



**AN INVESTIGATION OF THE MANAGEMENT OF THE TEACHING OF  
COMPUTER STUDIES IN SELECTED SCHOOLS OF ZIMBA DISTRICT OF  
SOUTHERN PROVINCE, ZAMBIA**

**BY**

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**A Dissertation submitted to the University of Zambia in partial fulfilment of the  
requirements for the award of the Degree of Master of Education in Educational  
Management.**

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## **DEDICATION**

This study is dedicated to my family members, my husband Nawa Mwangelwa, my son Chris and my girls Chileleko (bina Pheluna), Mweemba and my sister Bubala Chilangi.

## **COPYWRITE DECLARATION**

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

### **AUTHOR'S DECLARATION**

I Margie Beene Chilangi do declare that this dissertation in titled “Management of the Teaching of computer Studies in Junior Secondary School of Zimba District” represents my own work and that it has never been submitted to any university for award of any degree. All sources used, have been acknowledged.

## **APPROVAL**

The University of Zambia approves this dissertation of Margie Beene Chilangi as fulfilling part of requirements for the award of Degree of Masters of Education in Education Management.

Signed -----

Date -----

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## **ABSTRACT**

The thrust of the study was to investigate the management of the teaching of computer studies in selected schools Zimba District of Southern Province. In 2013 the government through the Ministry of Education Science Vocational Technology and Early Childhood (MESVTEE) by then reviewed the School Curriculum which saw the introduction of Computer studies as a compulsory and examinable subject at Junior Secondary School level. This development however was received with mixed feeling across the nation including School management. The study was guided by the theory of Technology Acceptance Model (ATM) (David 1989). In TAM, when the user is presented with a new technology, three major factors influence his or her decision on how and when they will use it. The first determinant being its perceived usefulness (PU), followed by the perceived ease of use (PEOU) and the third one is user attitude towards usage (ATU) (David et al, 2002).

The descriptive research design was used to collect qualitative data from a sample of 18 respondents who included school administrators, Heads of Department and computer studies teachers. Purposive and quota sampling were applied to select the respondents. Data were collected using interview guide and observation check list. The data were analysed thematically by the categorizing of major and sub-themes that emerged from the study. The study showed that school management faced challenges in the management of the teaching of computer studies. The majority of the school management were unable to formulate strategies to help them in implementation of computer studies into curriculum. There were further, no targets to be achieved, most schools lacked basic infrastructure which go along with the teaching and learning of computer studies, such as computer laboratories, computers, trained computer studies teachers, printers, projectors and adequate power supply.

Based on the findings, the study recommended that, government to give priority to schools and provide solar panels under rural electrification programme, office of District Education Board to hold regular seminars for head teachers on the importance of computer studies and short management courses as it was discovered that most head teachers lacked managerial skills.

## TABLE OF CONTENTS

Dedication.....	i
Copyright declaration.....	ii
Author's declaration.....	iii
Approval.....	iv
Acknowledgement.....	v
Abstract.....	vi
Table of contents.....	vii
List of tables.....	ix
List of figures.....	x
List of Appendices.....	x
Acronyms and Abbreviations.....	xi

## CHAPTER ONE: INTRODUCTION

1.0 Overview.....	1
1.1 Background.....	1
1.2 Statement of the problem.....	2
1.3 Purpose of the problem.....	3
1.4 Specific objectives.....	3
1.5 Specific Research Question.....	4
1.6 Scope of the Study.....	4
1.7 Significance of the Study.....	4
1.8 Limitation of the Study.....	4
1.9 Operational Definitions.....	5
1.10 Theoretical Framework.....	6
1.11 Ethical Consideration.....	7
1.12 Chapter Summary.....	7



## **CHAPTER TWO                      LITERATURE REVIEW**

2.0 Overview.....	8
2.1 History of Computer Studies in Zambian Education.....	8
2.2 Importance ICTs.....	9
2.3 Strategies.....	12
2.4 Availability of Infrastructure.....	15
2.5 Utilisation of available resources.....	20
2.6 Identifying unexploited opportunities.....	22
2.7 Chapter Summary.....	23

## **CHAPTER THREE                      METHODOLOGY**

3.0 Overview.....	24
3.1 Research Design.....	24
3.2 Target Population.....	25
3.3 Sample Size .....	25
3.4 Sampling Procedure .....	26
3.5 Methods of Collecting Data .....	26
3.6 Procedure for Collecting Data .....	27
3.7 Reliability .....	27
3.8 Data Analysis .....	28
3.9 Chapter Summary .....	29

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

4.0 Overview .....	30
4.1 Demographic Characteristics of Respondents .....	30
4.2 Characteristics of Respondent .....	31
4.3 Respondent Participation .....	35

4.4 Strategies .....	36
4.5 Availability of Infrastructure.....	42
4.6 Utilisation of Resource's.....	51
4.7 Identifying unexploited opportunities .....	54
4.8 Chapter Summary .....	55

## **CHAPTER FIVE:                DISCUSSIONS OF THE FINDINGS**

5.0 overview .....	56
5.1 Strategies .....	56
5.2 Availability of infrastructure .....	47
5.3 Utilisation of available resources .....	59
5.4 Identifying unexploited opportunities .....	71
5.5 Chapter Summary.....	73

## **CHAPTER SIX                CONCLUSION AND RECOMMENDATION**

6.0 Overview .....	74
6.1 Conclusion .....	74
6.2 Recommendations .....	76
References .....	77

## **LIST OF FIGURES**

Figure 1: Respondents by gender.....	31
Figure 2: Age for Head teachers.....	32
Figure 3: Age for HODs/Senior teacher.....	32
Figure 4: Age for Computer Studies teachers.....	33
Figure 5: Qualifications for Head teachers.....	33
Figure 6: Qualifications for HODs/Senior teachers.....	34
Figure 7: Respondent Perception.....	35
Figure 8: Computer Laboratory for Urban 1 School.....	44
Figure 9: Computer Laboratory for Urban 2 School.....	46
Figure 10: Class Room us as Computer Laboratory for Rural 1 School.....	50

## **LIST OF TABLES**

Table 1: Distribution of respondents.....	30
Table 2: No of Teachers trained in computers.....	34
Table3: Infrastructure for urban 1 school .....	42
Table 4: Infrastructure for urban 1 school .....	45
Table 5: Infrastructure Peri-Urban 1 School.....	47
Table 6: Infrastructure Peri-Urban 2 School.....	48
Table 7: Infrastructure for Rural 1 School.....	49
Table 8: Infrastructure for Rural 2 School.....	51
Table 9: Number of periods per week.....	53

## **LIST OF APPENDICIES**

<b>APPENDIX A:</b> Semi-structured interview guide for Administrators.....	84
<b>APPENDIX B:</b> Semi-structured interview guide for teachers.....	86
<b>APPENDIX C:</b> Observation checklist.....	87

## **ABBREVIATIONS AND CRONMY**

ATU	Attitude Toward Use
DEB	District Education Board
CPD	Continue Professional Development
HOD	Head of Department
ICT	Information Communication Technology
IIR	Irish Inspectorate Report
MESVTEE	Ministry of Education Science Vocational Technology and Early Childhood
MoCT	Ministry of Communication and Transport
MOGE	Ministry of General Education
OECD	Organisation for Economic Organisational Development
PEOU	Perceived Ease of Use
PTA	Parents and Teachers' Association
PU	Perceived Usefulness
TAM	Technological Acceptance Model
R&D	Research and Development
REP	Rural Electrification Programme
TRA	Theory of Reasonable Action
UK	United Kingdom
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
ZICTA	Zambia Information Communication Technology Authority

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0.Overview**

This chapter gives an over view of the problem to be investigated and stresses the issues of the study. It contains the background, statement of the problem and the significance of the study. The chapter also highlights the objectives of the study, the questions to be answered in the study, the purpose, and operational definitions of the key terms.

### **1.1 Background to the problem**

The introduction of the teaching of computer studies in many countries, Zambia inclusive, was as a result of policy pronouncements and the need to cope with science and technology (Kirkman, 2000). A lot of researches carried out indicate that using computers in educational institutions improves educational delivery and learner academic performance (Moono, 2018; Mulima, 2013; Shafika, 2007 and Hennessy et al, 2010).

The Zambian government as well realised the critical role Information and Communication Technologies play in economic and national development of a country especially in deducation, took a giant step in formulation of a National Information and Communication Technology (ICT) policy whose one of its pillars emphasises on the need for integrating computers in education (Habeenzu, 2010).

The initiative for the Zambian government to introduce computer studies in schools can be traced way back in 1998, when the Ministry of Education introduced the subject in selected secondary schools. However, this could not yield needed results (Ministry of Communications and Transport, 2006), due to various challenges such as lack of financial support, qualified teachers and the most critical one was lack of a clear government policy on how to integrate ICTs in education. Nonetheless the government did not relent on the need for introducing computer studies in government schools. In 2013, in the revised curriculum, computer studies was introduced in junior secondary schools, that is grades eight (8) and nine (9) as a compulsory and examinable subject (MESVTEE, 2013).

Several studies reveal that students using computers mostly show higher learning gains than those who do not use. For instance, Acikalin and Duru (2005) conducted a study titled the use of computer technology in social studies classrooms in the United States 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 the use of computers in schools foster students' critical thinking, creative thinking, problem solving and decision making skills; reinforce the constructivist classroom environment.

However, African countries still experience a lag in its implementation of computer studies syllabus and if this situation is left to continue, might widen the digital and knowledge gap. AB Foundation (2017) observed that access to ICT facilities is a major challenge facing most African countries, with a ratio of 1 computer to 60 learners while Cate's (2017) study indicates the ratio of 1: 6 students in developed countries.

The challenges affecting Africa with regard to computer facilities have not spared Zambia as a developing country. The effects of underdevelopment can be clearly seen in the poor infrastructure and lack of ICT facilities in most of the government schools (Shafika, 2007). While the financial, material and human resources are important factors in successful introduction of computer studies in education. It is also important to consider the prudent management of these resources in order to achieve the set objectives. Consequently, Tinio (2002) is of the view that, the implementation of computer studies into the curriculum may face various challenges with respect to policy, planning, infrastructure, capacity building and financing. Therefore, this study is set to explore management of the teaching of computer studies in six selected junior secondary schools ofimba district of Southern Province, Zambia.

## **1.2. Statement of the Problem**

The introduction of computer studies as a subject in Zambian schools is a thing which has captured attention and interest of many people and organizations (Bukaliya, 2012). According to Shafika (2007), information and communication technology

(ICT) has been integrated in the education system in many developing and developed countries but the use of computers in Zambian schools is lagging behind due to lack of infrastructure and resources. Computer studies as a subject has slowly been implemented in junior secondary schools but how the teaching is being managed is not yet clearly known (Wagner et al, 2005).

Despite the government's efforts, the penetration levels of ICTs in Zambia's education institutions remains low, with those schools that are equipped, mostly utilizing second-hand and refurbished computers. Befekadu (2006) indicates that Zambia's ICT infrastructure is concentrated in urban centres, even the teaching of computer, and therefore the trend on how the programme is being managed in junior secondary schools in other parts of the country is still not clearly known. Hence, the study is to investigate the management of the teaching of computer studies in junior secondary schools of Zimba District, Zambia.

### **1.3. The purpose of the Study**

The purpose of the study was to investigate the management of the teaching of computer studies in six selected junior secondary schools in Zimba District, Zambia.

### **1.4. Specific Objectives**

The objectives of the study were;

- i. To examine the strategies the management had put in place to enhance the teaching of computer studies in selected junior secondary schools in Zimba district.
- ii. To assess the availability of infrastructure to facilitate the teaching of the subject
- iii. To assess the use of available resources in the teaching of computer studies
- iv. To identify unexploited opportunities available which could help to improve the teaching of computer studies

### **1.5. Specific research Questions**

Specific research questions were as follows:

- i. What are the strategies that the management have put in place for the teaching of computer studies?
- ii. Are there relevant infrastructures in schools to facilitate the teaching of computer studies?
- iii. How are the available resources used in schools to enhance the teaching of computer studies?
- iv. Are there other opportunities which can help in the teaching of computer studies?

### **1.6. Scope of the study.**

This study was conducted in Zimba District. It concentrated on the management of the teaching computer studies in six selected junior secondary schools within the District.

### **1.7. Significance of the study**

The research findings might be beneficial to Zimba District Education Board since it might provide useful information about the management of teaching computer studies. The study may also increase awareness to junior secondary schools management and other ICT stakeholders available in the area on the strategies of effective teaching of computer studies that can increase positive action towards meeting the education goals of the students. In addition, the findings of this study might be useful to Education Standards Officers in regards to improving the programme to achieve effectiveness. Furthermore, the findings might provide useful knowledge to the government and its agents, policy makers and other implementers on the management of the teaching of computer studies subject in junior secondary Schools.

### **1.8. Limitation of the Study**

Mugenda and Mugenda (2003) postulate that the limitation of the study is some aspects of the study that the researcher knows may negatively affect the findings or



generalisation of the results over which the researcher has no control. These mostly have to do with the sample size, length of the study and or data collection procedures.

The constraints of this study were that it was difficult to make appointments with some of the respondents as the study was conducted during the school holidays and some of them were out for studies. However, the researcher made every effort to meet all the respondents at their own convenient times. The other limitation was that some head teachers were not willing to disclose all the information regarding the state of the infrastructure and accessories. The researcher overcame this limitation by the use of observation checklist and the information from computer studies teachers who willingly gave it out.

### **1.9. Operational definition of terms**

**Computer:** a computer is an electronic machine that performs processes, calculations and operations based on instructions provided.

**Computer studies:** In the study, refers to the subject offered under school curriculum at junior secondary school level

**Digital Divide:** A term used to reflect the technological gap between people that have fully exploited ICT and those that have not.

**ICT:** A broad term used to express communication devices, information, such as phones, computers and networks.

**Internet:** A seamless and global network of individual, organisational and national computer systems *providing* services such as internet browsing to users across the globe 24 hours a day

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

**School Management:** Include head teacher, deputy head, HOD or senior teacher

**Utilisation of resources:** Resources refers to the way computers and materials are being used in teaching and learning of computer studies

**Unexploited opportunities:** Refer to unidentified sources of income both inside and outside the school coffers schools can take advantage of which can help in buying computer equipment and infrastructure.

**Load shedding:** The intermittent switching off power supply in one area so as to provide power for another area to prevent the failure of the entire system.

## **1.10 THEORETICAL FRAMEWORK**

The management of the teaching of computer studies subject in six selected junior secondary schools in Zimba District was examined through the Technological Acceptance Model (TAM) which was propounded by Davis (1989). The theory explains how the user accepts or adopts and use technology. Considering a number of factors influencing the decision how and when to use it, its usefulness and ease to use.

The researcher has chosen this theory because of its wide acceptance (TAM) based on the fact that the model has a sound theoretical assumption and practical effectiveness and its ability to incorporate variables and relationships obtained from the Fishbein and Ajzen theory of reasoned action (TRA) of 1975 (Chuttur, 2009).

The model has been designed in such a way that it shows how users come to accept and use a technology. According to this theory, when user is presented with a new technology, three major factors influence his or her decision on how and when they will use it. The first determinant being its perceived usefulness (PU), followed by the perceived ease of use (PEOU) and the third one is user attitude towards usage (ATU).

According to Davis (1989) perceived usefulness (PU) is the degree to which a user believes that using a particular system would enhance his or her job performance. While, perceived ease-of-use (PEOU) is the degree to which a user believes that using a particular technology would be free from effort. In other words it is the degree to which consumers perceive a technology as better than its substitutes. According to the views of Chen et al (2012), the perceived usefulness (PU) and perceived ease of use (PU) positively affects the attitudes toward usage (ATU) of a technology.

On the other hand, the unwillingness to accept and adopt technology can be referred as resistance to technology. Resistance to technology has been persistent in the education place for quite some time (Makau, 1998) for instance; sometime back the education systems resisted biro pens, slide rules, electronic calculators as well as computers. The e-learning concept experienced an equal measure of resistance despite efforts to popularize it. Park (2009) is of the same view as he observes that, achieving

success in programs that propose to include technologies in education is often quite challenging.

