AN ASSESSMENT OF THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM IN SELECTED PERI –URBAN SECONDARY SCHOOLS OF KITWE DISTRICT

BY

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I, **Kwaleyela Njekwa**, do hereby solemnly declare that this dissertation represents my own work, except where otherwise acknowledged, and that it has never been previously submitted for a degree at the University of Zambia or any other university.

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APPROVAL

This dissertation of **Kwaleyela Njekwa** is hereby approved as fulfilling requirements for the award of the degree of Master of Education in Educational Management of the University of Zambia.

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ABSTRACT

The 21st century has been dominated by advancement in Information Communication and Technology. This has led to the globalization of the world which has evidently shrunk to a global village. Consequently, all countries both developed and developing are incorporating ICT as part of their culture in their daily lives. Zambia has not been left out in this desire to improve on ICT and see to it that it benefits the country socially, economically and politically. In Zambia ICT has contributed to improving developmental outcomes in two main ways: firstly, ICT-based knowledge and products have contributed directly to wealth creation and secondly, the use of ICTs have contributed indirectly to national development through its impact on the social and economic sectors such as agriculture, health and education, and by empowering individuals to take advantage of new opportunities. In order to be in sync with the rest of the world in the field of Information and Communication Technology, the Zambian government through the Ministry of General Education introduced computer studies as a compulsory subject at primary and secondary schools in 2014. However, its implementation has faced a number of challenges all over the country. The objective and purpose of this study was to investigate the implementation of the Computer Studies curriculum, whether it has been a success or failure in peri urban areas Kitwe district of Zambia. A descriptive design was used in this study. The target population was three(3)peri-urban secondary schools in the District. Purposive sampling techniques were used to select a study sample of three(3) schools. In this study, fifty-six (56)respondents were reached which included three(3) head teachers, eight(8) computer studies teachers and forty-five(45) computer studies learners. Purposive sampling technique was used to select the three(3) head teachers, the eight(8) computer studies teachers and the forty-five (45). Interview schedule guides were used to obtain information from the Head teachers and computer studies teachers, while focus group discussions were conducted to pupils. Observation checklists and document analysis were also used. The researcher administered the interview guides and focus group discussions personally. The data collected was analyzed using descriptive statistics and presented in tables, charts and graphs. This study established that all the schools in the study sample had implemented computer studies curriculum though with a number of challenges. Inadequate funds to procure computers, their accessories and set up infrastructure such as computer laboratories, lack of trained computer teachers and inadequate books/materials were found to be the major challenges in the

implementation process. The major issue expressed by the respondents is the inadequacy of teaching and learning materials. The findings of this study are likely to be of use to the policy makers in the Ministry of General Education. It will aid in formulation of appropriate strategies to address the implementation of computer studies curriculum in Zambia. Further, basing on the findings, the researcher recommended that the government should provide grants to schools to procure more computers, their accessories and set up infrastructure such as computer laboratories. The MoGE should also recruit computer studies teachers in all peri-urban schools, organize regular seminars, workshops and Continuous Professional Development for teachers and further all Colleges of Education should incorporate Computer studies in their curriculum

DEDICATION

The dissertation is dedicated

To the loving memory of my late mother Beatrice Callesiah Siafunta and brother Wamulume Kwaleyela;

May their souls rest in peace

My sister, Lisa Kwaleyela for your encouragement

and Bashi Neo, Chembo Mbuzi for your unwavering support.

Thank you.

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To them, I am eternally grateful.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES page

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

CDC	Curriculum Development Centre
CPD	Continuous Professional Development
CS	Computer Studies
ECZ	Examination Council of Zambia
ICT	Information and Communication Technology
MoGE	Ministry of General Education
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPS	Uninterrupted Power Supply
ZECF	Zambia Education Curriculum Framework
ZESCO	Zambia Electricity Supply Corporation

CHAPTER ONE

INTRODUCTION

Overview

In this chapter, the researcher discussed the following components: background, statement of the problem, purpose or aim, objectives, research questions, theoretical framework, conceptual framework, significance of the study, delimitations, and operational definition of terms.

