

which allowed learners to interact more often among themselves and with their facilitators. This means that teachers facilitated the teaching and learning process in a more conducive and free from injury environment and this stimulated and shaped learner's career aspirations. It also encouraged new administrative functions among teachers.

It is also clear from the study that although teachers and learners held positive views about the teaching and learning of computer studies, they were discouraged by a number of challenges encountered in the teaching and learning of computer studies which compromised its delivery. Among other challenges were; lack of teaching and learning materials, inadequate computer equipment, and increased power failure, lack of modern school computer laboratories, lack of trained personnel, negative attitudes from stakeholders and lack of funding from Government, limited time, overcrowded classes and high rate of theft of computers in schools. Nevertheless, both teachers and learners were still optimistic that the Zambian education system would benefit greatly in the long run if computer studies was taught and learnt effectively. This is because the Zambia of the 21<sup>st</sup> Century must be different from the Zambia of the 1900s. Nations that develop superior technologies would also be nations that would lead in the 21<sup>st</sup> Century. Zambia cannot afford to lag behind in this regard as technology is one of the three ingredients of economic growth. The other two being capital and labour. The way a nation manipulates technology, capital and labour determines how rich or poor that nation would be. This is because technology is closely linked to productivity and technology does to a nation what education does to an individual by changing his or her mindset.

### **6.3. Recommendations**

Based on the findings of the study, the following key recommendations emerged:

1. Given the participants positive experiences on the teaching and learning of computer studies, the government through the Ministry of General Education should provide adequate teacher training in computer skills and ensure easy access to computers, textbooks, internet and other ICT facilities.
2. Government through the Ministry of General Education (MoGE), Provincial Education Officers (PEOs), District Education Board Secretaries (DEBs), school Boards, head teachers, parents and cooperating partners should provide schools with modern computers and ICT infrastructure and facilities that have both international and local appeal.
3. There is need for the Ministry of General Education to empower schools with funds so as to purchase Generators in schools to continue teaching and learning in school computer laboratories in an event of power outage.

#### **6.4. Areas for further research**

Arising from the research findings of this study, some other aspects of this study area may not have been studied and these areas may need to be studied. The areas of the study which may be studied include:

1. Research into the perceptions of school administration in the implementation of ICT in schools.
2. Future research may also be conducted to investigate how computer studies can be implemented among learners with special educational needs.

## REFERENCES

- Acikalin, M., & Duru, E. (2005). *The use of computer technology in social studies classroom in the United State of America schools*. Post-doctoral student at Penn State University, Harrisburg PA-USA.
- Adıguzel, T., & Akpınar, Y. (2001). Bilgisayar tabanlı çoklu gösterimlerle ilköğretim öğrencilerinin problem becerilerinin geliştirilmesi. (Improving children's problem solving skills through computer-based multiple representations) Kuram ve Uygulamada Eğitim Bilimleri Dergisi. 1(2), Retrieved July 17, 2004, from [http://www.edam.com.tr/kuyeb\\_Abtract/1\(2\)\\_1.pdf](http://www.edam.com.tr/kuyeb_Abtract/1(2)_1.pdf)
- Aduwa-Ogiegbaen, S. E., & Iyamu, E. O. S. (2005). Using Information and Communication Technology in Secondary Schools in Nigeria: Problems and Prospects. *Educational Technology & Society*, 8 (1), 104-112.
- Berger, P. L., & Luekmann, T. (1967). *The Social Construction of Reality: A treatise in the Sociology of knowledge*. Garden City, NJ: Anchor.
- Black, T. R. (1999). *Doing quantitative research in social science: An integrated approach to research design, measurement and statistics*. Thousand Oaks: Sage Publications
- Bless, C., & Craig. H. M. (1995). *Fundamentals of Social Research Methods: An African Perspective*. Cape Town: Junta and Company.
- Bransford, J., Brown, A., & Cocking, R. (eds), (1999). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Research Council.