This theory is relevant to this study in that it guided the researcher on the perceived attitude of the school management towards the management of the teaching of computer studies. Their attitude determined how the teaching was being managed. That is the way it was planned, organised, coordinated and controlled. If management had accepted the teaching of computer studies, they would have been in a position to implement it successfully.

The way the teaching was being managed depended on how well the technology had been accepted. Since some school management had not fully accepted computer studies, they had not put much effort for it to succeed. On the other hand, those that had accepted it, they had done all they could to ensure that it succeeded. That is, they had allocated enough resources, as it was in their power to do so. Literature shows that it was common for education leaders to resist technological advancements (Park, 2009).

#### **1.11. Ethical consideration**

The researcher obtained consent from the participants before engaging them in a research and were treated with respect. The names of the participants were not disclosed as participants did not indicate their names. The researcher also obtained clearance from the University of Zambia Ethics Committee.

#### **Chapter Summary**

This chapter gave the background to the study on the Management of the Teaching of Computer Studies in junior secondary schools. The chapter also presented the background to the problem, statement of the problem, purpose of the study, research objective and questions, significance of study, conceptual and theoretical framework, delimitation, limitations and operational definition of terms used in this study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Over view**

This chapter explores on literature documented on the use of computers and Information Communication Technology (ICT) in general. The literature is discussed under the following sub- headings:

- ❖ History of computer studies in Zambia,
- ❖ importance or benefits of ICTs in education
- ❖ Strategies management had put in place to enhance the teaching of computer studies in junior secondary schools.
- ❖ Availability of infrastructure to facilitate the teaching of computer studies.
- ❖ The utilisation of available resources for the teaching of computer studies.
- ❖ Identifying unexploited opportunities available which can help to improve the teaching of computer studies.

#### **2.1 History of computer studies in Zambian Educational system**

The Republic of Zambia is a landlocked country in Southern Africa, which got her independence 1964. Its population growth is about 13 million 2010. Zambia ranks 144th out of 189 countries in the Human Development Index as listed in the UNDP (2018). This puts it in the category of countries with low human development.

As one of ‘least-developed’ countries, Zambia suffers from high levels of deprivation and poor infrastructure, especially in rural areas (Mweetwa, 2010). This deprivation is not only in material and other resources but in information as well. Ministry of Communications and Transport (2006) posts that one fundamental difference between the developed and the developing countries is that the former are also rich in information and has a well-informed citizenry which is able to adapt quickly to changing social and economic environments, hence utilizing opportunities to overcome development challenges such as poverty. In this regard, information is treated as a commodity which has potential to make significant changes in many aspects of our social and economic development.

The initiative for the Zambian government to introduce computer studies in schools can be traced way back in 1998, when the Ministry of Education introduced the subject in selected secondary schools. However, this could not yield needed results due to various challenges as asserted by Ministry of communications and Transport (2006) in its National Policy on ICT. These are some of the challenges identified, among others; general financial and technological resource constraints that the Government faced in its effort to develop and improve the educational system, lack of qualified teachers, and the most critical one was lack of a clear government policy on how to integrate ICTs in education. Nonetheless the government did not relent on the need for introducing computer studies in government schools. In 2013, in the revised curriculum, computer studies was introduced in junior secondary schools, that is grades eight (8) and nine (9) as a compulsory and examinable subject (MESVTEE, 2013).

Consequently, even literature on ICT in general is still limited in Zambia. However, there are some studies that can be referred to. For instance, Panos (2010) carried out a study on ICTs and Development in Zambia: Challenges and Opportunities. This study revealed that Zambia had been striving to implement ICTs in all sectors of the economy. Nonetheless, the study reveals that there were more challenges than opportunities at that particular time in Zambia as far as ICTs were concerned.

Panos's (2010) study offers a platform on which my study stands. My study capitalises on the fact that Panos's study looked at ICTs for economic development in general, the current study is looking at ICTs in education and specifically, how the teaching of computer studies is being managed. It will further investigate how effective the teaching of computer studies is being managed, and the strategies on how to overcome the challenges therewith.

## **2.2 Importance of ICTs in Education**

In the last few decades, there has been an increase in recognition of the role and importance of computers in education and in development globally. This is evidenced by a number of studies that have been conducted on ICTs and its importance (Hennessy et al 2010). This period of technological advancement has been called

using different terminologies like; information revolution, information driven economy, and knowledge economy, which according to Hilbert and López (2011) is referred to an economy in which knowledge and ideas promptly provided.

Commenting on the same, Irish Inspectorate Report (IIR) on ICT (2008) states that, the increasing permeation of ICT in all aspects of modern life has led to the concept of a “knowledge-based society,” one aspect of which is the knowledge-based economy. It is accepted that the future prosperity of a country is predicated on ability to develop a knowledge-based economy. Hennessy et al (2010) further observes that the critical sector which underpins and enables the transition to a knowledge-based economy is the ICT sector through the teaching and learning of computer studies which provides the ability to create, store and distribute knowledge more cheaply than ever in human history. The ICT sector essentially enables the existence and growth of the knowledge-based economy.

Ministry of Communications and Transport is in line with the above observations. For example, MoCT (2006) asserts that Zambia has the opportunity to make a difference by adopting and using ICT as a tool available to reduce the development divide thereby increasing the chances of improving the quality of life of the citizens. It further states that, ICT is an enabler to build an information centred society where everyone can create, access, utilize and share information and knowledge leading to greater productivity, greater competitiveness and sustainable economic growth, a precondition for poverty reduction.

Furthermore the United Nations Educational, Scientific and Cultural Organisation (UNESCO) policy on ICT holds that ICTs can help strengthen democratic and transparent education planning and management. Communications technology can expand access to learning, improve equality and ensure inclusion. Where resources are scarce, judicious use of open-source material through technologies can provide the means to bypass the bottleneck of textbook production, distribution and updating (UNESCO, 2008).

Commenting on the same, Batubo, Digitemie and Nelly (2008) assert that no educational program for primary and secondary school over the world that is devoid of computer studies is complete.

Further benefits of using computers in education can be outlined as follows; learners score higher grades, there is motivation for learners, increased creativity and innovations among learners, easier understanding, higher retention levels, increased participation and interaction among learners. It is therefore true to say that the use of ICT is making major differences in the learning of students and teaching approaches. Schools in the Western World invested a lot for ICT infrastructures over the last 20 years, and students use computers more often and for a much larger range of applications compared to Africa (Volman, 2005).

Commenting on the importance of integrating computers in education, Groff (2013) has this to say, successfully preparing all learners with the skills and capacities for 21st century citizenship global awareness, creativity, collaborative problem-solving, self-directed learning is no small order, and many educational leaders are finding that the traditional forms of education that have evolved through the end of the last century are simply inadequate for achieving these goals.

In another development the United Kingdom (UK) minister of Education and Employment says that, ICT provides a great deal of advantage in the delivery of equitable quality education thereby providing an opportunity to improve the lives of our people. The need to use new technologies to raise the quality and efficiency of education cannot be overemphasized. It is imperative that we expose our children, parents, and teachers to ICT to improve the quality of education and technical proficiency of our human resources, thus leading to increased productivity and accelerated development. He went on to say, we must also prepare our citizens to adapt to the global economy and participate in electronic commerce. In addition, we must provide our children with a greater understanding of other peoples and cultures, thus defending our renewed legacy of peace and tolerance Watson (2006).

It is also important to point out that 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 same vein, OECD (2010) postulates that technology can perform several key functions in the change process, including opening up new opportunities that improve teaching and learning, particularly with the affordance of customisation of learning to individual learner needs, which is highly supported by the learning sciences; furthermore, the skills for an adult life include technological literacy, and people who do not acquire and master these competencies may suffer from a new form of the digital divide, which will impact their capacity to effectively operate and thrive in the new knowledge economy; hence, technology is an integral part to accessing the higher-order competencies often referred to as 21st Century Skills, which are also necessary to be productive in today's society.

ICT is also believed to enhance work and education in other ways. It can be used to deliver lessons with interesting and enjoyable real-world examples and stimulating visual and audio illustrations from an extremely wide range of sources. In addition, ICT offers well-known benefits such as efficient new ways to compose documents and organize and store information. Email helps teachers and students communicate outside of class, holding online tutorials or submitting or returning homework, as well as allowing teachers and students to share their ideas with teachers and students in other schools Ghavifekr, (2011).

Emphasising on the importance of computers in education, Mweetwa (2007) postulates that, it has to be recognized that for developing countries like Zambia, to make major progress in social and economic development, there is need to invest significant effort and resources in the education system. Zambia's education system especially in rural areas is currently under resourced, with a substantial section of the population without access to high school, tertiary level education as well as ICT facilities. Therefore, a significant percentage of the population is education attainment required for meaningful contribution to national development. He further went on to say, against this background, there is great need to integrate computers in the education system and develop the nation's research and development (R&D) capacity to support, facilitate and contribute to the development of key sectors of the national economy. Thus, the importance of computers in education has prompted the



researcher to undertake an investigation on the management of the teaching of computer studies in Zimba District.

### **2.3 Strategies management had put in place to enhance the teaching of computer studies in junior secondary schools.**

Andrews in Nickols (2016) defines a “strategy as the *pattern* of decisions in a company that determines and reveals its objectives, purposes, or goals, which produces the principal policies and plans for achieving those goals. While Zahra (1993) observes that strategies offer a framework within which an organization defines possible means of achieving its goals and objectives. The objective of every strategy is to put the organization in a position to carry out its mission effectively and efficiently. Educational program facing difficulties needs to develop and implement strategies to improve its fortunes.

Fisher (2006) contends that a strategy is “the direction and scope of an organisation over the long-term which achieves advantage for organisation through its configuration of resources within a changing environment and to fulfil the stakeholder expectation”. In light of the forgoing, it is imperative for the school management to formulate strategies on the management of computer studies if it has to be successful.

The importance of strategies in any organisation can hardly be over emphasizes as indicated from the foregoing, when it comes to the management of the teaching of computer studies. Ngozi (2014) conducted a study in Nigeria on Strategies for Improving Computer Studies in Secondary Schools. The findings of her study revealed that in order to successfully implement computer studies into the curriculum, there is need to put certain strategies in place such as; employing of proven ICT experts as computer teachers, consistent staff developmental activities to be planned, developed and followed up, providing scholarships to teachers currently teaching computer studies in order for them to improve their methodology. Others were; increase funding and improved computer infrastructure.

Ngozi’s study is beneficial to this study as it gives some insights on what to consider. However, the current study is different in the sense that the previous study was concerned with senior secondary while the current study is looking at junior secondary school level.

The Ireland School Inspectorate (2008) conducted a national research on the impact that new technologies have had on schools, especially on teaching and learning. In the report, it is pointed out that in this era, no country can think of improving its educational standards or national development without integrating computer in education. The report further states that ‘Information and communication technology has brought profound changes to almost all aspects of our lives in recent years. It has transformed activities as basic as how we work, communicate with each other, treat illnesses, travel and shop and enjoy our leisure time. In a relatively short period of time, ICT skills have become as fundamental to living a full life as being able to read, write and compute.

Therefore, the Ireland school inspectorate report puts it clearly that in order for the integration of computer studies in education to be successful, management must formulate strategies. One of the strategies is the targets to be achieved at a given time, training of teachers and availability of funds for purchasing necessary equipment.

Cate (2017) conducted a research United States of America on Students to Computer Ratio, Socioeconomic Status and Student Achievement. The purpose of the study was to determine if there was a relationship between the students to computer ratio and student achievement in Math and Reading as compared to socioeconomic of the school. The findings of the study revealed that there was not much relationship between the numbers of computers to students’ achievement. What matters was not necessarily increased technology in classrooms but the strategies school leadership or management should put in place.

Smith (2012) concurs with the findings of the study, by stating that computers alone are not the answer to solving the issues of inequity and learners’ academic performance. He emphasized the need for clear strategies which will help in implementing the programmes.

Saverinus (2008) suggests that the role of ICTs is rapidly ever changing, especially with the internet in education. Being aware of the role of ICTs in human life, especially in educational activities, education authorities should be wise enough in implementing the strategies to implement computers studies in schools.

Tinio (2002) has this to say, the integration of computers in education systems may face various challenges with respect to policy, planning, infrastructure, capacity building and financing. ICT-enhanced education requires clearly stated objectives, mobilization of resources and political commitment of the concerned bodies.

Furthermore, Isaacs (2007) conducted a study called 'ICT in Education in Zambia'. His study revealed that penetration levels of ICTs in Zambia's education institutions remained low, with those schools that are equipped mostly utilising second-hand and refurbished computers. The integration of ICTs in teaching and learning practice has been limited, although the introduction of Computer Studies as a school curriculum subject has begun to change this.

The above study is an important tool as it gives the current study an opportunity to examine the strategies management has put in place to improve the teaching of computer studies in selected junior secondary schools in Zimba district. It will also examine the availability of suitable infrastructure to facilitate the teaching of the subject and further to assess the use of available resource to improve the teaching of computer studies.

## **2.4 Availability of infrastructure**

According Buhr (2023) infrastructure refers to the fundamental facilities and systems serving a country, city, or other area, including the services and the facilities necessary for its economy to function. However, in the study infrastructure may include computer laboratories, computers, printers, source of energy and other accessories that go along the teaching of computer studies.

The infrastructure challenges that may exist are absence of appropriate buildings and rooms to house the technology, shortage of electric supply and telephone lines, and lack of the different types of ICTs. AS a result, one needs to deal with infrastructure related challenges before the planning of ICTs integration to education systems.

Alkahtani (2017) carried out a study on "The challenges facing the integration of ICT in teaching in Saudi secondary". The purpose of the study was to evaluate the King Abdullah Public Education Development project. According to the study two significant shortcomings were encountered: A lack of training and a lack of working

equipment. The results also showed a lack of a basic understanding among both students and teachers of how the equipment functions; a lack of mastery of ICT teaching techniques, and a lack of teacher training to bridge the gap.

The study highlighted an important aspect of the current study, the issue of infrastructure. The report revealed that some schools did not have adequate infrastructure to enable them teach computer studies effectively. Alkahtani states that some schools were poorly equipped to deliver ICT, not least because some still operated in “rented houses” (that is, in buildings that were not purpose-built to serve as schools). Equally important were shortages of computer equipment.

The above mentioned study gives some insights on the need for proper infrastructure for successful integration of computers in education.

Commenting on the importance of infrastructure, Stallard (2008) contends that the computer laboratory is the heart of effective teaching of computer in schools. If the students do not see and try to practice its use the claim of teaching this program in our schools across the world becomes invalid and useless. Therefore the important thing to deal with at the planning stage is to see the possibility of getting both the building together with the facilities that will make the teaching and learning computers meaningful.

Olan’g (2014) assert that factors which can help if handled carefully in successful teaching of computer studies among others include the following; availability of trained and qualified personnel to teach the students, the availability of the equipment to be used by both teachers and students during the process of teaching and learning, a well-established infrastructure to support the teaching and he last one is the availability of reliable source of power. When these factors are put in place the computer teaching program will always be successful.

It is of great importance to note those school leaders’ technology leadership capabilities play a major role in as far as integration computers in education. Afshari et al. (2008) assert that lack of ‘technology’ leaders could therefore be one of the factors inhibiting the integration of ICT in education. For instance, in their study of 11

institutions, Ndidde et al. (2009) revealed that the majority (8) did not have well formulated written plans for ICT integration. Only the expressed views and ideas of the educator in charge of ICT were available. The institutions also lacked strategic plans to implement and sustain the ICT infrastructure in place.

Tedla (2012) also conducted a study on ‘Understanding the Importance, Impacts and Barriers of ICT on Teaching and Learning in East Africa Countries’. He explored internal and external factors that surround ICT issues, policies of ICT integration, and factors that facilitate or impede the use of ICTs, with the focus of improving the quality of the teaching-learning process. The study revealed that the inhibiting factors are unrealistic policies of ICT, poor infrastructure, lack of teacher competence, confidence, incentive, perception and beliefs, imposed curriculum, lack of proper network, political instability, brain drain, sporadic electricity, poor transportation, lack of public awareness and participation, poor school leadership, technological illiteracy, and lack of pedagogical skills. The study further revealed that ICT integration was far behind in East African schools as a consequence of ICT deficiency, absence of pre-service and in-service teacher training and poor teachers’ welfare and morale.