1.1Background of the Study

Buabeng-Andoh (2012) postulated that the 21st century has been dominated by advancement in Information Communication and Technology. This has led to the globalization of the world which has eventually shrunk to a global village. ICT in the 21st century drives the economy and this has been demonstrated in developed countries. Consequently, all countries both developed and undeveloped are incorporating ICT as part of their culture in their daily lives, (Buabeng-Andoh and Issifu 2015). Zambia has not been left out in this desire to improve on ICT and see to it that it benefits the country socially, economically and politically.Souter (2010) also pointed out that in Zambia ICT was believed to contribute to improving development outcomes in two main ways: firstly, ICT-based knowledge and products contributed directly to wealth creation and secondly, the use of ICTs contributed indirectly to national development through its impact on the social and economic sectors such as agriculture, health and education, and by empowering individuals to take advantage of new opportunities. Individuals also benefit from the availability and use of ICTs in a number of ways, for example, by substituting phone calls for travel, which saves time and money, and by using ICTs to obtain information on prices, for their own produce and for purchases. However, Habeenzu (2010) pointed out that Zambia ICT Sector Performance Review highlighted the lack of adequate ICT skills to drive Zambia's envisioned progress towards a knowledge economy by 2030. Habeenzu (2010) further indicated that Zambia ICT Sector Performance Review highlighted existing educational and learning facilities are inadequate to meet the market demand for ICT skills.

Zambia is a developing country and development in ICT is not so advanced but efforts are being put place. This has been demonstrated through the policies government has created. In these policies, Information Communication and Technology (ICT) is one of the key priority

areas to be addressed. Isaacs (2007) postulated that in Zambia policies have been formulated by the government in an effort to invest and develop the ICT sector. These policies are Zambia National Vision 2030, Fifth National Development Plan and the National ICT Policy. Isaacs (2007) contended that the FNDP represents the engine for developing other forms of ICTs including capacity building related to technologies and equipment as well as broadening access content such as news, information, and knowledge resources by the general public while National Vision 2030 is a long term policy document where short policy documents are extracted to achieve its goals. In 2017 the Seventh National Development Plan was launched and one area of interest identified was the development of ICT and the 2018 youth day theme was, "Leverages of Opportunities through ICT''. The National ICT Policy was created specifically to deal with the development of ICT in the country. In the education sector Isaacs (2007) pointed out that the policy recognised the need to face the following challenges in education: Low levels of ICT literacy, high cost of technology acquisition, "brain drain" resulting in considerable loss of skilled personnel, limited local ICT industry, lack of standardisation and certification programmes in ICT and inadequate institutional capacity. Habeenzu (2010) also charged that the National Information and Communication Technology Policy incorporated education as one of its 13 pillars of the ICT Policy with the objective to integrate ICTs in the education systems and nations' research and development.

One way of having a computer literate generation in the computer age is through teaching ICT is schools. Buabeng-Andoha and Issifu (2015) in their study on Implementation of ICT in Learning, a Study of Students in Ghanaian Secondary Schools postulated that ICT can be integrated into teaching and learning. Furthermore, the Report of the Seventh UNESCO-ACEID International Conference on Education (2001) showed that ICT can be used as a subject. Hence, Isaacs (2007) postulated that the National ICT Policy shows that in Zambian schools ICT was introduced in 1998 under Business Studies. Teaching of ICT when it was introduced in schools was not compulsory and that few schools in the country took up the initiative to be offering Information Communication and Technology. But it was not examined by the Examination Council of Zambia. Following the revision of Zambia's education curriculum from the pre-school to secondary levels ICT was integrated into the education system as Computer Studies, (Ministry of General, 2013).