- Bryman, A. (2004). *Social Research Methods*. New York: Oxford Press.
- Bukaliya, R., & Mubika, A.K. (2012). Factors Militating Against the Introduction of Computer Education in Secondary Schools. *Journal of Education and Instructional Studies in the World Vol. 2 (3)*. 06. August 2012.
- Castells, M. (2001). Information Technology and Global Development. In Muller, J. Cloete, N. & Badat, S. (eds). *Challenges of Globalisation. South African Debates with Manuel Castells*. Cape Town: Maskew Miller Longman, 152-167.
- Cohen, L., Manion, L., & Marrison, K. (2000). *Research methods in Education*. New York: Routledge.
- Creswell, J.W. (2009), *Research Design: qualitative, quantitative and mixed methods approaches (3<sup>rd</sup> ed)*. London: SAGE Publications.
- Crotty. M. (1998). *The foundations of social research: Meaning and perspective in the research process*. London: Sage.
- Dzidonu, C. (2010). *An analysis of the role of ICTs to achieving the MDGs*. From <http://www.ait.edu.gh>, Accessed on 25th March, 2015.
- Eme, O., Emmanuel, M. N., & Ernest, O. C. (2015). Computer Studies and its impact in secondary schools in Umuahia North-Local Government Area of Abia State, Nigeria. *Published Online June 2015 in MECS (<http://www.mecs-press.org/>) DOI: 10.5815/ijmecs.2015.06.03*.
- Farrell, G. (2007). *The Development of Virtual Education: A Global Perspective*, Vancouver: The Commonwealth of Learning.

- Garegae, K. G. (2012). *Issues and concerns about integration of ICT into the teaching and learning of mathematics in Africa*: Gaborone: University of Botswana Press.
- Gilakjani, A.P. (2013). Factors Contributing to Teacher's Use of Computer Technology in the Classroom. *Universal Journal of Educational Research*1(3):265-267, 2013.
- Güven, B. (2008). Using dynamic geometry software to gain insight into proof. *International Journal of Computers for Mathematical Teaching*, 13(3), 251-262.
- Habeenzu, S. (2010). *Zambia ICT Sector Performance Review 2009/2010, "Towards Evidence based ICT Policy and Regulation*. Volume Two, Policy Paper 17, 2010 [www.researchictafrica.net/zambia-ict-sector-performance-review-2009/2010.html](http://www.researchictafrica.net/zambia-ict-sector-performance-review-2009/2010.html), [Accessed 09/03/2013].
- Hadlee, R. R., & Tamilenth, S. (2013). An overview of ICT and computer education: Challenges and Opportunities in Chipata, Eastern province, Republic of Zambia. MA Dissertation, (Unpublished). Lusaka: University of Zambia Publisher.
- Heidegger, M. (1962). *Being and Time*. Oxford: Blackwell.
- Hewitt de Alcantara, C. (2001). *The Development Divide in a Digital Age. An Issues Paper*. The Hague: United Nations Research Institute for Social Development.
- Hilbert, M., & López, P. (2011). *The World's Technological Capacity to Store, Communicate, and Compute Information*. *Science*, 332(6025), 60-65. Accessible through this site: <http://www.martinhilbert.net/WorldInfoCapacity.html>.

- Information Communication and Technologies (2006). *A global report on ICTs and Education: Suggested core indicators based on meta-analysis of selected international school surveys*. Canada: Communication Statistic Unit.
- Kasonde-Ng'andu, S. (2013). *Writing a Research Proposal in Educational Research*. Lusaka: University of Zambia Press.
- Kombo, D.K., & Tromp, D.L.A. (2006). *Proposal and thesis writing. An Introduction*. Nairobi: Paulines Publications Africa.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Lufungulo, E.S (2015). Primary School Teachers' Attitudes Towards ICT Integration in Social Studies: A study of Lusaka and Katete District, Zambia, MA Dissertation, (Unpublished), Lusaka: University of Zambia Publisher.
- Madzima, K., Dube, E. L., & Mashwama, P.M. (2013). *ICT Education in Swaziland secondary schools: Opportunities and Challenges faced in its implementation*. Maputo: Kwaluseni Press.
- Marker, P., McNamara, K., & Wallace, L. (2002). *The Significance of Information and Communication Technologies for Reducing Poverty*. London: DFID.
- Mikre, F. (2011). *The role of information communication technologies in Ethiopian education in the use of computers and internet*. Addis Ababa; Department of Psychology submitted 28 July 2011.
- Ministry of Communication & Transport (2006). *National Information and Communication Technology Policy*. Lusaka: GRZ.