The situation in East Africa is not different from what is obtained in Zambia. For example, Isaacs (2007) in His study called “Survey of ICT and Education in Africa: ICT in Education in Zambia”, revealed that the penetration levels of ICTs in Zambia’s education institutions remains low, with those schools that are equipped mostly utilizing second-hand and refurbished computers. The study further states that integration of ICTs in learning and teaching practice has been limited, due to the following challenges: low levels of ICT literacy, high cost of technology acquisition, limited local ICT industry, the financial and technological resource constraints, inadequate awareness on the benefits of integrating ICTs in the administration of the delivery chain of education sector, and the high opportunity costs and lack of coordination.

My study is different from Tedla’s in that Tedla (2012) concentrated on internal and external factors that surround ICT issues, policies of ICT integration, and factors that facilitate or impede the use of ICTs. The study is exploring the availability of

infrastructure to facilitate the teaching of computer studies in junior secondary schools. Nonetheless, it has touched almost all the aspects of my study.

In another development, Olan'g (2015) carried out a study entitled "Effectiveness of Teaching Computer Studies Subject in Secondary Schools" in Tanzania. Whose main objective was to examine the extent to which teaching of computer studies had been effectively implemented in secondary schools? The findings indicates that computer studies subject is still a vague idea and not taken serious. The subject is being taught in secondary schools even though the degree of it varies from school to school. Computer studies subject is not an examinable subject as they call it. This means that it is taught but by the end of year there is no examination administered. As a result, it is not taken serious by both teachers and students. The report further states that teachers face a lot of challenges concerning teaching this subject due to the following factors; lack of training on the part of teacher, lack of a well-equipped laboratory, inadequate computers and this makes it difficult to apply the appropriate methodology as required by the ministry of education and vocational training.

Esselaar et al (2002) added their voice on the same matter, integrating ICT into the educational system of Zambia requires financial and human resource investment. In addition, the cost of implementation of technologies and the expansion of existing infrastructures, such as internet service and electricity, should not be overlooked. In executing this project, the main problems that would quickly hinder the progress or success of the project are financial constraints, lack of trained experts and absence of basic infrastructure to provide such a service. And this requires a lot of planning on the part of government, private sector and the school management.

Mweetwa (2007) emphasised on the need and importance of infrastructure in education which facilitate the teaching and learning. He contends that there is great need to have Internet at every school to improve on teacher's output and expose pupils to internet at the early stages of their education. This will enhance the research component as it will cover wider and deeper areas of our rural communities and researchers will see the challenges of introducing ICT at grass roots level.

In another development, Hennessy *et al* (2011) conducted a study called, ‘An investigation of Appropriate New Technologies to support Interactive Teaching in Zambian Schools.’ This study investigated on what suitable ICTs were currently available or likely to be available in the near future, and what factors needed to be considered in making choices for primary education.

They discovered that uses of the mobile devices facilitated collaboration, student learning, motivation and independent working. The principals described the beneficial impacts upon teachers, learners and the community. However they also identified some barriers to successful classroom use such as insufficient equipment and internet access, difficulty in finding suitable online resources and power outages. Thus, lack of infrastructure in Zambia is one of the major hindrances to the success of integration of computers into education. Their study is significant to the current study as it gives some insight on the setbacks on the teaching and learning of computer studies. However, the study did not mention any management related issues regard to teaching of computer studies. In addition, the previous study was concerned with primary education while the current study is interested in junior secondary schools in Zimba District.

In her study called ‘Primary School Teachers’ Attitudes towards ICT integration in Social Studies (SS) which was conducted in Lusaka and Katete Districts, Lufungulo (2015) explored the type of ICTs available and teachers’ attitudes towards the use of ICTs in the teaching and learning of SS. The findings of the study revealed that there was evidence that the three schools had integrated ICTs in the teaching and learning processes under the e-learning programme piloted by iSchool and Impact Network. The study further revealed that the teachers had positive attitude towards the use of ICTs when teaching Social Studies. In the same vein teachers agreed that the use of ICTs in education was the way to go because the world today is largely influenced by technology. In light of the above, technological changes in society have also affected education in as far as teaching and learning is concerned.

However, her study contends that although the ICTs were available in the three schools, they were not adequate to the extent that each pupil could have one Ipad to use during the lessons. Each study site only had seven pupil Ipads per grade. In this

regard, the findings for this study are similar to those of other researchers who have investigated ICTs integration in education in Zambia. As noted by Isaacs (2007) who argued that the penetration and availability of ICTs in Zambian education institutions remains low. Similarly, MCT (2007) points out, among other challenges, that the Zambian education system, especially public schools, has a high opportunity cost of deploying ICTs. Hennessy *et al* (2010) also indicate that integration of ICTs in education in developing countries generally is difficult due to limited technology infrastructure, especially internet access, bandwidth, hardware and software provision. As a result, it is difficult to justify spending limited resources on ICTs when many institutions are still lacking basic amenities and educational supplies. Due to this situation ICTs remain a scarce teaching resource in most schools in Zambia.

Ndhlovu and Mwewa (2013) conducted a study on Assessing ICT availability and use by Mathematics and Science Teachers of High School in Zambia. Moono (2018) conducted a study on, Teachers' and Pupils' Perceptions of (ICT) as an Examinable Curriculum Subject in Junior Secondary Schools. Kabundula (2018) carried out another study on, Experiences of Teachers and Learners in the Teaching and Learning of Computer Studies at grade 9 level in selected secondary schools in Luanshya. All these studies revealed inadequate infrastructure, lack of trained teaching staff in computer studies, and did not examine how the teaching is being managed amidst these challenges.

## **2.5. Utilisation of available resources**

Utilisation of resources refers to the way computers and materials are being used in teaching and learning of computer studies. The term resources in this study covers a wide range which includes human, material, equipment and time. The ways resources are used will to the large extent determine the success of the programme.

In Ghavifekr *et al* (2010)'s study on, Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions, contend that integrating computers into teaching and learning is a complex process and one that may encounter a number of difficulties. One of them may be on part of the teachers not having sufficient skills to competently handle their learners. The report indicates that some teachers used computers not for teaching but for their own work. The foregoing study is important



to the current study because it is in line with this aspect, that is, the utilisation of resources, be it material or human for the teaching and learning of computer studies.

Another study was conducted by Arinze *et al.* (2012). It investigated the availability of ICTs in schools, skills competence of junior secondary school students and the influence of the application of ICT innovations in teaching and learning of Social Studies in the academic performance of students.

Arinze *et al.* (2012)'s study is similar to this study as both studies are concerned with ICTs at junior secondary school level. The study discovered that the available resources were not utilized fully in order to get the maximum benefit from them. However, results may not be the same since the studies are in two different countries with different challenges. The other difference is that the foregoing study looked at the application of ICT innovations in teaching and learning of social studies while the current study is looking at teaching and learning of computer studies.

School management to the large extent contributes to the problem of resource utilisation. Some head teachers, especially those who are computer illiterate would rather lock up the computers in the store room in order to prolong their life span. Flanagan's (2003) observations that the restricted, locked-down approach to school networks and equipment that is meant to protect the machines from the students hinders the successful implementation of the programme. Innovative and exciting uses of computers for collaborative projects are impeded or completely blocked by closed network structures.

Commenting on the same subject, Flanagan (2003) went to say far from creating learning opportunities, such restrictive networks serve as obstacles to computer use by both teachers and students. Therefore in schools where principals are not prepared to handle the complex issues around ICT integration, decision-making is based more on financial and technical considerations than pedagogy.

## **2.6 Identifying unexploited opportunities**

An opportunity is a situation in which it is possible for you to do something you wanted to do. It is an appropriate or favourable time or occasion for attainment of a goal.

Thus, in order for the integration of computers into education to succeed, school management should be proactive. There is need to identify source of income within and outside the school which can help in the implementation of the programme.

In this study therefore, unexploited opportunity may refer to unidentified sources of income both inside and outside the school coffers the schools could take advantage of which could help in rising funds or materials for buying computer equipment and infrastructure. These could be fundraising ventures, donations from local people, former pupils or external donors.

Esselaar et al (2002) contend that, integrating ICT into the educational system of Zambia requires financial and human resource investment. In addition, the cost of implementation of technologies and the expansion of existing infrastructures, such as internet service and electricity, should not be overlooked. In executing this project, the main problems that would quickly hinder the progress or success of the project are financial constraints, lack of trained experts and absence of basic infrastructure to provide such a service. And this requires a lot planning and strategizing on the part of the government, private sector and school management. Since government alone cannot manage to undertake the project solely.

In the light of the foregoing, it is imperative that school management should device ways and means of finding resources outside the school. This calls for hard work and innovative mind on part of school management.

Retaliating on the need for partnership in the integration of computers in education, former Minister of the Ministry of Communications and Transport is reported by MoCT (2007:2) as having said that “a challenge has now arisen for the country to implement this policy and I therefore call upon all stakeholders to rise to this challenge. This Policy shall be Government-led and it is the intention of Government to involve the private sector in its implementation through the Public-Private

Partnerships. This partnership is especially important for mobilizing resources for infrastructure development”.

A number of studies done in Zambia have shown the importance of ICT and computers in the education sector and further highlighted the challenges associated with the implementation of computers studies (Ndhlovu and Mwewa, 2013; Lufungulo, 2015; Kabunula, 2017 and Moono, 2017) however, none of these studies tried to give an insight on the management of the teaching of computer studies in Zambia particularly Zimba District, a knowledge gap which this study endeavours to address. It is imperative to mention that without proper research on the management of the teaching of computer studies government’s 2030 vision of a Zambia transformed into an information and knowledge-based society and economy supported by consistent development of, and pervasive access to ICTs by all citizens may not be possible (MoTC, 2006).

## **2. Chapter Summary**

In conclusion, this chapter has discussed related literature on the topic and problem under study using the following headings: History of computer studies in Zambian Educational system, Importance of computer studies in education, strategies school management have put in place to enhance teaching of computer studies, availability of relevant infrastructure for teaching of computer studies, utilization of available resources and identifying unexploited opportunities which can help in the teaching of computer studies. What has come out clearly in the literature are; the main arguments, deductions, conclusions and recommendations by various scholars and researchers. The literature has also been linked to my study by way of highlighting similarities, differences, meanings, relationships and gaps that exist.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 An overview**

This chapter discusses the research methodology the researcher employed to investigate the management of the teaching of computer studies in selected junior secondary schools. The chapter presents the research design used, target population, sample size, sampling techniques and data collection instruments used in the study, characteristics of participants, data collection procedure, data analysis process and the ethical considerations. At the end of the chapter a summary on the methodology will be given.

#### **3.1. Research Design**

A research design is described by Kombo and Tromp (2013) as glue like structure that holds all the elements in a research project together. On the other hand, Orodho (2003) defines it as the scheme, outline or plan that is used to generate answers to the research problem. Put differently, a research design is an arrangement of conditions for collecting and analysing data in a manner that aims to combine relevance to the research purpose. It is a plan which shows how the research will be conducted.

The study is qualitative one. According to Richie and Lewis (2003) qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible. These practices ... turn the world into a series of representations including field notes, interviews, conversations, photographs, recordings and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them.

Furthermore, Kombo and Tromp (2006) post that 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. The approach was suitable or appropriate for this study because it sought information on the management of the teaching of computer studies in selected junior schools in Zimba district. The school management were in a position to explain and describe how the teaching was being organised, coordinated and controlled.

An interpretive phenomenological research design was be used. This method had been chosen because, the researcher to conducted a direct exploration, analysis, and interpretation of a particular phenomenon emphasising the richness, breath, and depth investigation as interpreted by respondents in detail (Creswell, 2009). Heidegger (1962) concurs with Creswell and opines that interpretive phenomenology research design as one which seeks to uncover the subjective understanding, which individual human agents ascribe to their social situation.

### **3.2. Target Population**

The targeted population were all junior secondary schools in the district offering computer studies. The term population refers to all elements, individuals or units that meet the selection criteria for a group to be studied, and from which a representative sample is taken for detailed examination (Bryman, 2004).

### **3.3. Sample size**

A sample according to Kasonde-Ng'andu (2013) is a portion of the population. It is a number of participants selected from the entire population to make a desired sample. A total of eighteen (18) respondents were involved in the study. That is; six (6) head teachers, six (6) Heads of Departments/Senior teachers and six (6) teachers teaching computer studies. The figure was arrived at, basing on the study conducted by Bryan et al (2012) entitled "Does Sample Matter in Qualitative Research"? They recommended that a single study should generally include between 15 and 30 interviews, hence the figure 18 for the study. They further explained that a single study reaches saturation at 12<sup>th</sup> interview. Kumar (2014) contends that Saturation point is reached when you no longer get new information from the respondents and

once you discover that you are not getting much new data from the respondents you stop getting further information.

### **3.4 Sampling Procedure**

‘Sampling is the procedure a researcher uses to gather people, places or things to study. Orodho and Kombo (2002) state that sampling is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group. The study was a qualitative in nature, hence, used quota sampling which is a non-probability sampling technique to select 6 schools out of 24 schools in Zimba District, two (2) along the line of rail (urban), two (2) along the District’s main road peri-urban and two (2) in the outskirt of the District (rural).

Purposeful sampling was used to select members in the population to participate in the study as only those schools having computer studies qualified. Kasonde-Nga’ndu (2013) says that purposive sampling is a method in which the researcher targets a group of people believed to be reliable for the study. Purposeful sampling allows the researcher to select cases with rich information for in-depth analysis related to the focal issue being studied. Thus, purposeful sampling was employed to select the 6 head teachers, 6 HODs and 6 computer studies teachers.

### **3.5. Methods for data collection**

Data collection was done by using the following methods: structured interviews and observation list. The instruments which were used were interview guide and observation check list. Structured interview as a method was used because; it gives high quality and reliable data. Kothari (2004) are in agreement with the above statement and said that, structured interviews are reliable and quality information can be obtained because each informant is subjected to similar questions with others. On the other hand, an observation checklist is a list of questions or things an observer will need to answer or look at when observing or assessing an individual in order to determine his or her skills and competencies (Orodho, 2003).

This set of questions will help you to know what to observe as you are doing your research and then take notes accordingly. Some responses from the interview may not be the correct reflection of what is on the ground. Hence, the need for you to carry out your own observations

### 3.6 Procedure for data collection.

The data was collected from primary sources. It was in form of interviews and observation check list.

The researcher obtained clearance from the University of Zambia Ethics Committee. Also, permission was sought from the District Education Board (DEB) office and selected head teachers before proceeding into schools to collect data. Furthermore, the researcher obtained consent from the participants before engaging them in a research and were treated with respect.

### 3.7. Validity and Reliability

Reliability relates to the consistency of a measure. For research to be reliable it must demonstrate that if it were to be carried out on a similar group of respondents in a similar context then similar results would be found (Shuttleworth, 2015). The study strove to achieve reliability by trustworthiness (member checking) and triangulation.

Kumar (2014) explains that, Denzin and Lincoln (1994), have suggested a framework of four criteria as a part of the constructivism paradigm paralleling ‘validity’ and reliability’ in quantitative research. According to them, there are two sets of criteria ‘for judging the goodness or quality of an inquiry in constructivism paradigm’. These are: ‘*trustworthiness*’ and ‘*authenticity*’. According to Guba and Lincoln, trustworthiness in a qualitative study is determined by four indicators – **credibility**, **transferability**, **dependability** and **conformability**. Therefore, it is these four indicators that reflect validity and reliability in qualitative research.

The *trustworthiness* criteria of credibility (paralleling internal validity), transferability (paralleling external validity), dependability (paralleling reliability), and conformability (paralleling objectivity)’, according to Guba and Lincoln (1994) closely relates to the concepts of validity and reliability.

Trochim and Donnelly (2007) compare the criteria proposed by Guba and Lincoln in the following way:

**Credibility** – According to Trochim and Donnelly (2007), involves establishing that the results of qualitative research are credible or believable from the perspective of the respondents in the research’. As qualitative research studies explore perceptions,

experiences, feelings and beliefs of the people, it is believed that the respondents are the best judge to determine whether or not the research findings have been able to reflect their opinions and feelings accurately.