1.2Statement of the problem

The 2013 revised curriculum in Zambia's Education System made a landmark by introducing Computer Studies to be offered in all schools from pre-school to high school. The ideal situation in the implementation of the revised curriculum in relation to Computer Studies is that learners must be equipped with ICT skills. Ministry of General Education (2013) charged that Computer Studies (CS) was introduced as a subject to be taught in schools, for instance, it is compulsory at the junior secondary level. Furthermore, the Ministry of General Education (2013) postulated that the subject was introduced in order to equip learners with essential skills necessary for them to have basic knowledge of ICTs. Mingaine (2013) encapsulated that the ICT skills learners will acquire through learning computer studies are essential for the country's economy. Studies have shown that the rapid development of economies in countries like China, Brazil, India, Russia and other developed economies can be attributed to the impacts of ICT, (Mingaine, 2013). International Institute for Communication and Development (IICD) (2007) also charged that ICT can be used to improve the quality of education by enhancing educational content development, supporting administrative processes in schools and other educational establishments, and increasing access to education for both teachers and pupils via distance learning. Kandimba (2015) also opined that the introduction of Computer Studies as a subject in schools will play a vital role in society and contribute greatly to Zambia social-economic development because there is no meaningful development that can take place without the use of technology. Computer Studies will also help open the window for people to see the wonderful world through the use of internet (Kandimba 2015). Enhancement of imparting ICT skills in learners that can transform our economy and other areas as encapsulated by Kandimba (2015) and International Institute for Communication and Development (IICD) (2007) requires that all necessities are put in place such as the construction of computer laboratories, purchase of computers, textbooks, trained teachers in ICT and the availability of energy such as electricity.

However, Kandimba (2015) pointed out that Computer Studies implementation is still a challenge in schools. Kandimba (2015) highlighted that not all schools have access to electricity. Furthermore, Kandimba (2015) charged that some schools do not have computers as well, thus, creating situations where learners do not have a feel or see a computer in their learning process. In line with Kandimba's observation, Musonda (2017) also mentioned that at Kafulamase Primary School in Kabwe it was difficult teaching Computer Studies because

of lack of electricity and computers, thus, learners were only doing theory and not practical. Emanating from these challenges observed by many stakeholders in the year 2017 the parliamentarians during parliament sittings in the Zambian National Assembly put to task, the then Minister of General Education, to clarify the way forward on the examination of Computer Studies in schools. The Minister informed the house that schools that schools that did not have the necessities such as computers and other facilities were exempted from examining Computer Studies. The sentiments by the former Minister of General Education shows the magnitude of the problem as far as implementation of Computer Studies curriculum is concerned in schools.

Despite the Zambian government efforts to make Computer studies compulsory, most schools in peri-urban Kitwe district seem to have challenges in implementing the curriculum. Hence, this proposed study will be aimed at assessing the implementation of the Computer Studies curriculum in the peri-urban schools of Kitwe.

1.3 Purpose of the study

The study aimed at assessing the implementation of Computer Studies Curriculum in peri-urban schools of Kitwe district.

1.4 Research Objectives

The following were the research objectives the study was anchored on;

1. To investigate the availability of qualified teachers for computer studies, appropriate teaching and learning resources and facilities.
2. To establish the successes that secondary schools in Kitwe peri-urban have made among learners in the implementation of computer studies.
3. To assess the perception of learners, teachers and parents about the introduction teaching and learning of computer studies in Kitwe peri-urban schools.
4. To establish the challenges teachers and learners were facing in the teaching of computer studies in peri-urban Kitwe district schools.