- Ministry of Education (1996).*Educating Our Future*. Lusaka: Government printers.
- Ministry of Education (2011).*Senior Secondary School Computer Studies Syllabus*. Lusaka: Curriculum Development Centre.
- Ministry of Education Science, Vocational Training and Early Education (2013). *The Zambia Education curriculum framework*. Lusaka: Curriculum Development Center.
- Moon, B. (2004).*Open Learning and ICTs: A Radical Solution to Preparing Teachers to Meet the Universal Basic Education (UBE)*. The Open University, United Kingdom. [http://www.col.org/Moon Bob.pdf](http://www.col.org/Moon%20Bob.pdf). [Accessed 26/04/2013].
- Moran, S., & John-Steiner V. (2003). 'Creativity in the making: Vygotsky's contemporary contribution to the dialectic of development and creativity.' (Ch. 2.). In Sawyer R., et al., *Creativity and development*. (Eds.). Oxford; New York: Oxford University Press.
- Msabila, D.T., & Nalaila, S.G. (2013).*Research Proposal and Dissertation Writing: Principles and Practice*. Dar es Salaam: Nyambari Nyamgwine Publishers.
- Mulima, O. (2014). The perceptions of teachers and learners on the role of ICTs in the teaching and learning of RE in three selected secondary schools in Kabwe District, Zambia.MA Dissertation, (Unpublished), Lusaka: University of Zambia Publisher.
- Nabbout, M., & Basha, B. (2000).Using technology as a tool for teaching mathematics at the secondary school.In A. Oldknow (Ed.), *Proceedings of the International Conference of Technology in mathematics education (pp. 84-88)*. Beirut: Lebanese American University.
- Orodho, A. J.,& Kombo, D. K. (2002).*Research methods*. Nairobi: Kenyatta University,

- Patton, M.Q. (2002). *Qualitative Research and Evolution Methods*. London: Sage Publishers.
- Phiri, W. (2016). Pupils' and teachers' perception toward the use of Information and Communication Technology (ICT) in the teaching and learning of Mathematics in selected secondary schools of Central Province, Zambia. *International Journal of Multidisciplinary Research and Development*, Volume 3; Issue 1; January 2016; Page No. 77-87.
- Sandeloski, M. (1995). Sample size in Qualitative Research. *Journal of Nursing and Health*. 18, 183-197.
- Sichone, C. (2011). 'ZICTA Responds To School ICT Curricula Challenges: Times of Zambia.
- Smith, D. (1989). *Microcomputers in schools*. In M. Eraut (Ed.), *The International Encyclopedia of Educational Technology*, Oxford: Pergamon Press, 170-175.
- Smith, J.A., & Eataough, V. (2006). 'Interpretative Phenomenological Analysis'. In Breakwell, G., Fife-Schaw, C., Hammond, S. & Smith, J.A. (eds), *Research Methods in Psychology*, (3<sup>rd</sup> ed.). London: Sage.
- Tayo, B., Ajibade, A., & Ojidokun, O. (2009). Use of Computer and its Relevance to Teaching and Learning in Nigerian Educational System. *Educational Research and Review* Vol. 4(10). Pp. 443-447, October, 2009.
- Toyama, K. (2010). Human computer interaction and global development. *Foundations and Trends in Human-Computer Interaction* Vol. 4, No. 1 (2010) 1-79.

- Uyouko, A., & Wong, S. L. (2015). Teachers' cultural perception of ICT in Nigeria schools. *International Journal of Education and Training (InJET)* 1(1) June: 1-12 (2015).
- US Internet Council (2000). *State of the Internet 2000*. <http://wslogic.com/into.html> [Accessed 19/05/2013].
- Valsiner, J. (2006). *Qualitative and quantitative developmental research methods in their historical and epistemological contexts*. New York: McGraw-Hill.
- Volman M. (2005). Variety of roles for a new type of teacher. *Educational technology and the teacher profession*. *Teacher and Teacher Education*, 21, 15-31.
- Vygotsky, L.S. (1978). *Mind in Society: The development of higher mental processes*. Cambridge, MA: MIT Press.
- Weiss, C. H., & Bucuvala, M. J. (1998). *Social science research and decision-making*. New York: Columbia University Press.