**Transferability** – This ‘refers to the degree to which the results of qualitative research can be generalized or transferred to other contexts or settings’ (2007).

Though it is very difficult to establish transferability primarily because of the approach one adopt in qualitative research, to some extent this can be achieved if one extensively and thoroughly describe the process that had been adopted for others to follow and replicate.

**Dependability** – In the framework suggested by Guba and Lincoln this is very similar to the concept of reliability in quantitative research: ‘It is concerned with whether one would obtain the same results if one could observe the same thing twice’ (Trochim and Donnelly 2007: 149). However, as qualitative research advocates flexibility and freedom, it may be difficult to establish unless one keeps an extensive and detailed record of the process for others to replicate to ascertain the level of dependability.

**Conformability** – This ‘refers to the degree to which the results could be confirmed or corroborated by others’ (2007: 149). Conformability is also similar to reliability in quantitative research. It is only possible if both researchers follow the process in an identical manner for the results to be compared.

According to Trochim and Donnelly’s mind, to some extent, it is possible to establish the ‘validity’ and ‘reliability’ of the findings in qualitative research in the form of the model suggested by Guba and Lincoln, but its success is mostly dependent upon the identical replication of the process and methods for data collection which may not be easy to achieve in qualitative research.

### **3.8. Data analysis**

Data analysis refers to examining the coded data and making references Kombo and Tromp (2009). On the other hand Mugenda and Mugenda (2003) assert that data analysis is the process of bringing order, structure and meaning to the mass of collected information.



Having collected data from the field, responses from the interviews were put in themes that emerged. The themes were put according to the research questions. Thus data was analysed thematically.

### **3.9. Summary of the chapter**

This chapter discussed the methodology employed in this study. Under methodology, the following items were captured: the research design, target population, sample size, sampling procedure, and method of collecting data, procedure of collecting data, reliability and data analysis.

## CHAPTER 4

### PRESENTATION OF THE FINDINGS

#### 4.0. Overview

This chapter presents findings of the study on the management of teaching of computer studies in six selected junior Secondary Schools in Zimba District of Southern Province. For the purpose of identification of the participants the following codes have been used. First head teacher from urban school (H-urban 1). Second head teacher from urban school (H-urban 2). First head teacher from peri-urban (H-peri 1). Second head teacher from peri-urban (H-peri 2). First head teacher from rural (H-rural 1). Second head teacher from rural (H-rural 2). First HOD/S/teacher from urban (H/S-urban1). Second HOD/S/teacher from urban (H/S urban 2). First HOD/S/teacher from peri-urban (H/S-peri 1). Second HOD/S/teacher from peri-urban (H/S-peri 2). First HOD/S/teacher from rural (H/S-rural 1). Second HOD/S/teacher from rural (H/S-rural 2). First ICT teacher from urban (tr.-urban 1). Second ICT teacher from urban (tr.-urban 2). First ICT teacher from peri-urban (tr.-peri 1). Second ICT teacher from peri-urban (tr.-peri 2). First ICT teacher from rural (tr.-rural 1). Second ICT teacher from rural (tr.-rural 2).

#### 4.1 Demographic characteristics of respondents

Table 1 below shows the distribution of respondents

**Table 1: Location and distribution of respondents**

Location	HEAD TEACHERS	HODs/S/TEACHERS	COMPUTER STUDIES TEACHERS	
Urban	2	2	2	
Peri-urban	2	2	2	
Rural	2	2	2	
TOTAL	6	6	6	18

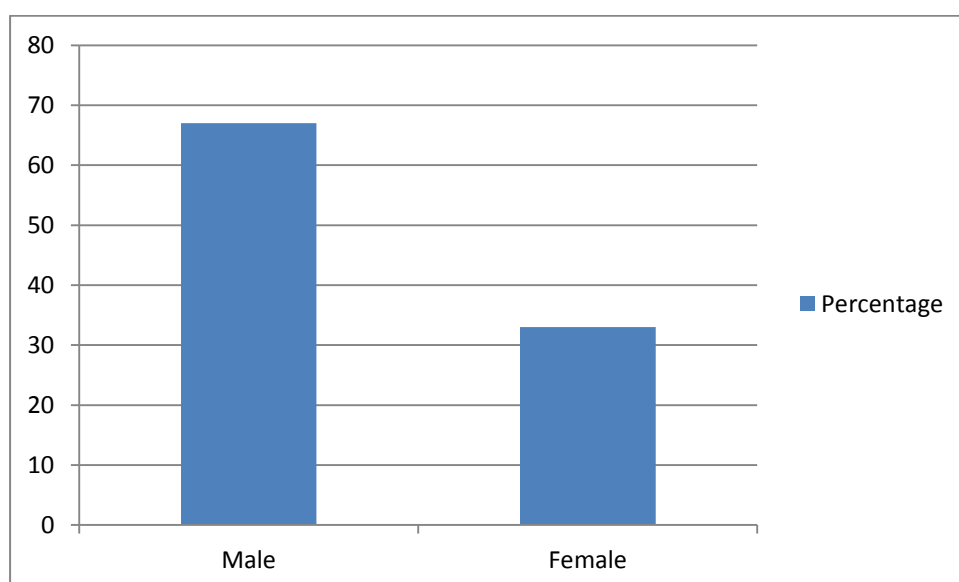
Source: Fieldwork (2018)

Table 1 above shows equal representation of the respondents from each location, two (2) along the line of rail (urban), two (2) along the District's main road peri-urban and two (2) in the outskirts of the District (rural) as well as from each category of the respondents, that is head teachers, HODs/Senior teachers and computer studies teachers, making a total of eighteen (18).

## 4.2 Characteristics of respondents

Figure 1 below shows gender distribution of respondents

**Figure: 1 Gender Distribution**



Source: Fieldwork (2018)

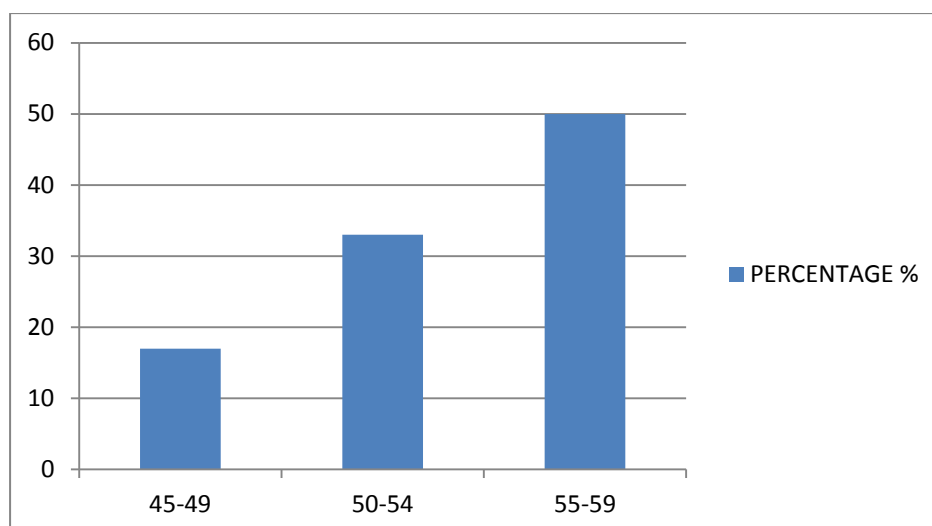
Figure 4.1 shows that 12 (67%) of participants were male while the remaining 6 (33%) were female, implying that male were in majority.

Participants' gender was determined from the responses. For head teachers there were 4 (67%) females and 2 (33%) males, HODs/Senior teachers comprised of 4 (67%) males and 2 (33%) females and computer studies teachers were all males. It was established that there were more male than female, reasons being that there are no female teachers teaching computer studies.

### 4.2.2 Age distribution

Figure 2 showing the ages for head teachers

**Figure: 2 Ages for Head teachers**



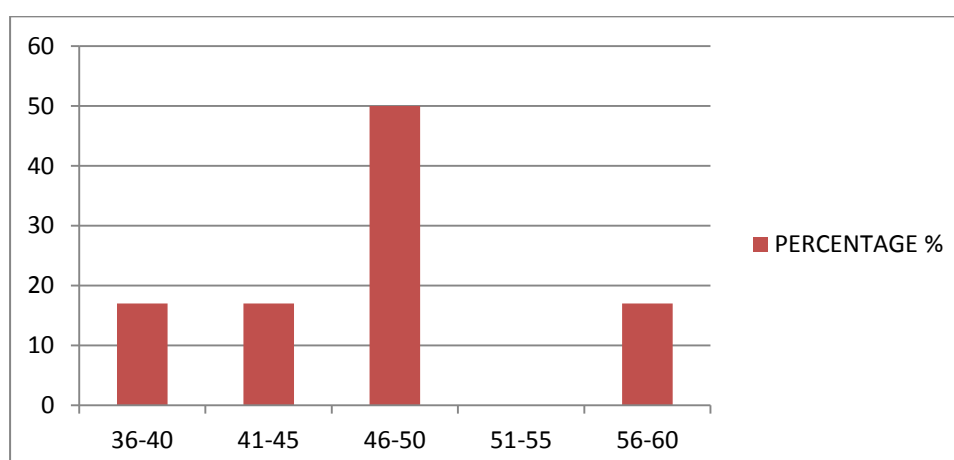
Source: Fieldwork (2018)

Figure 2 shows that, one head teacher was between the ages of 45 to 49 giving 17%, 2 were between the ages of 50 to 54 giving 33% and 3 were between the ages of 55 to 59 giving 50%. It was noted that schools which were run by younger head teachers had put some effort in sourcing funds for acquiring computer equipment. For instance H-urban 1 is the youngest and urban 1 school had almost all the basic equipment.

### 4.2.3 Age distribution of HODs/Senior teachers

Figure 3 showing age distribution among the HODs/Senior

**Figure: 3 Ages for HODs/Senior teachers**



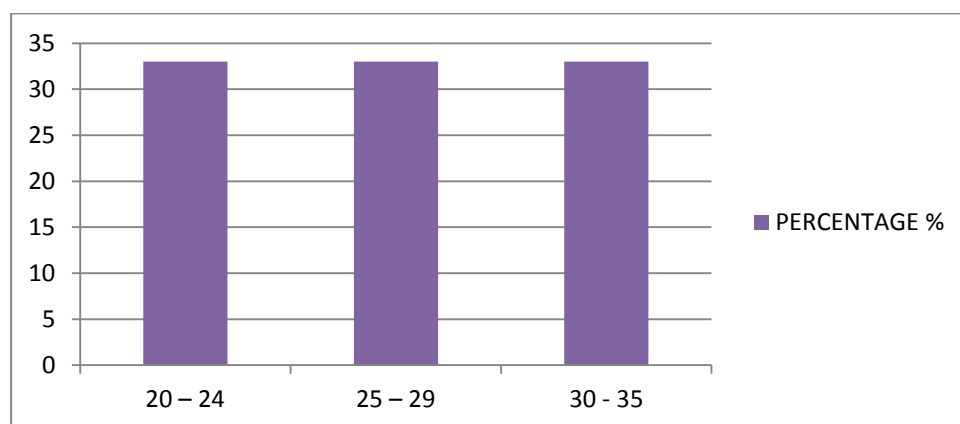
Source: fieldwork 2018

The above figure 3 shows the age distribution of HODs/senior teachers. The age range 36-40, 41-45 and 56-60 had 1 (17.3%) each. While 46-50 had 3 the highest percentage which was 50%, there were no respondents between the ages of 50-55.

#### 4.2.4 Age distribution of teachers

Figure 4 showing the age distribution for teachers

**Figure: 4 Ages for computer studies teachers**



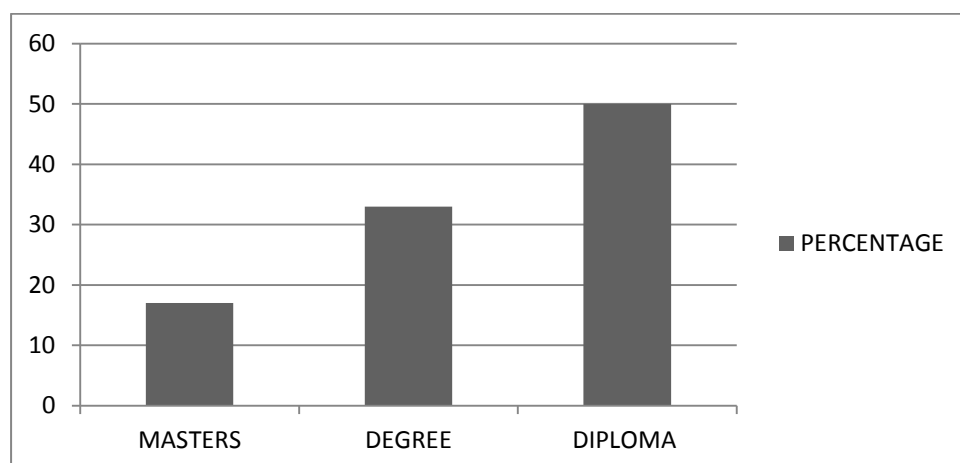
Source: Fieldwork 2018

Figure 4 above shows the age range for teachers. There were 2 (33%) teachers between each ages range.

#### 4.2.5 Qualification Distribution

Figure 5 below shows the qualifications for head teachers

**Figure 5: Head teachers' qualifications**



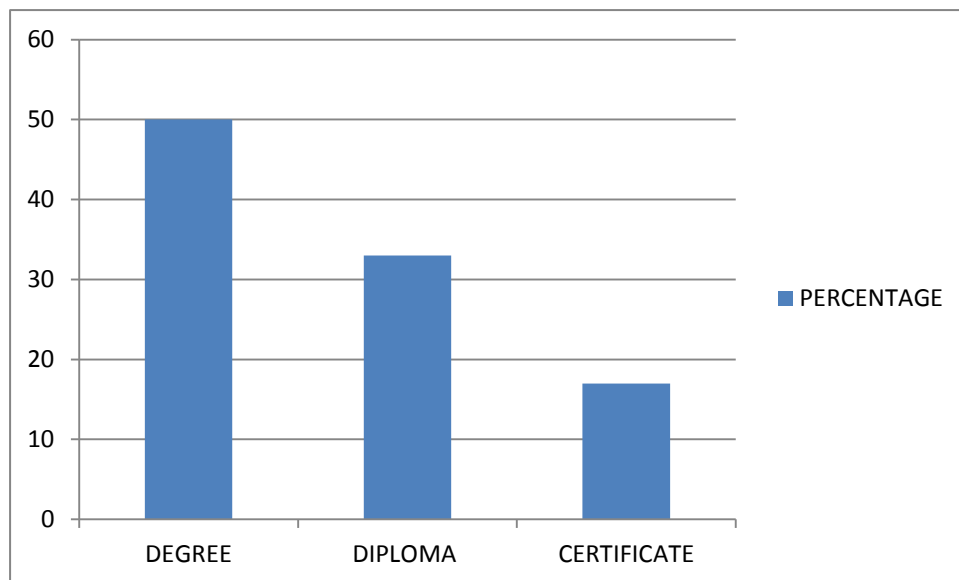
Source: Fieldwork (2018)

The above figure shows professional qualification for head teachers, 1 head teacher had master's degree, 2 had under graduate degree while 3 were diploma holders. Schools which were manned by head teachers who had masters' degree and first degrees made efforts to have basic infrastructure in place.

#### 4.2.6 Qualifications for HODs/Senior teacher

Figure 6 showing qualification for HODs/Senior teachers

**Figure: 6 qualifications for HODs/Senior teachers**



Source: Fieldwork (2018)

Figure 6 above shows professional qualification for HODs and S/teachers. 50% were degree holders, 33.3 were diploma holders while 17.3 were certificate holders.