1.5 Research Questions

The following were the research questions the study was be anchored on;

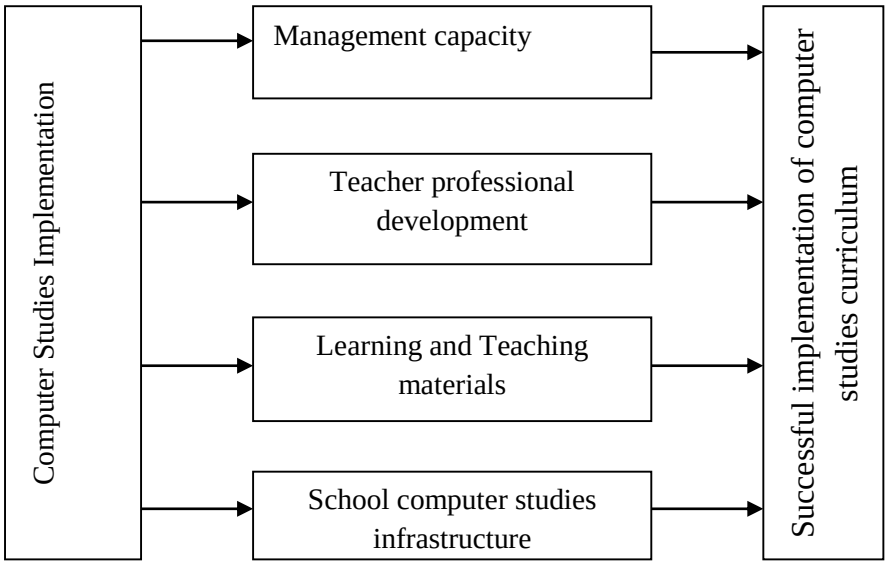
1. To what extent were qualified teachers of computer studies, teaching and learning resources and facilities available?
2. What successes had secondary schools in Kitwe peri-urban made among learners in the implementation of computer studies?

3. What were the perception of learners, teachers and parents about the introduction, teaching and learning of computer studies in Kitwe peri-urban schools?
4. What challenges were teachers and learners facing in the teaching of computer studies in peri-urban Kitwe district schools?

1.6 Theoretical Framework

This study was supported by the theoretical framework expounded by Gross et al (1971). This theory is anchored on four factors imperative for successful curriculum implementation. According to Gross et al (1971) successful curriculum implementation takes into account four essential aspects namely; teachers' capability, management support, organizational arrangement and clarity of the implementation of what is to be done. Gross et al (1971) suggested on teachers' capability that for any curriculum to be implemented effectively it must have qualified teachers. Gross et al (1971) further pointed out that Management Support is also vital in successful curriculum implementation. Once the administrators have the will and positive attitude it becomes easy to identify barriers to implementation and be able to deal with them. Furthermore, participatory leadership is also vital. Gross et al (1971) postulated that clarity of implementation of what is to be done is also vital in the successful implementation of a curriculum. Consequently, this theory was vital to this study which was carried out in Kitwe because for any curriculum to be successfully implemented there is need to have adequate and well qualified teachers, must have support of management and that all teachers must know their roles in the implementation of the curriculum through orientations and seminars. These issues are directly linked to implementation of Computer Studies in Kitwe.

1.7Conceptual Framework



The conceptual framework outlined the factors vital for successful implementation of the Computer Studies in schools for Kitwe peri-urban. Management capacity entails that school administrators have a key role to play in the effective implementation of Computer Studies. A positive attitude towards implementation of Computer Studies will enhance allocation of resources and also allow participation by teachers to give input on how best to implement Computer Studies. Teacher professional development entails that effective implementation of Computer Studies requires the existence of qualified teachers and teachers going for in-service programmes to acquire more skills in the area. Teaching and learning materials entail that a variety of these resources or materials for use in schools must be put in place. Teaching and learning materials: include text books, computers and many others. Computer studies infrastructure refers to suitable infrastructure needed for Computer Studies such as computer laboratories, electricity, and any other infrastructure that will enhance effective teaching of Computer Studies. Once these identified factors are put in place Computer Studies is likely to be effectively implemented and will lead to quality learning of Computer Studies by imparting the necessary computer skills in learners and will also positively contribute to the achievement of 2030 Vision policy.