**APPENDICES**

**APPENDIX A: CONSENT FORM**

**THE UNIVERSITY OF ZAMBIA  
DIRECTORATE OF RESEARCH AND GRADUATE STUDIES  
SCHOOL OF EDUCATION  
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, SOCIOLOGY AND SPECIAL  
EDUCATION**

**CONSENT FORM**

Dear Sir/Madam,

**REF: REQUEST FOR CONSENT TO BE A RESEARCH PARTICIPANT**

I am a student at the University of Zambia doing a Master of Education degree in Educational Psychology. I am here to request for your consent to be one of my participants to my research on **“Experiences of Teachers and Learners in the Teaching and Learning of Computer Studies at Grade 9 Secondary School Level in Luanshya District, Zambia”**. This will help me come up with experiences from teachers and learners on their experiences in the teaching and learning of computer studies among grade nine (9) classes.

Be assured that the information you will share with me will be confidential and will only be used for academic purposes.

Your consent to this request will greatly be appreciated.

Yours Faithfully,

..... (Sign)

Pelekelo, Kabundula – Researcher/Student

**Consent by participant**

Having read or heard the information concerning this research, I hereby voluntarily consent to be one of the participants. In this regard, I reserve the right to end the interview at any time and choose not to answer particular questions if necessary.

Name: ..... Signature/date: .....

# **APPENDIX B: SEMI-STRUCTURED INTERVIEW GUIDE FOR TEACHERS**

**THE UNIVERSITY OF ZAMBIA**

**DIRECTORATE OF RESEARCH AND GRADUATE STUDIES**

**SCHOOL OF EDUCATION**

**DEPARTMENT OF EDUCATIONAL PSYCHOLOGY, SOCIOLOGY AND SPECIAL  
EDUCATION**

## **Dear Participants**

I am a postgraduate student at the University of Zambia pursuing a master of education Degree in Educational Psychology. I am conducting a research entitled **‘Experiences of Teachers and Learners in the Teaching and Learning of Computer Studies at Grade 9 Secondary School Level’**. Kindly feel free, open and honest in your responses as all answers you give will be treated confidentially. However, should you feel at any point of the study like during interview that you cannot continue, you are free to withdraw.

1. Gender of the participants
2. Age of the participants
3. What Qualification do you hold?
4. Do you have computer studies as a subject taught at this school?
5. How often is computer studies taught in a week?
6. If not adequate, what measures have you put in place to meet the standards of teaching computer studies at this school?

8. What is the enrolment for the classes taking computer studies at this school?
9. Is the number of teachers in computer studies enough to handle the number of learners at this school?
10. If not enough, explain strategies put in place by the school to allow learners to learn?
11. Do you have computer laboratory at this school?
12. How is your computer laboratory equipment with?
  - i. Computers
  - ii. Printers
  - iii. Photocopiers
  - iv. Furniture
  - v. Computer lab
  - vi. Internet
13. In what ways has computer studies at your school benefited the following people:
  - i. Learners
  - ii. Teachers
14. Are there challenges that you face during the teaching of computer studies at this school?
15. If yes, then mention and explain on each of them?
16. How best do you think the teaching of computer studies can be done in schools?

**Thank you for your time!!**

## **APPENDIX C: FOCUS GROUP DISCUSSION GUIDE FOR LEARNERS**

I would like to have a discussion with you on the teaching and learning of computer studies at this school. Be rest assured that, there is no right or wrong answer. Please freely share your true feelings and opinions with me on this topic. The discussion will be kept confidential. Please feel free to participate. However, should you feel at any point of the study like during discussion that you cannot continue, you are free to withdraw.

1. Let's start by talking about the learning of computer studies, do you learn computer studies at this school?
2. How do you learn computer studies at this school?
3. Are the periods adequate for computer studies?
4. If not adequate, what do you normally do in order to learn?
5. Is the number of teachers in computer studies enough to handle you at this school?
6. If not enough, explain how you learn computer studies?
7. Do you have computer laboratory at this school?
8. How is your computer laboratory equipment with?
  - vii. Computers
  - viii. Printers
  - ix. Photocopiers
  - x. Furniture
  - xi. Computer lab



xii. Internet

9. In what ways has computer studies at your school benefited you?

10. Are there challenges that you face during the teaching of computer studies at this school?

If yes, then mention and explain on each of them?

12. How best do you think the teaching of computer studies can be done in schools?

**Thanks for attention and time!**