#### 4.2.2 Training in computer studies teaching

Table 2 shows teachers trained in Computer Studies

**Table 2 Teacher trained in computer studies**

Trained in computer	Not trained	Trained in methodology	Total
2	4	0	6
33.3 %	67.7%	0	100%

Source: Fieldwork (2018)

Table 2 above shows the number of teachers that were trained in computer studies from six (6) schools where the study was conducted. Two (2) teachers were trained in computer but were not trained in teaching methods, while the remaining four (4) had no training at all.

### 4.3. Respondents' perception on introduction of computer studies

The researcher wanted to find out the perception of the respondents on the introduction of computer studies as a compulsory subject before investigating how the teaching was being managed, as perception in this study played a critical role on how the teaching was managed.

#### 4.3.7 Respondents' perception

Figure 4.3.7 showing respondents' perception on computer studies

**Figure 7: respondents' perception on introduction of computer studies**

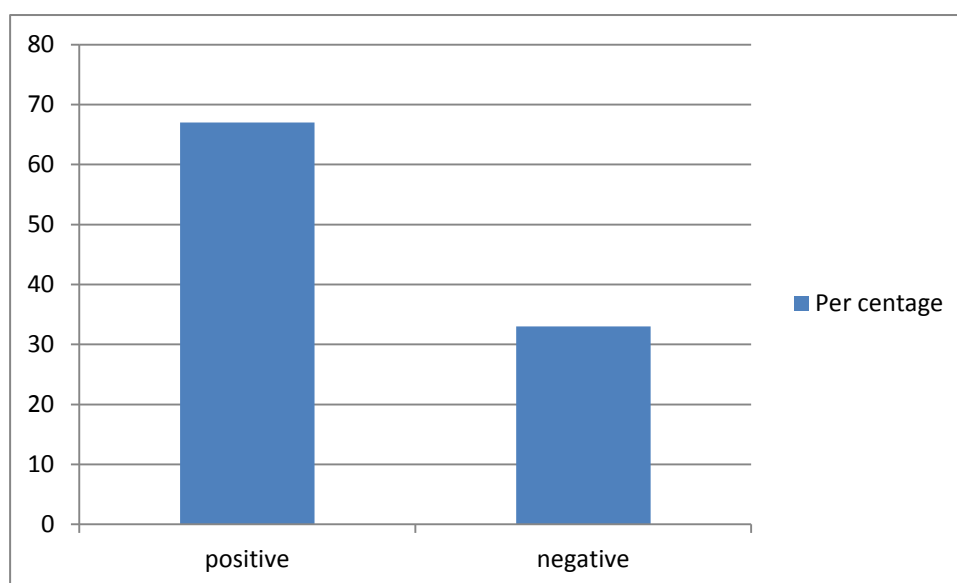


Figure 7 above shows (6) 33% were against computer studies being compulsory to all schools and pupils, while 67% (12) were for the idea that computer studies should be compulsory to all the pupils and schools.

The majority of the respondents welcomed the introduction of computer studies at junior secondary school, twelve (12) representing 67%. To them, it was a good move.

They were for the idea that computer studies should be compulsory to all the schools and pupils as the world had gone digital and it was just in order that pupils were introduced to computers at an early age. For instance, H-rural 1 expressed his views by saying that:

*In this era, where the world has become a global village, computer studies as part of technology are a must. Our pupils even if they come from rural areas, should acquire skills in computer so that it will be easy for them as they go to institutions of higher learning. We are living in a competitive world which require computer skills and knowledge, if we say since we are in rural area there is no need for computer studies, we are disadvantaging our children. Everything now is computerised; starting from phones to banks, hence computer studies is actually a must.*

While others had a contrary view, six (6) 33% of the respondents were not for the idea that computer studies should be compulsory to all the schools and pupils. On their part, computer studies would rather be treated as a career path way on its own just like any other practical subject such as Home Economics. For example, H-urban 2 expressed her views in this way:

*Computer studies should not be compulsory; it's not every child who is interested in computers. It should be option.*

#### **4.4. Strategies for management on enhancing the teaching of computer studies**

In order to establish the existence of these strategies, series of questions were asked on the implementation plan of teaching computer studies in detail and the targets to be achieved every year.

All the respondents agreed that strategies were of great importance as they assisted in achieving the objectives. The responses indicate that some schools had a number of strategies in place in order to enhance the teaching of computer studies. The strategies were, targets to be achieved at a particular time, buying of computers and other accessories that go along with computer studies, training of teachers and conducting Continuing Professional Development.



From the analysis of the responses, the dominant strategy was buying of computers followed by targets to be achieved; training of teachers and the last one was on Continuing Professional Development.

### **Buying of computers**

The strategy of buying computers and other accessories that go along with computers was the most dominant during the interviews. All the respondents were of the view that buying of computers was important since computer studies was a practical subject which could not be done without computers.

However, it was established that only three (3) schools out of six (6) that is nine (9) which represent 50% of respondents had a plan on buying computers. The schools prioritised the buying of computers as there was no way computer studies could be taught without computers. Thus some schools researched were trying their best to acquire all the necessary computer equipment, H-urban.

The plan for buying computers and accessories varied from one school to another, one commonly mentioned was buying computers every year. This helped the school to acquire a number of computers within a short period of time. For instance H-urban1 stated that:

*As a school, we have put some measures to help us implement this computer thing successfully. Every year we have a specific number of computers to be bought. From the time we started in 2016 we have managed to buy forty two (42) computers. Our goal is to reach 50 computers.*

The teacher supported the head teacher's views in the quest of buying computers. The school had been buying computers and other equipment for the past three (3) years and are optimist that in five (5) years the computer laboratory would have been fully furnished. He further said that buying computers for school administrators should not be a choice but a must. He encouraged other school administrators in the district to endeavour to buy at least two (2) computers every term, by doing so they would discover that at the end of three (3) years they would have the number of computers required.

It was further established that the other nine (9) which represent 50% of respondents did not have buying of computers as a set plan. They indicated that computers were bought just like any other equipment for the school and there was no special arrangement for computers only. H-rural 2 for example, explained that:

*We have not put in place a specific plan on buying computers but as when money is available. We will be doing so up to the time we are going to have enough computers (H-rural 2: August, 2018).*

For rural school 2 it was noted that they had not yet put a plan in place for buying computers because as a school; they were not offering computer studies as an examinable subject and felt that there was no need to buy more computers; instead concentrate on other needy areas. Tr.-rural 2 expressed his views by saying that:

*We will put specific plans on buying computer next year, because our pupils will enter computers as an examinable subject after next year, which is 2020.*

### **Targets to be achieved**

On target setting, sixteen (16) out of eighteen (18) which represents 88.8% agreed that targets are important due to the fact that they assist in directing the resources to a particular goal and help in assessing performance. Whereas two (2) 12.2% did not say anything concerning the importance of targets.

Nonetheless, the responses indicate that two (2) out of six (6) schools which represents 33.3% of respondents had some targets to be achieved, this translated into six (6) out of eighteen (18) respondents had targets. For instance, H-peri 2 explained that targets were important for them as a school because they were assisting them in achieving their objectives. Without targets it would have been difficult to reach where they had reached. It was also established that within three years the urban 1 school had managed to acquire almost all the basic equipment needed for teaching computer studies apart from internet as a result of setting targets.

Commenting on the same, H/S-urban 1 said that if someone wants to succeed in life targets are a must. For instance, Tr.-urban 1 expressed his views as follows:

*Targets are important as they make us work hard in order to reach them. They also help us to work within the time frame. Though sometimes we fail to reach our targets, but somehow they are helpful as they assist us to channel the resource to the needy area.*

For tr. –rural 1, targets gave them motivation and the energy to work extra hard in order to achieve the targets.

Contrary to their earlier sentiments, four (4) schools which translated into twelve (12) representing 66.6% of respondents did not have any specific targets to reach. The responses indicated that they did not put any targets because computer studies as a subject was not treated as a special case. This came out dominantly during the interviews; for instance, H-rural 2 mentioned that as a school, they had taken computer studies like any other subject taught in school. And that there was no special attention attached to it. Hence, they did not have any targets to be reached. He went on to say:

*We don't have any targets, because money is difficult to come by. Computers are bought as money is available. As a school we have more pressing issues than computers. At the moment we don't have plans of buying any computers, may be next year.*

Still others indicated that they had stopped setting targets because they never achieved them. To them, target setting was pointless and meaningless since they could not achieve them. For example, H/S-peri1 stated that:

*As a school, we tried to put some targets but failed to meet them from there we stopped as there is no need to put targets which you know that you will not manage to meet them. It makes you more frustrated when you fail to meet your target. We simply buy computers when money is available. And for us computers are not a priority.*

Based on the information above, some schools had put targets to guide them in managing the teaching of computer studies (33.3%); while other schools (66.6%) had not put targets at all, they did not see any value in putting targets.

### **Training of teachers**

On the issue of having qualified teachers, all the respondents agreed that they needed qualified teachers and that they were a prerequisite to effective teaching. It was observed that the district had a shortage of qualified computer studies teachers, hence schools to send serving teachers for training. Nonetheless, only two (2) schools out of six (6) which is six (6) representing 33.3% of respondents out of eighteen (18) indicated that they had put some measures to have qualified computer teachers. H-rural 1 explained that as a school they had a training plan where every teacher was being encouraged to be computer literate. H-rural 1 went on to say:

*We have been encouraging our teachers to specialise in computer studies, so far two of them are currently studying. They have taken advantage of the government sponsored programme of 50% sponsorship". I'm sure by the end of 2020, we are going to have fully qualified teachers in computer studies and every teacher will be computer literate.*

In addition, it was reported that there were two teachers who were studying. One was being trained in computer teaching methods as he had already trained in computers and the other one was doing both computer content and teaching methods.

The situation was different for other respondents from four (4) schools which is twelve (12) respondents. It was discovered that 66.7% of respondents did not have any measures in place to have qualified teachers. The impression was that teachers were not interested in computers and that there was nothing they could have done as administrators. For example, H-urban 2 said that they had been encouraging teachers to go for studies in computer studies but they were shunning the subject. She further indicated that:

*Our teachers are not interested in computers; we cannot force them to do something they don't want to teach. Moreover computer studies should not be compulsory to school and pupils it should be optional.*

Some schools did not have any plans of sending teachers for training as the school had no money. They would have to wait until such a time the government will send them a qualified teacher. It was established that the schools were already burdened with other responsibilities; hence the training of teachers should be government's sole responsibility and not head teachers.

### **CPD in computer Studies**

Another area of interest as far as computer teaching is concerned is human resource development. So questions were asked to do with CPD in computer studies. On this aspect, all the respondents indicated that CPD is an important aspect of teacher training which should be encourage. In spite of its importance, all the respondents had not done any CPD in ICT. One HOD, H/S-peri 2 stated that:

*We do not think of having CPD in computer studies because there is no one in the whole school who is computer literate. Even the teacher we are using is not trained. He is just teaching because of the interest he has in computers.*

On the invitation of a qualified computer studies teacher during the CPD meetings, the responses indicated that it was not possible to invite qualified teachers to assist during CPD meetings due to financial challenges schools were facing. One of the head teachers said that inviting a qualified teacher required a lot of money. He/she went on and said that; these people would need transport money and subsistence allowance which as a school they could not manage.

The same sentiments were expressed by another head teacher who said that the schools were struggling financially; inviting someone to conduct CPD would be waste of money, H-rural 1 lamented that:

*As you can see, our schools are very far away from town. And moreover, we as a school do not have enough money to invite qualified teachers to help us in CPD. These people (qualified teachers) will need transport to come here, subsistence allowance since it is not possible to go back the same day. At the moment it is not just possible may be next year.*

Another respondent also expressed the same views on lack of money to undertake CPD activities in computer studies. He/she went on to say that the schools needed outside help in that area. For example, tr.-rural 1 said that:

*In as much as we would like to have these meetings, looking at our little resources, it is not just possible unless the district would come in and help us in terms of logistics for the facilitators.*

For urban 1 school it may not have been finances per se, but lack of qualified and competent teacher to conduct CPDs in computer studies. For example, H/S-urban 1 said that:

*To be honest, we have not done well in that area. It is attributed to the fact that in the school there is no one who is competent enough to conduct CPD activities. Our teacher is trained in computers but has no methodology and he is only one year in services. Any way, we will try to do something in this area.*

The quotation implies that the school had the ability financially to undertake CPDs in computer studies, did not have trained and competent personnel to conduct it.

#### **4.5 Availability of infrastructures**

On the availability of infrastructure to facilitate the teaching of computer studies in selected junior secondary schools. Series of questions, such as the availability of computer laboratories, the number of computers and other equipment that go along with the teaching of computer studies were asked.

The schools studied had a number of infrastructures available for both teachers and pupils' use. When checked it was found that only urban 1 and urban 2 schools had designated rooms for computers. However; only urban 1 school had a computer laboratory large enough to accommodate 40 pupils.

The other four (4) schools used classrooms as computer laboratories. This was due to lack of rooms.

#### 4.5 shows computer infrastructure in schools

Table 3 showing infrastructure available at urban school 1

**Table 3 infrastructure for urban 1 school**

SCHOOL	COMPUTER INFRASTRUCTURE
URBAN 1 SCHOOL	1 computer laboratory 42 computers 1 printer 1 photocopier 1 projector 17 tables 19 chairs 1 generator Source of power – hydro No internet

Source: Field work (2018)

Urban 1 school had double stream that is two (2) grade eight (8) classes and two (2) grade nine (9) classes with a population of forty (40) pupils per class. Computer – pupil ratio per class of 1:1

Table 3 shows that the school had forty two (42) computers of which ten (10) were bought by Parents (PTA) and the rest were bought by the school using user fees. The other accessories available were; 1 projector, 1 printer, 1 photocopier, tables and chairs. For the source of energy, the school was connected to the national grid. In addition, the school bought a generator to be used during power outages. For instance, H/S-urban 1 said that:

*As far as power is concerned we are not complaining. Our school is connected to the national grid therefore; we do not have a lot of problems in that area. In case of load shedding we have a generator on standby.*

The table 3 further reveals that that the school had enough tables but chairs specifically for computer laboratory were not enough. On the issue of internet, the responses indicate that the school was not connected to internet. This according to the teacher, made the teaching of computer studies difficult, tr.-urban 1 said that:

*Lack of internet has disadvantaged us a lot; we cannot access teaching and learning materials. Pupils also are unable to do their research. The unfortunate thing is that the entire district there no single school with internet connections.*

Figure 8 showing computer laboratory for urban 1 school with 42 computers

**Figure 8 computer laboratory for urban 1 school**



Source: fieldwork pictures (2018)



Based on figure 7 the computer – pupil ratio was 1:1. Computer laboratory with 42 computer, 17 tables and 16 chairs, however, chairs were few compared to the number of computers.

Table 4 below computer infrastructure available at urban school 2

**Table 4 Computer infrastructures for urban school 2**

SCHOOL	COMPUTER INFRASTRUCTURE
URBAN 2 SCHOOL	18 computers 1 projector 1 printer 1 photocopier 5 tables 16 chairs Source of power – hydro

**Source:** Fieldwork (2018)

Urban school 2 had three (3) streams, three (3) grade eight (8) classes and three (3) grade nine (9) classes.

Table 4 shows the computer infrastructure available at urban school 2. From the table, it was clear that the school had eighteen (18) computers. On further investigation, it was noted that the sixteen (16) computers were donated by Zambia Information Communication Authority (ZICTA), through the initiative of the District Education Board (DEB) office. Further, the head, mentioned that one (1) computer was donated by the agency running the school and that the school only managed to buy one (1) computer.