1.8 Significance of the study

The proposed study might be of use to policy makers in the education sector. It is anticipated that findings of this proposed study may bring out a number of vital issues in relation to the implementation of the Computer Studies curriculum in the peri-urban areas.

The Minister of General Education, District Education Board Secretary, standard officers and head teachers might benefit from the findings of this study with information on the successes made in the implementation of the Computer Studies Curriculum and what needs to be done. in order to improve the implementation of this new subject, computer studies.

The study is likely to add to the body of computer studies knowledge.

1.9 Delimitations

The study was concerned with the implementation of the Computer Studies in peri-urban schools of Kitwe district. The study assessed the implementation of computer studies curriculum in selected peri-urban secondary schools of Kitwe district.

1.10Operational Definitions of Terms

The following are the definitions of key terms

a) *Information Communication and Technology curriculum*: This referred to the goals, aims, teaching methods and content of the computer studies subject.
b) *Implementation*: Referred to the actual teaching to learners or putting in practice the content of the curriculum and ensuring that it is effective.
c) *Information Communication and Technology*: A subject where learners learn about devices that shape today's world such as computers, printers, ipads, phones, satellites and many more.
d) *Computer Studies*: A subject in the Zambian Education Curriculum.

Summary

In this chapter, the researcher presented the background of the study, statement of the problem. It has also highlighted the purpose of the study, specific objectives and the research questions that guide the study, significance of the study, theoretical framework, conceptual framework, delimitations and the operational definitions of key terms as used in this study.

CHAPTER TWO

LITERATURE REVIEW

Overview

Literature review was presented in this chapter underpinned from various perspectives which included; historical background to curriculum revision in Zambia, aims of Computer studies, strands for computer studies, activities learners do in Computer Studies, the professional development in the implementation of the computer studies curriculum and the role of computer infrastructure, learning and teaching materials in the implementation of the computer studies curriculum.

2.1 Historical Background to Curriculum Revision in Zambia

2.1.1 1977 Educational Reforms

The Educational Reforms of 1977 were the first comprehensive reforms in Zambia's educational system, (MoE, 1977). An effort to come up with a sound curriculum for Zambia's education system goes way back few years after independence. Kelly (1999) pointed out that at the time of independence in the Republic of Zambia there was no equality of educational opportunity. Africans received education that was less superior to that which was given to European children. A two way education system was also created; one which was catering for European Education and the other one which was responsible for African Education. Kelly (1999) pointed out that education given to Africans was of poor quality. For instance, Kelly (1999:14) encapsulated that;

> *From the start, objectives of the European System were quite clear. Through its school organization, language, syllabus, and social practice it was charged with preparing its pupils for highly developed, competitive and sophisticated society found in European countries.*

With reference to the above quotation it is clear that African education was of low quality. On the other hand, the size of the population for whites was less compared to Africans. Consequently, this made it easy for the colonial government to provide high quality education to whites which was characterised with the availability of good infrastructure, school equipment, specialised services, and steady financing of educational provision for the whites, (Kelly, 1999).

After independence the Zambian government embarked on improving the education system for the country that would contribute to national development. The 1977 Educational Reforms were launched by the government under the auspices of the Ministry of Education, (MoE, 1977). The 1977 Educational Reforms brought about new policies in the provision of education in the Republic of Zambia. It overhauled the education system from pre-school to the tertiary level. These changes in education system were aimed at producing learners who were productive in society such as being self-reliant. Thus, one area of interest was the integration of work with education. The education system would produce grandaunts that did not depend on white collar jobs but instead who were innovative through entrepreneurship skills. The relevance of the 1977 Educational Reforms to this study is that the revised curriculum of 2013 in Zambia which introduced the subject Computer Studies and made compulsory teaching of Computer Studies to grades 8 and 9 is also underpinned to it. It provides history in curriculum change since Zambia obtained her independence and to show that a curriculum is not static. Hence, it must be revised whenever need arises to provide solutions to present needs. Educational Reforms of 1977 guided education provision in the Republic of Zambia up to 1992 when it was replaced by Focus on Learning in 1992.