It was also noted that the school managed to buy other accessories such as 1 projector, 1 printer, 1 photocopier tables and chairs. The table further shows that the school had a computer laboratory. On the other hand, the H/S-urban 2 mentioned that:

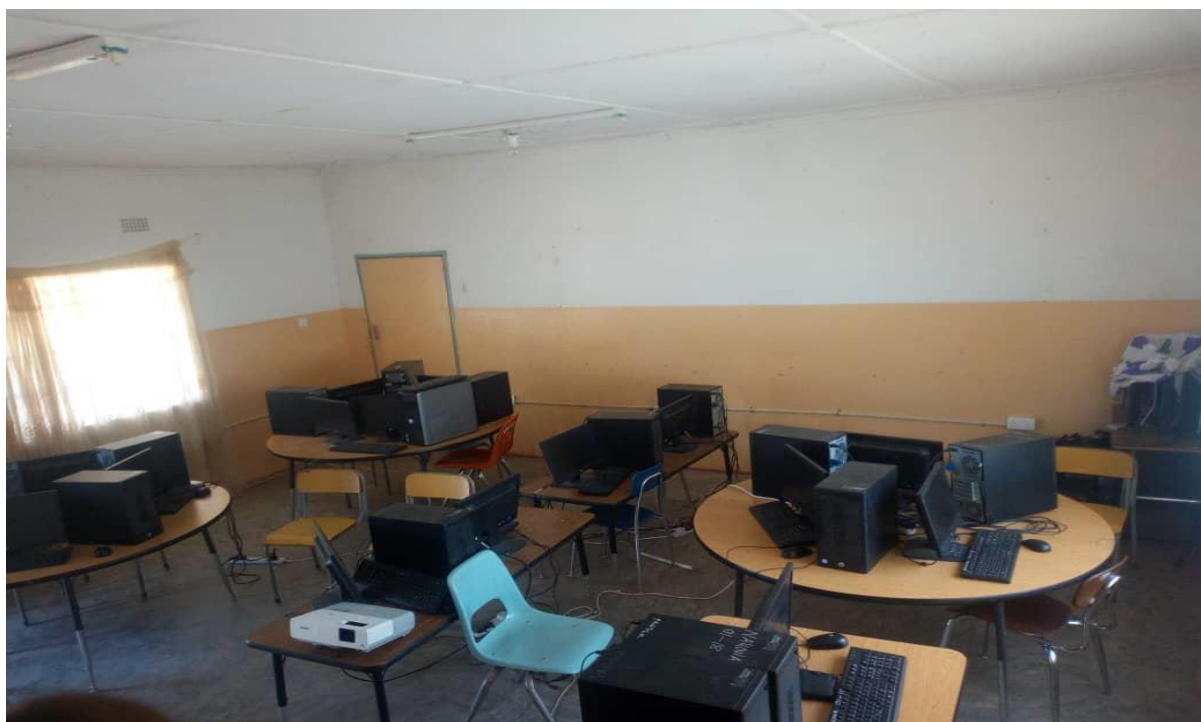
*Our computer lab is very small, it was meant for 20 pupils only. It is difficult to teach as pupils are crowded during lessons and this makes the teaching process to be slow and cumbersome. Pupils during the practical lessons they fight for chairs. The other challenge is that some of the pupils have never been exposed to computer while others have computers at their homes, now handling the two types of pupils is not easy.*

The teacher further stated that the school was connected to the national grid. However, he was quick to mention that sometimes lessons were disturbed during the power outages. In most cases it was difficult to find time and make up for the lost time during load shedding, explained tr. – urban 2 that:

*It is really frustrating, you will find that power goes amidst the lesson and there is nothing you can do. If there was a generator on standby things would be different.*

Figure 9 below shows a computer laboratory urban school 2 with 18 computers

**Figure 9 computer laboratory for urban school 2**



Source: Field pictures (2018)

Figure 8 depicts a view of a computer laboratory for urban school 2 with 18 computers and 58 pupils. From the picture it shows that computer-pupil ratio of (3:1).

Table 5 shows computer infrastructure available at peri-urban 1 school

**Table 5 computer infrastructure for peri-urban 1**

SCHOOL	COMPUTER INFRASTRUCTURE
PERI-URBAN 1 SCHOOL	11 computers 1 printer Source of power hydro

Source: Fieldwork (2018)

Peri-urban 1 school had a single stream, one grade eight (8) and one grade nine (9) classes. Each class had thirty five (35) pupils with computer-pupil ratio 3:1

Table 5 shows that the school had eleven (11) computers and 1 printer. On further investigations it was noted that the ten (10) computers were a donation from Zambia Information Communication Technology Authority (ZICTA). This was possible through the effort of the District Education Board office. The school just managed to buy one computer.

As observed from table 5, the school had no computer laboratory and other accessories. The H/S-peri 2 indicted that the school used an ordinary classroom to conduct lessons for computer studies. Every time the teacher wanted to conduct practical lessons, computers had to be brought from the store room they were kept.

The school uses hydro power for their lighting system. The HOD/Senior teacher explained that they experienced problems during power outages as the school had no alternative source of energy.

The teacher complained that due to load shedding, lessons were disturbed. He further stated that sometimes in the middle of the lesson power would go which meant that the lesson would be abandoned. For example, *tr.-peri 1* said that:

*When there is no power it means that our pupils will not have their practical lessons. This makes it difficult to cover the syllabus.*

Using of classroom as a computer lab made the utilisation of the ICTs at the school somewhat challenging for both the teachers and the learners. Since the only time computers were available was during the practical lessons for computer studies. From the observation, this limited the utilisation of the computers as the pupils could not have access to them at their own time.

Peri-urban 1 school lacked basic computer infrastructure, as the school only had eleven (11) computers and one (1) printer.

It was not possible to get a picture for the classroom used as a computer laboratory because at the time of data collection the pupils were on school holiday.

Table 6 below shows computer infrastructure at peri-urban school 2

**Table 6 Computer infrastructure for peri-urban school 2**

SCHOOL	COMPUTER INFRASTRUCTURE
PERI-URBAN SCHOOL 2	8 computers 1 printer 1 projector Source of power - Generator

Source: Fieldwork (2018)

From table 6 infrastructures for peri-urban 2 was not adequate, the school did not have a computer laboratory, practical lessons were done the same classroom used for other subjects, hence, was not possible to get a picture for the classroom used as a computer laboratory.

Peri-urban school 2 had a single stream with sixty (60) pupils per class. Pupil-computer ratio of 7:1

It was noted that the teaching for both theory and practical was done in the same classroom used for other subjects. Every time the pupils would do their practical lessons, they had to collect the computers from the store room they were kept. The HOD lamented that the system had proved cumbersome to both the teacher and pupils. He discovered that sometimes pupils missed practical lesson in the event when the one in charge of the store room was not around.

The school was not connected to the national grid; as a result they depended on a generator as source of energy. Further investigation indicated that the use of a generator was not sustainable as fuel had become expensive. For instance the tr.-peri 2 stated that:

*When there is no fuel for the generator, we concentrate on theory on theory, but this is not good for the pupils. Even covering the syllabus is difficult. If only the government can consider us and give us solar panels like other districts, the better.*

Table 7 below shows computer infrastructure available at rural school1

**Table 7** computer infrastructure for rural 1 school

SCHOOL	COMPUTER INFRASTRUCTURE
RURAL 1	6 computers
SCHOOL	Source of energy – Solar panels

Source: fieldwork (2018)

Rural 1 school had a single stream with sixty seven (67) average number of per class. Computer-pupil ratio of 11:1

From table 7 it is clear that infrastructure at rural 1 school is not adequate. The school has no printer, no photocopier, and no projector. The teaching for both theory and practical was done in the classroom and was done under difficult conditions as the school had no printer. This applied to the practical final examination; the school had to ask for a printer from teachers, said the head teacher.

On the issue of source of energy H/S-rural 1 mentioned that it was sustainable and that they did not experience problems. He/she explained that:

*We are one of the few schools which are lack. These solar panels were installed by the government through Rural Electrification Programme (REP). They are quiet strong, we, sometimes experience here and there. Any, we are not complaining.*

From table 7, the school had acquired six (6) computers. Further investigation revealed that they were bought through the school's initiative in conduction with the parents. The head teacher stated that four (4) computers were bought using user fee while the other two were bought using money from Parents and Teachers' Association (PTA).

Figure 10 a view of a classroom used as a computer laboratory for rural 1 school with 6 computers

**Figure 10 Classroom as computer laboratory for rural 1 school**



Source: Field pictures (2018)

Figure 4.11 shows a classroom used as a computer lab during grade nine computer practical final examinations. From the picture one can tell that there were only six (6) computers against sixty seven (67) pupils which gave a computer-pupil of ratio of 11: 1.

Table 8 below showing computer equipment at rural school 2

**Table 8 computer infrastructure for rural school 2**

SCHOOL	COMPUTER INFRASTRUCTURE
RURAL SCHOOL 2	2 computers No source of energy

Source: Fieldwork (2018)

From table 8 above, rural school 2 had only two computers. The school had no source of energy.

When asked on how the teaching was done, the head teacher explained that they were just teaching theory, since the school had not entered computer studies for examination. It was further noted that the 2 computers were kept in the strong room in the head teacher's office.

The teacher for computer studies indicated that whenever they would want to use the computers for demonstration purposes, the head teacher would ask for a generator from one of the villagers. The head teacher expressed himself by saying:

*“The man is good, he has been very helpful. He always comes to our aid”.*

#### **4.6 Utilisation of available resources**

Utilisation of resource was divided in two (2) categories these were; computer laboratory and computers, human resource and time. On utilisation of resources it was established that the teaching of computer studies was done in two (2) categories; theory and practical. The theory part was done in classrooms while practical lessons took place in the computer laboratories.

## **Computer laboratory and computers**

It was noted that the pupils had only access to the computer laboratories and the computers in the presence of the teacher. If the teacher was not available due some other official duties meant that pupils would not have practical lessons. Worse still, each school had only on teacher in charge of computer studies. Further investigations indicated that pupils were also not allowed to use the computer laboratories for their studies. However, they were allowed to do their practice in the afternoon twice a week, as other days were for co-curricular activities. It was further discovered that pupils were also not allowed to print their work without the teacher's presence and approve. For instance, tr.-urban 2 stated that:

*"I was instructed by the administration not to allow pupils alone in the computer laboratory. Because of that we do not allow pupils to use the computer laboratory as a study room".*

It was observed that due to the above restrictions to the computer laboratories and the computers; most of the times the computer laboratories were closed.

For the other four (4) schools twelve respondents (66.7%) used classrooms as computer laboratories. The H/S-peri 2, explained that they did not have enough classrooms to covert one classroom as a permanent computer laboratory. He stated that:

*"The same classroom which is used for other subjects is the same one we are using as a computer laboratory".*

The pupils could only have access to computer during the practical lessons. Tr.-rural 1 lamented that:

*It is very difficult to carry the computers every time pupils want to do practice. These machines are very delicate, they will end up breaking. It also consumes time making connections. Hence, we rarely have practical lessons. A number of cables have to be connected and time is wasted in that way.*



### Utilisation of human resource and time

The criteria for determining the utilisation of human resource and time was arrived at after examining the period allocation for each teacher per week.

Table 9 below shows number of periods for each school per week

**Table 9 number of periods per week**

SCHOOL	NUMBER OF PERIODS
Urban 1	4
Urban 2	4
Peri-urban 1	4
Peri-urban 2	4
Rural 1	4
Rural 2	2

Table 9 above shows the number of periods allocated to computer studies for each class per week. Apart from urban 1 and urban 2 schools which had double and three (3) streams each respectively, the other four (4) schools had single stream each. A teacher having two (2) classes that is one (1) class grade eight (8) and one (1) class grade nine (9) had eight (8) periods only for the whole week.

On the issue of teachers' loads, from table 9 above, it is clear that the teachers had light loads. Each teacher had a maximum of 8 periods per week. This is far below the minimum government requirement of 24 periods per week. It was further observed that for the rest of the time, teachers were doing their own work which is not related to teaching. For instance, tr.-rural 1 stated that:

*During my spare time, I write my assignments and prepare for my examination since I am studying.*

On the number of periods allocate to computer studies, it was established that the time was not enough for both theory and practical lessons. For example, Tr.-peri 2 indicated that the 4 periods allocated to computer studies were not enough for both

theory and practical lessons. He further explained that it was worsened by power outages being experienced in the district. Tr.-rural 1 lamented by saying that:

*Time allocated to computer studies is not enough, considering that most of the schools in the district do not have computer laboratories. If we had laboratories, it was going to be easy for our pupils to their practice after classes.*

On teachers' qualifications, out of six (6) schools only two (2) teachers were trained in computers, even them, were not in methods of teaching. The other four (4) schools used teachers who had interest in computers but did not possess any qualifications at all.

#### **4.7 Identifying unexploited opportunities**

In a quest to identify unexploited opportunities available, respondents were interrogated with a numbers of questions focusing on areas like fundraising ventures and cooperating partners. From the responses, it was noted that schools had been doing fundraising ventures, however, the school administration never thought of channelling the proceeds towards computer studies project.

H-rural 1 stated that:

*We have a school field where we grow maize, whenever we sell the maize; we usually use the money for sporting activities. I think this time the money will be set aside specifically for computers. He jokingly said that: sometimes we do not think outside the box. You sometimes need visitors to open up your mind. Last year we had some good money from the sale of maize, we could have bought even three (3) to four (4) computers”.*

He mentioned a Tonga proverb which says “*mwenzu usiya cisis*”, which simply means, a visitor leaves something of value to his/her host.

Based on the responses, it was noted that, the fundraising ventures had been going on for a long time and that the head teachers were the ones to decide on how the monies from the ventures should be used. For example, tr.-peri 2 expressed his views by saying that:

*We do hold these fundraising activities especially when we want to raise money for sports. At our school, we have a school garden and we are keeping goats. If planned properly, this money can go a long way in buying computers for the school. The head teachers need to change this system.*

It was also established that no respondents had approached any cooperating partners. However, some respondents indicated that they had been contemplating of approaching them. For instance H-rural 2 stated that:

*We have been planning to approach these local businessmen for some assistance and write to Non-Governmental Organisations (NGOs) may be they can help us with just few computers.*

The other opportunity which was investigated on was the issue of former pupils. It was found that all the respondents had not taken advantage of former pupils. It was noted that respondents could not approach the former pupils on the bases that they did not go far in education; hence they could not offer meaningful help to the school. For instance, H-rural 2 said that:

*Many of our pupils don't go very far in education as such I don't think that they can make any meaningful contributions.*

On the other hand, it was established that schools were not able to get in touch with those who completed school and were doing fine in life. For example, H/S-rural 2 explained that those who have completed school, they rarely visited their parents hence, it was difficult to find the (H/S-rural 2: August, 2018).

#### **4.8 Summary of the chapter**

This chapter presented the findings from the participants on the management of the teaching of computer studies in selected junior secondary schools of Zimba District, Southern of Zambia. The findings of the study were presented in line with the study questions. The study found out that almost all the respondents agreed that strategies were of great importance for the successful implementation of educational programmes. The strategies were in form of; targets, buying of computer equipment, having trained and qualified teachers and conducting of CPDs. However, half, that is

nine (9) out of eighteen (18) respondents (50%) had no strategies. The report also revealed that infrastructures in most schools were not adequate; most schools lacked basic computer infrastructure such as computer laboratories, computers, printers and projectors. It was also established that resources both material and human were underutilised. And schools had not sought any assistance from the cooperating partners for the provision of computer infrastructure.

## **CHAPTER 5**

### **DISCUSSION OF THE FINDINGS**

#### **5.0 An over view**

The previous chapter presented the findings on the study on the management of the teaching of computer studies in junior secondary schools of Zimba District in Southern Province. The current chapter focuses on the discussion of the findings under the sub-headings that emerged in line with the study objectives.

1. Strategies management had put in place to enhance the teaching of computer studies
2. Availability of infrastructure to facilitate the teaching of computer studies
3. Utilisation of Available resources for the teaching of computer studies
4. Identifying unexploited opportunities in the teaching of computer studies.

#### **5.1. Strategies for management**

The findings of the study showed that almost all the respondents agreed that strategies were important as they helped in achieving the objectives of the projects. This was a positive outcome since all the respondents were aware of the role strategies play in any organisation. It was further noted that six (6) out of eighteen (18) (33.3%) respondents had put in place strategies to enhance the teaching of computer studies. This is in line with the views of Zahra (1993), who observes that an educational program facing difficulties needs to develop and implement strategies to improve its fortunes, unfortunately, the majority, 12 (66.7%) had no strategies at all. Lack of strategies impacted the management of the teaching of computer studies negatively. This was evidenced from lack of basic infrastructure in almost all the schools where the study was conducted apart from urban 1 and peri-urban 2 schools that had strategies.

It was found that the strategies for peri-urban school 2 which constituted three (3) respondents were not strong enough to achieve the intended objectives. This was concluded from the basic infrastructure which was available at the school. In other schools which had not put in place some strategies computer infrastructure was almost non-existent, for example, rural 1 school had only two (2) computers.

Nickols (2016) contends that strategies determines and reveals the objectives, the purpose and the goals of an organisation. In the absence of the strategies it is difficult or almost impossible to achieve the objectives of the organisation. Strategies also help management to be focused and determined. In this case, if all the school administration for the schools under study had strategies, the situation would have been different as schools would have put more effort in acquiring the needed computer equipment. It is believed that the purpose of any strategy is to put the organization in a position to carry out its mission effectively and efficiently. Achieved strategies give organisations renewed energy and commitment to strive harder as it was observed from urban 1 school.

Ngonzi (2014) also in her study in titled Strategies for Improving the Teaching of Computer Studies emphasised the need for school management to formulate strategies in order to successfully implement computer studies into the curriculum. However, this was not the case for most of the school management in schools where the study was conducted. As a result they lacked even basic infrastructure which if they had strategies would have managed to acquire.

### **Targets to be achieved**

From the responses, all the respondents were in agreement that targets were very important as they help in achieving the objectives and assist in directing the resources to the particular target. However, the findings of the study revealed that only six (6) respondents out of eighteen (18) which represented (33.3%) had targets to be achieved.

Snow (2017) asserts that targets are time bound desired levels of performance. They are used to assess performance achieved compared with the expected performance to make adjustments in efforts and resources.

It is worth noting that targets are very important in any organisation because they help in achieving the objectives. For instance, urban 1 school had some targets to be reached as a result the school managed to acquire in 3 years almost all the basic equipment needed for the teaching and learning of computer studies except for internet which was not available, this was as a result of the targets they had put in place. Targets they had put in place motivated them to work hard. This was evidenced

from the type of infrastructures the urban 1 school had as shown in table 3, chapter 4 and page 43.

As alluded earlier to, targets are used to assess performance achieved compared with the expected performance to make adjustments in efforts and resources. However, in the case of most of the school management it was not possible to measure or assess their performance as there were no bases for that. There was no expected performance in the first, hence, there was nothing to compare to.

Targets motivate individuals to work hard. For instance, if all the head teachers had some targets to be achieved, they would have performed better because they would have worked towards achieving the set targets. Since once a target is achieved, it is a motivation to set another one. Thus, targets are a drive which pushes someone to better performance.

It is also important to state that target setting goes along with priority setting. This is according to (Cole and Kelly, 2011). If school management had set targets, it was going to be easy to them to set priorities and set aside amount for computer infrastructure. Nonetheless, it was not case for most respondents. For example, H-rural 2 mentioned that as school they had taken computer studies like any other subject taught in school and that there was no special attention paid to it. As a result, there was no need for them to put targets to be achieved. He also said that computers were not a priority since the school had other pressing issues

This could be the reason why rural school 2 was the least in terms of computer infrastructure. The school had only 2 computers as indicated in table 8, chapter 4 and page 51. It was also the only school where computer studies was not examinable or rather where pupils were not sitting for computer studies final examination.

It is further believed that target setting leads to action plan. And action plan is participative, which means that all the teachers would have been involved in planning, organising resources and coordinating the activities of the computer project (Kreitner, 2009). Contrary to the foregoing, the implementation of computer studies project was the sole responsibility of the computer studies teacher. This was evidenced from the fact that only the computer studies teachers had access to the computer laboratories.

The responses from H-rural 2 of computers not being a priority, showed his lack of understanding of the importance of computers in education. Batubo et al (2008) are of the view that no educational program for primary and secondary school over the world that is devoid of computer studies is complete.

In addition, the attitude of the most head teachers was in line with the theory adopted for the study (Technology Acceptance Model). David et al. (2002) contend that the attitude of the user will determine degree of acceptance and the degree of acceptance in turn would determine the extent to which the teaching was being managed, whether successfully or not. The way the teaching was being managed would depend on how well the technology had been accepted by those in leadership. If management have not fully accepted computer studies, they would not make much effort to see to it that it succeeds. This was evidenced from their responses and attitudes as indicated by the statement below from H-rural 2 (2018):

*We don't have any targets, because money is difficult to come by. Computers are bought as money is available. As a school we have more pressing issues than computers. At the moment we don't have plans of buying any computers, may be next year.*

In the quotation “as a school we have more pressing issues than computers” simply showed the negative attitude of the head teacher and lack of understanding of the role computers are playing in education.

Another evidence of lack of understanding and appreciating of the importance of computer studies was from H/S-peri 1;

*As a school, we tried to put some targets but failed to meet them from there we stopped as there is no need to put targets which you know that you will not manage to meet them. It makes you more frustrated when you fail to meet your target. We simply buy computers when money is available. And for us computers are not a priority.*

The quotation “for us computers are not a priority” simply showed that some respondents had not accepted the new technology. Makau (1989) pointed out that in education it is common for leaders to reject new technology and gave



an example in Kenya when biro pen and scientific calculators were initially rejected.

### **Buying of computers**

The other strategy that came out dominantly during the discussions was the buying of computers and other accessories that go along the teaching of computer studies. All the respondents asserted that buying of computers was imperative as computer studies was a practical subject which could not be taught effectively without computers. Nonetheless, the report found that only nine (9) (50%) out of eighteen (18) indicated that they had plan in place of buying computer equipment.

Maxwell (2010) is of the view that a plan leads to action plan. Action plan are measures to be taken in order to achieve the targets. In this regard, schools that had plans for buying computers achieved something. This could be the reason why the three (3) schools with plans had managed to have some reasonable number of computers. For example, peri-urban school 2 managed to acquire eight (8) computers from their own resources. Similarly, rural 1 school bought six (6) computers on their own initiative as indicated in tables 6 and 7 in chapter 4, pages 48 and 49 respectively.

It was further observed that the other nine (9) (50%) respondents did not have any plans on buying of computers. Maxwell further opines that “failing to plan is planning to fail”. The three (3) schools which had no plans for buying computer equipment failed to buy reasonable number of computers. For instance H-rural school 2 stated that there was no plan in place of buying computers and that:

*We have not put in place a specific plan on buying computers but we buy as when money is available. Plans are simply there to guide which may not be followed.*

This could be attributed to lack of basic infrastructure at the rural school 2. The school managed to buy 2 computers. This is the same situation with urban school 2 and peri-urban 1 school. Urban school 2 and peri-urban 1 school had 18 and 11 computers respectively, however, out of the eighteen (18) and eleven (11) computers the schools just managed to buy one (1) computer each. Without the effort of the district office, each school was going to have just one (1) computer.

The implication is that most of the schools under study lacked basic infrastructure for the teaching of computer studies. This was attributed to the attitude of some school administrators towards the introduction of computer studies and lack of planning on their part. The other contributing reason could be lack of understanding of the importance of computer studies.

### **Training of teachers**

Training of teachers was another theme which came out prominently and that it was a prerequisite to effective teaching. Respondents emphasised on the need to send serving teachers for training as the district experienced shortage of qualified teachers. In spite of the need for qualified teachers, the findings of the study showed that two (2) out of six (6) schools, which translated into six (6) respondents out of eighteen (18) that is 33.3% had put measures or plans to have qualified computer teachers.

H-rural 1 explained that there was a deliberate local policy where every teacher was being encouraged to be computer literate, not only those teaching computer studies but all the teachers as integration of computers into education involves every teacher. He/she further mentioned that the teachers had responded positively and that two (2) of them were currently being trained in computer studies on 50% government bursary.

The importance of having trained and qualified teachers is not an issue to debate. Afshari (2009) contend that one of the factors which can help if handled carefully in successful teaching of computer studies among others is the availability of trained and qualified personnel to teach the students. Hence, school management has a duty to ensure that the trained teachers were available to teach the pupils.

For example, H-urban 1 stated that two of his/her teachers were studying. One teacher since he already had trained in computers was being trained in computer studies teaching methods while the other one was training in both computer content and teaching methods.

The responsibility of having trained and qualified teachers in every school is the sole responsibility of the school management, especially the head teacher. Whether the teachers are sponsored by the government, by the school or they were on self- sponsorship, the head teacher should see to it that these teachers were available to render the service to the learners.

On the other hand, H-urban school 2 mentioned that the school administration had been encouraging teachers to go for training in computer studies but they were not willing and shunning the subject, hence, they could not force them, for instance she said:

*Our teachers are not interested in computers; we cannot force them to do something they don't want. Moreover, computer studies should not be compulsory to all the schools and pupils. This subject should be optional.*

The attitude of the administration together with the teachers for urban school 2 is in line with the theory adopted for the study. The fact is that if the school administration had accepted the teaching of computer studies, they were not going to fail to convince the teachers to go for training in computer studies. According to the views of Chen et al (2012), the perceived usefulness (PU) and perceived ease of use (PU) positively affects the attitudes toward usage (ATU) of a technology. This in turn affects the way the teaching was going to be managed.

On the other hand, Maxwell (2012) contends that leadership is about leading by examples, motivating followers to do what under normal circumstances would not have done. Hence, the assertion that school management did not accept the teaching of computer studies becomes correct and that affected the teachers as well. This was in line with the observations which were made by Olan'g (2015). He observed that "most teachers even those trained to teach computers in schools are reluctant to teach the subject which could be associated by the limited experience with software and hardware as part of the important component in teaching computers to the students in schools".

Another head teacher simply stated that they were waiting for the government to deploy some teachers. The head teacher and others showed a negative attitude towards the management of the teaching of computer studies. Flanagan (2003) observations that head teachers who are not prepared for technology leadership struggle to develop the resources required for ICT integration, when computers are introduced in schools, very few, if any; school leaders have in fact used computers in meaningful ways with children and therefore lack the necessary academic vision and experience to lead ICT integration.

Kreitner (2009) is of the view that attitude is predisposition or a tendency to respond positively or negatively towards a certain idea or object, person or situation. Attitude influences an individual's choice of action and responses to the challenges. Hence, going by the responses from some of the respondents, the attitude had affected the management of the teaching of computer studies.

Consequently, it found that all the administrators talked to were computer illiterate. It is not that knowing how to operate a computer is something challenging to many people but it is just in fact an issue of attitude towards the subject. People are not just interested in learning about computers. One would further wonder how those administrators have been monitoring their teacher with little or no knowledge of computers at all.

### **Continuing Professional Development (CPD) in computer Studies**

Another area of interest as far as computer teaching is concerned is human resource development. So questions were asked to do with CPD in computer studies. On this aspect, all the respondents indicated that CPD is an important aspect of teacher training which should be encourage. In spite of its importance, all the respondents had indicated that they had not done any CPD in ICT. One HOD, H/S-peri 2 explained that it was not possible for them to have CPD in computer studies because there was no one in school who had computer skills. When asked why they could not invite qualified computer studies teachers. H-rural 1 stated that they could not afford to invite qualified teachers due to lack of funds. The people invited may demand transport money and subsistence allowances since they would not go back the same day due to distance.

The happenings in some of the schools simply showed lack of priorities on part of the school management. As indicated in chapter four under unexploited opportunities, schools were able to raise funds for sports but failed to raise money for education activities which is one of their key result areas.

Commenting on the same issue, tr.-rural said that in as much as they would like to hold such meetings, it might not be possible because of financial challenges the schools were facing. He called upon the District Educational Board office to help financing the Continuous Professional Development meetings for the district. The

report revealed lack of planning and initiative on part of both head teachers and the teachers. And also as earlier indicated, computer studies was not a priority to some of the respondents. The behaviour exhibited by most of the schools showed that they have taken the teaching of computer studies as 'business as usual' hence, they are not making any effort to see to it that it succeed.

Since the district lacked qualified teachers as observed, respondents especially school administrators could have taken advantage of CPDs to impart necessary knowledge and skill into the teachers who volunteered to teach computer studies. This was going to be cheaper and sustainable for the time being, before sending the teachers for training.

Cardno (2005) postulates that teachers' professional development is a key to education reforms as it play a major role in addressing a gap between teacher and standards-bases reforms. It is also believed to equip them with necessary knowledge and skills to implement the change as intended by the reform introduced.

The study stated that nine (9) out of eighteen (18) (50%) respondents had no strategies at all. Which is unfortunate as Zahra (1993) contends that strategies offer a framework within which an organization defines possible means of achieving its goals and objectives. The objective of every strategy is to put the organization in a position to carry out its mission effectively and efficiently. Thus, lack of strategies on part of some of the head teachers had rendered the management of the teaching of computer studies ineffective.

## **5.2 Availability of infrastructure**

The study found that the situation on infrastructure in schools where the study was conducted was generally poor as almost all the schools lacked some basic infrastructure.

### **Availability of computer labs**

It was observed that out of six (6) schools only one (1) had a standard computer laboratory with adequate computers to cater for a class of forty (40) learners. The other school had a small room which could only accommodate twenty (20) pupils as shown in figure 8. The remaining four (4) schools had no computer laboratories at all. They were using ordinary classrooms as computer laboratories. These findings are

similar to Moono's (2017) study who observed that out of the selected schools in Mazabuka only one school had a well-established computer laboratory. The results may be the same as the two districts are in the same region (Southern Province) and faced similar challenges.

However, Blease (2006) is of the view that teaching computer studies in secondary schools and the infrastructure are considered to be two things that work together for the same goal. The effectiveness of teaching computer studies depends also on a well - established infrastructure which includes buildings and other services.

The lack of basic infrastructure could be as a result of the attitudes of some of the management that viewed computer studies as any other subject taught in schools, this made them not to put effort in acquiring needed infrastructure for effective teaching of the subject. There was also lack of planning on part of the school management. In addition, lack of priority on part of the management led to the poor infrastructure. According to the responses, some head teachers were more interested in sports than computer studies project. For instance, tr. – peri 2 stated that:

*We do hold these fundraising activities especially when we want to raise money for sports. At our school, we have a school garden and we are keeping goats. This money can go a long way in buying computers for the school. The head teachers need to change this system.*

### **Number of computers available**

The situation on computers was not impressive. For instance, only one urban school had enough computers to effectively teach computer studies. The other school had eighteen (18) computers which were not enough to cater for fifty eighty (58) pupils per class. Peri-urban 1 and 2 had eleven (11) and eight (8) computers each respectively while rural school 1 had six (6) computers and rural 2 had two (2) computers. The assertion made by Isaacs (2007) that penetration and availability of ICTs in Zambian education institutions remains low cannot be disputed going by the revelation of the study.

Lack of computers in secondary schools is not only in Zimba district; it is a worldwide problem as it affect many countries, for instance, Alkahtani (2017) carried out a study in Saudi Arabia and found out that there was shortage of computers in Saudi schools. The situation was not different from Kenya; Olan'g (2014) conducted a study where he revealed that there was a crisis of computers in secondary schools in Kenya. The countries may be from different parts of the world, however, may be experiencing the same challenges as they are all developing countries so to say.

From the study, it is important to note that the location of the school had no advantage on the availability of the computers. What mattered was the head teacher's ability to plan and organise the resources. For instance, urban school 2 and peri-urban 1 school had more computers compared to the other schools. Nonetheless, these schools just managed to buy one (1) computer each from their own initiatives while the other computers were as a result of the District office's initiative without which these two schools were going to have one computer each as indicated in chapter four under availability of infrastructure pages 45 and 47 respectively.

The revelation of the report is in line with Afshri et al s' (2008) view who contend that school leaders' technology leadership capabilities play a major role in as far as the implementation of computers studies was concerned. They further mentioned that lack of 'technology' leaders could therefore be one of the factors inhibiting the implementation of computers in education. This was in line with the study carried out by Ndidde and friends in (2009) about eleven (11) school leaders. They revealed that the eight (8) school leaders did not have well formulated written plans for implementing computer studies. The institutions also lacked strategic plans to implement and sustain the computer infrastructure in place. The context may be different but the findings are almost the same as most of the African countries are experiencing similar problems.