2.1.2 Focus on Learning 1992

The 1977 Educational Reforms were followed by Focus on Learning Policy of 1992. Focus on Learning was conceived as a result of the World Conference on Education for All which Zambia participated and it replaced the 1977 Educational Reforms (Mulenga, 2015). The 1990 World Conference on Education for All in Jomtien marked a new start in the global quest to make basic education universal and eradicate illiteracy. The focus of most participating governments, after the Jomtien conference, shifted towards quality aspects. The new educational policy introduced a new system of education which had a structure of 7-5-4. That is seven years of primary, five years of secondary (2 years of junior secondary and 3 years of senior secondary) and four years of university education. Furthermore, Focus on Learning in line with what World Conference on Education for All advocated for aimed at universalizing to basic education and removal of all disparities in education provision, (Kelly, 1999). To show commitment to World Conference on Education for All MoGE (2013) postulated that in 1991 a National Conference on Education for All was held in Zambia. It promoted the provision of learning and teaching materials in all schools, enhancement of all children to have access to education without barriers and creation of richer of richer learning environment. Enhancing quality access to education for all required adequate resources, thus, the government would use

Focus on learning to lobby for funds from cooperating partners to finance education, (MoGE, 2013). Once cooperating partners came on board it would enhance the provision of quality education and wider access to basic education for all. The relevance of this policy to the study is to show the area of concern at the time Focus on Learning was formulated in the education system for the Zambian Republic.

2.1.3 Educating Our Future 1996

MoGE (1996:1) adopted in 1996 as a new National Education Policy document under the mission statement;

> *The mission of the Ministry of Education is to guide the provision of education for all Zambians so that they are able to pursue knowledge and skills, manifest excellence in performance and moral uprightness defend democratic ideals and accept and value other persons on the basis of their personal worth and dignity, irrespective of gender, religion, ethnic origin, or any other discriminatory characteristic*

Educating Our Future is the guiding National Policy on education provision in the country. Ministry of Education (1996) the Policy document also outlined the principles needed for the development of education namely; liberalization, decentralization, equality and equity, quality, partnership and accountability. An aspect of importance in line with this study is on the content curriculum for the upper basic curriculum (grades 8 and 9). One of the curriculum contents being advocated by the National Policy document, Educating Our Future is the Science and Technology. It recognised the role of science and technology on Zambia's economy and that the ability to think scientifically and understand scientific processes has become a basis for survival, (MoGE, 1996). Consequently, the trend in the compulsory learning of Computer Studies for grades 8 and 9 is due also to calls by the National Education Policy document on the need to include science and technology in the curriculum. Furthermore, MoGE in Educating Our Future (1996) also outlined factors that affect quality of provision of education and that have been responsible for dwindling of quality provision of education in the current era. These include; overcrowded classrooms, dilapidated infrastructure, lack of teaching materials, and extensive use of untrained and unqualified teachers in particularly in the upper grades. These factors as highlighted by Educating Our Future (1996) have an impact on the implementation of Computer Studies Curriculum which this study aims to investigate at.