It is therefore worth noting that the school leadership plays a key role in the implementation of computer studies into the curriculum. Lack of support from the school administration is a big challenge. Thus, for the effectiveness of computer implementation, administrators must be competent and have a broad understanding of

the technical, curricular, administrative, financial, and social dimensions of ICT use in education.

It is also important to note that the age of the administrators had an effect on the management of the teaching of computer studies. For instance, the youngest administrator had put all the effort to acquire all basic equipment required for the teaching of computer studies. It had been further established that the administrators who were almost retiring were not putting much effort in ensuring that the integration of computer studies in education is successful. This could be evidenced from their responses. For example, H-urban 2 and rural school 1 expressed these views respectively:

*Our teachers are not interested in computers; we cannot force them to do something they don't want. Moreover, computer studies should not be compulsory to all the schools and pupils. This subject should be optional.*

*We don't have any targets, because money is difficult to come by. Computers are bought as money is available. As a school we have more pressing issues than computers. At the moment we don't have plans of buying any computers, may be next year.*

Thus, the researcher concluded that the older administrators did not accept the introduction of computer studies hence, mismanaging it. As to them computers were not priorities.

On other accessories, it was noted that four (4) schools had 1 printer each apart from two (2) rural schools that had none. Furthermore, two urban schools had a projector, photocopier, tables and chairs for the computer laboratory each. However, the chairs were not enough for both schools. An urban school for example, had 19 chairs against 42 computers. As a result, pupils ended up using chairs that were not meant for the computer laboratory. The situation was the same with Panos's (2010) findings. He postulated that the penetration levels of ICTs in Zambia's education institutions remained low, due to lack of equipment which was attributed to high cost of acquiring it. This also could be as result of lack of planning on the part of the school management



The other important findings of the study were that the qualifications of the administrators had an effect on the way the teaching was managed. It was revealed that school administrators who had obtained master's degree and first degrees had put some effort in acquiring the basic infrastructure. This could be attributed to the fact that they understood the importance of computers in education after having used the technologies themselves.

The study further observed that there was no school which had internet connections which was a disadvantage on the part of pupils as internet is one of the topics in the syllabus. The implication is that pupils were not covering the entire syllabus as intended by the specialists. Lack of internet also disadvantaged the teachers as they were unable to download the teaching and learning materials not only in computer studies but for other subjects as well.

This was contrary to Mweetwa (2007)'s views that "there is great need to have Internet at every school to improve on teacher's output and expose pupils to internet at the early stages of their education. This will enhance the research component as it will cover wider and deeper areas of our rural communities and researchers will see the challenges of introducing ICT at grass roots level".

It is important to note that the challenges related to the accessibility of new technologies for teachers are widespread and differ from country to country. According to Empirica's (2006) European study found that lack of access is the largest barrier and that different challenges to using ICT in teaching were reported by teachers, for example a lack of computers and adequate materials. In the same vein, Korte and Hüsing (2007) found that in European schools there were some infrastructure barriers such as broadband access not yet being available. They concluded that one third of European schools still lacked broadband Internet access.

On the aspect of source of energy, only urban 1 school had hydro power and a generator at standby, in case of power outages. Urban school 2 and peri-urban 1 school had hydro power, however in case of power outage; practical lessons could not take place. This development also impacted negatively on the teaching as in most cases, teachers could not find time to make up for lost hours.

It was further revealed that Peri-urban 2 used a generator. This was not sustainable as fuel was said to be expensive, that in itself, limited the number of times pupils did their practical lessons. Rural school 1 used solar panels which was more sustainable. Rural school 2 had no source of energy. The head explained that whenever they wanted to use the computers, they had to borrow a generator from one of the villagers. This again showed lack of seriousness and commitment on the part of the school management, especially for rural school 2.

### **5.3 Utilisation of available resources**

The resources were categorised as follows: the computer laboratory, computer, time and human resource.

On the use of the computer laboratory, it was established that the teaching of computer studies was done in two categories; theory and practical. The theory part was done in classrooms while practical lessons were done in computer laboratories. It was noted that the pupils were only allowed to access the computer laboratory during the computer practical lessons in the presence of the teacher. During their spare time in the afternoons pupils were allowed to do their practice only two (2) times per week in the presence of the teacher. It was further established that pupils were not allowed to do their studies in the lab. The printing of their work was strictly done under the supervision of the teacher.

The implication is that the pupils did not have best use of the computer laboratories since there were a number of restrictions concerning their usage. This disadvantaged the pupils as they did not have enough time to practice. Worse of, the afternoons when the pupils were allowed to do their practice was not enough because of co-curricular activities. In addition, there was only one computer studies teacher per school. This in itself was a disadvantage since it was difficult to have access to the computer laboratory in his absence; as a result, the computer labs were underutilised.

It was further established that for the other four (4) schools both theory and practical lessons were done in classrooms. It was observed that it was difficult for them to carry computers to classrooms every time they would want to have practical lessons, as computers might end up breaking down due to constant movements. It was further noted that a lot of time was wasted during the process of getting the computers from

the store room to the classrooms and also during connections. Pupils were denied the chance of having practical lessons on some days on fear of breaking the computers due to movements. The report also indicated that at rural 1 school the computers were not being used, waiting for the time they were going to acquire more. Flanagan (2003) observed the same practice in his study that some head teachers would rather protect the machines at the expense of the pupils gaining knowledge and skills.

Consequently, the time resource and the computers were not utilised fully for the pupils to get the best out of them. This might have affected their performance for learners. This occurrence is similar to the findings of Arinze et al (2012)'s study where it was discovered that the resources were not utilised fully to the benefit of the pupils.

On the number of periods allocated to computer studies, it was noted that all the schools had same number of periods that is four (4) per week apart from one (1) rural school which had two (2) periods. In essence, computer practical lessons were given only two (2) periods per week. And in the absence of the teacher, it meant that the whole week there would be no practical lessons. It was noticed that these periods were not enough for both theory and practical.

The report stated that teachers had a lot of time to themselves. In essence, teachers spent more time doing their own work than teaching pupils. Ghavifekr et al (2010) also states that most teachers in Saud Arabia used computers not for teaching but for their own work.

On the aspect of using the computer laboratories for studies, it was noted that pupils were not allowed to use the computer facilities for their studies except for practice in the afternoon. This restricted the pupils' usage of the computer laboratories. Worse still, they were only allowed to be in the laboratories in the teachers' presence. Even other teachers had no access to the computer laboratories.

Commenting on the same subject, Flanagan (2003) went on to say that far from creating learning opportunities; such restrictive usage of computers serves as obstacles by both teachers and students. Therefore, in schools where school leaders

were not prepared to handle the complex issues around computer studies implementation, decision-making is based more on financial and technical considerations than pedagogy.

On the qualifications of teachers, the findings of the study revealed that only two teachers had some training in computers. Even then, they had not done methodology in computer studies. The other four (4) had no training at all in computer studies. This is contrary to Ngozi's (2014) views that in order to improve the teaching of computer studies in schools, qualified teachers are needed. Stevenson (2007) further states that the qualifications of the majority of the teachers are far from being satisfactory due to lack of exposure to college curriculum that does not cater for ICT training.

#### **5.4 Identifying unexploited opportunities available which can help to improve the teaching of computer studies.**

On the issue of identifying unexploited opportunities, the first item was on fundraising ventures. The study findings stated that the schools had been conducting fund raising functions only that the proceeds were not channelled towards the computer project. The implication is that some head teachers did not attach the importance and seriousness the teaching of computer studies deserves. To them, teaching of computer studies was not a priority as mentioned by H-urban 2. If at all, school management had set acquiring of computer equipment as one of the priority area, they would have channelled some of the money from these fundraising ventures into the project.

However, Esselaar et al (2002) made it clear that implementing computers in education is an enormous task which needs concerted efforts on part of the school management. Usually the success of the project depends much on the availability of finances to expedite the needed resources such trained manpower and basic infrastructure to provide such a service. And the school alone cannot manage to undertake the project; hence the need for fundraising ventures and other cooperating partners to assist in financing the project.

Commenting on the same subject, tr-rural 1 mentioned that the schools had been raising a lot of money however, the priority for some of the head teachers were not

computers but sports. From the teachers' responses it is clear that it was not about none availability of the resources but a matter of priority and channel resources to needy areas.

Identifying the cooperating partners was the next issue under discussion. The findings of the study stated that none of the respondents had approached the cooperating partners. H-rural 2 indicated that they had not approached any donors; however he was quick to say that they were planning to approach local businessmen and some Non-Governmental Organisations (NGOs). The implication was that there have been opportunities; however, schools could not take advantage of them.

There was therefore, need for the head teachers to identify stakeholders and partner with them in order to successfully implement computer studies into the curriculum. This is in line with MoCT (2007). Where a call was made by a former Minister of Communication and Transport that there was need to partner with private sectors and other stakeholders as government alone could not manage to implement the project.

On the aspect of the former pupils, it was reported that most of them had not gone far in education and those who have been making it in life, it has always been difficult to get in touch with them.

However, it was observed that the respondents could not take advantage of the local former pupils and explain to them that they needed to support the schools so that their children would not end up to be failures in life. Local people could be easily organised because they were within reach. Their contributions could be in kind such as goats, chickens, maize and building materials form which could later be sold to get money for buying computers.

Ngozi (2015) also recognised the need for head teachers to engage the cooperating partners by recommending in her study that the school administrators should as a matter of urgency liaise with private sectors to provide computers and other instructional materials needed for teaching of computer studies.

It is also important to note that all the schools did not have a qualified technician to take care of the computers and other accessories. This could be the reason why it took a lot of time to connect the computers during lesson as was the case for those schools

without computer laboratories. Farrell (2007) asserts to the need for employing a technicians to fix and maintain computers in order to give them a long life.

### **5.5 Summary of the chapter**

This chapter discussed the findings from the respondents on the management of the teaching of computer studies in selected junior secondary schools of Zimba District, Southern of Zambia. The findings of the study are discussed in line with the study questions. The study found out that almost all the respondents agreed that strategies were of great importance for the successful implementation of educational programmes. The strategies were in form of; targets, buying of computer equipment, having trained and qualified teachers and conducting of CPDs. However, half, that is nine (9) out of eighteen (18) respondents had no strategies. The study also found that infrastructures in most schools were very poor; this could be attributed to absence of strategies in some schools. Furthermore, the resources were heavily underutilised starting from computer laboratories, computers, teachers and time itself. The school management also failed to take advantage of public-private partnership proposed by the government to raise resources for the implementation of computer studies.

## **CHAPTER SIX**

### **CONCLUSION AND RECOMMENDATION**

#### **6.0 Over view**

This chapter presents the conclusion and recommendations of the study based on the findings of the study. The chapter ends by suggesting areas for further research based on the findings of the study.

#### **6.1 Conclusion**

The findings of the study noted that all the respondents agreed that strategies were important as they helped in achieving of the objects and that there were a number of strategies which were put in place such as targets to be achieved, buying of computers and other accessories, training of teachers and conducting of CPDs. Nonetheless, it was established that half, which is nine (9) out of eighteen (18) respondents had some strategies; even then, most of them were weak as they could not achieve their intended purposes.

The availability of infrastructure to enhance the teaching of computer studies in the six schools investigated was poor. Only two schools had computer laboratories. It was further established that only one urban school had a standard computer laboratory with enough computers. For the rest of the schools; infrastructures were not adequate. It was also found out that there was no school with internet connections. The lack of basic computer infrastructure could be attributed to weak and in some cases lack of strategies on the part of school management.

Utilisation of available resources for the teaching of computer studies, the resources in the six schools investigated were underutilised. The computer laboratories were only accessed by pupils and other teachers in the presence of the teacher in charge. This restricted their use together with the computers. Time allocated to computer studies was also not enough, four (4) periods per week and that most teachers had only eight (8) periods per week, this gave them a lot of free time to themselves.

School management also failed to take advantage of public-private partnership approach emphasised by the government to identify cooperating partners to help them in acquiring needed equipment.

In summary the study established that the management of the teaching of computer studies was ineffective due to various managerial challenges school management were faced with. School management were unable to formulate strategies to help them in implementation of computer studies into curriculum. There were no targets to be achieved. As a results, most schools lacked basic infrastructure which go along with the teaching and learning of computer studies, such as computer laboratories, computers, trained computer studies teachers, printers, projectors and adequate power supply.



## **6.2 RECOMMENDATION**

Basing on the findings of the study, it is recommended that:

- The government through the Ministry of education in conjunction with the Ministry of Energy Water and Development, to give priority to schools and provide solar panels under rural electrification programme.
- District Education offices to hold regular seminars for head teachers on the importance computer studies and also to arrange short management courses on strategy formulation and implementation.
- Schools should strive to increase infrastructure for computer studies
- School management should take advantage of public-private partnership to source funds and equipment for computer studies.
- School management to encourage teachers to train in computer studies.

## **6.3 RECOMMENDATION FOR A FURTHER STUDY**

1. The study was limited to selected schools in Zimba District, to this effect; in future it can be broaden on a larger scale in order to involve the whole province.

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## **APPENDIX A**

### **INTERVIEW GUIDE FOR SCHOOL ADMINISTRATORS**

This study is a purely academic one which seeks to investigate the Management of the teaching of computer studies in selected junior secondary schools in Zimba District.

The information you give will not be treated confidential and will in no ways used to work against you or the school.

Interviewer: -----

Sex: -----

Interviewee: -----

School: -----

Date: -----Place: -----

Start Time: -----

1. For how long have you been in service?
2. For how long have you been in administration and what is your substantive appointment?
3. What are your views on introduction of Computer Studies as an examinable subject?
4. Do you have computer laboratory at this school?
5. If so, how is your school equipped with the following? [Indicate the numbers or available]
  - i. Computers
  - ii. Printers
  - iii. Photocopiers
  - iv. Furniture
  - v. Computer lab
  - vi. Internet
6. If you do not have, how is the teaching of computer studies done?
7. How did you acquire the computers and other tools for ICT teaching?
8. Do you have enough text books for the teaching computer studies?
9. What measures have you put in place in order to?
  - a. Acquire enough computers
  - b. Train teachers
  - c. Build and furnish a computer lab
10. What source of energy do you use, is it sustainable?
11. Do you have ICT Professional Development Programmes at your school?

12. If so, explain how you organise the programmes.
13. Do you have a committee to spearhead the implementation of the project?
14. As a supervisor, are you computer literate?
15. If not how do you supervise the teaching?

End Time: \_\_\_\_\_

Thank you, Sir/Madam, for taking some time off your busy schedule to participate in this interview.

## **APPENDIX B**

### **INTERVIEW GUIDE FOR TEACHERS**

1. Gender of the participants
2. Age of the participants
3. What Qualification do you hold?
4. Which college did you go to and when?
5. Do you have computer studies as a subject taught at this school?
6. For how long have you been teaching computer studies?
7. How often is computer studies taught in a week? Are the periods enough?
8. If not adequate, what measures have you put in place to meet the standards of teaching computer studies at this school?
9. What is the enrolment for the classes taking computer studies at this school?
10. What are your views on introduction of ICT as an examinable subject?
11. Is the number of teachers in computer studies enough to handle the number of learners at this school?
12. Do you have computer laboratory at this school?
13. Does management support the teaching of computers studies?
14. How is your computer laboratory equipment with?
  - i. Computers
  - ii. Printers
  - iii. Photocopiers
  - iv. Furniture
  - v. Internet
15. How confident are you about your ability to use ICTs in the classroom?
16. Do you have ICT Professional Development Programmes at your school?
17. Are there challenges that you face during the teaching of computer studies at this school?
18. If yes, then mention and explain on each of them?
19. How best do you think the teaching of computer studies can be done in schools?

End Time: \_\_\_\_\_ Thank you for your time and participation in this study

## **APPENDIX C**

### **OBSERVATION CHECKLIST**

1. Is there a functioning computer laboratory?
2. How many computers are available for teaching and learning?
3. What is the pupil computer ratio from each class doing computer studies?
4. How is the pupil sitting arrangement done during computer lessons?
5. Is there enough furniture for sitting for pupils during the computer lessons
6. How are the computer lessons conducted?
7. Do teachers enjoy teaching computer studies?
8. What according to your opinion makes it enjoyable or cumbersome for teachers to teach computer studies?