2.1.4 Vision 2030

According to Ministry of Finance and National Planning (2006) Vision 2030 is Zambia's long term document bearing the motto: "*A Prosperous Middle Income Nation by 2030".* This development national document guides all policy documents that the government of Zambia formulates in the developmental agenda. Hence, Fifth National Development Plan (2006), Sixth National Development Plan (2011) and Seventh National Plan (2017) are all extracted from Vision 2030. Ministry of Finance and National Planning (2006) in Vision 2030 alluded that technology plays a key role in the development of any country since economic progress is realized through innovation and trade. The country thus, needs to intensify the development and application of science and technology in its socio-economic development. Therefore, Government of the Republic of Zambia (2017) in the Seventh National Development Plan, on Enhancing Human Development, Strategy 4: (Continuous review of curriculum) charged that the Government, in collaboration with stakeholders, will undertake continuous revision of curricula at all levels of education to enhance the relevance of the education system for the labour market. Furthermore, GRZ (2017) in the Seventh National Development Plan under Enhancing Human Development, Strategy 5: (Enhance role of science, technology and innovation) recognised the need to develop ICT. This is because it has been realised that for the country to move to a middle income country it must embrace Information Communication and Technology. This policy is greatly attached to this study because the introduction of Computer Studies has its foundations from this long term policy document.

2.1.5 2013 Zambia Education Curriculum Framework

According to Ministry of Education (2013) the Zambia Education Curriculum Framework was based on the many policy documents that are in existence in the country. This is a combination of laws and policies. Some of these policies that underpin the Zambia Education Curriculum include the following; Educational Reforms 1977, Focus on Learning 1992, Educating Our Future, National Implementation Framework, 2008 to 2010 and Vision 2030. The revised curriculum re-echoed the need for vocational subjects because these help to prepare learners for post-school employment or vocational training. Among these included in the realms of vocational subjects is the Computer Studies. A subject now compulsory to grades 8 and 9 in Zambia's education system. In line with Papua New Guinea Department of Education (2008) the rationale behind the introduction of Computer Studies was that of;

- Development in technology has progressed very fast. The technological revolution is significantly changing the way of the world. Computer technology is pervasive,

penetrating all sectors of the economy, creating new jobs, changing others and enhancing many activities. It allows students to explore an area of interest and to develop the specific knowledge and skills of computer-based technology.

- In order for Zambia to keep abreast with the global community, computer technology must become an integral part of business, government and education. Geographical isolation will no longer be a hindrance to Zambia's advancement. The continual improvements in computer technology are breaking geographical barriers, bringing people closer together and Zambia closer to the rest of the world.
- Students studying Computer Studies are at the forefront of advances in communication, information and computer technology. This subject will enable them to develop practical, technical and organisational skills.

Consequently, Computer Studies was introduced in line with the above rationale as illustrated by Papa New Guinea Department of Education, (2008). In addition, the 2013 Education Curriculum Framework changed education system in the area of Computer Studies. It materialised the provision of Computer Studies, a subject in the vocational subjects and in the year 2014 it was rolled out. Implementation began and schools country wide began offering computer studies at the same time regardless of whether they had all the required necessities such as qualified teachers, computer laboratories, computers, and other teaching and learning materials.

2.2 Computer Studies

Papua New Guinea Department of Education (2008) charged that Computer Studies aims to enable students to:

- make a worthwhile contribution to the social and economic development of the country through the use of computer technology skills
- develop knowledge, skills, values and attitudes in computer technology that will be transferable to their career paths and future life directions
- provide students with basic knowledge of computer technology that enhances their personal and professional productivity
- Communicate effectively through the use of technological innovations.

2.2.1 Strands for Computer Studies

Having outlined the aims of Computer Studies it attempts pupils to achieve as illustrated by the Papua New Guinea Department of Education (2008) Computer Studies is also anchored on three strands. Hence, Papua New Guinea Department of Education (2008) postulated that these strands include the following;

2.2.1.1 Information

'Information literacy' is the ability to gather information from multiple sources, select relevant material and organise it into a form that will allow the user to make quality decisions or take specific actions,(Papua New Guinea Department of Education ,2008).

According to Papua New Guinea Department of Education (2008) this strand identifies the information that is taken from data. Whatever data is encoded in the computer is interpreted in various ways to collect accurate and reliable information. This information comes in a variety of ways after processing, organising and analysing data to meet the needs of the end user.

Students learn concepts in data input, processing and output to help them to make informed decisions on information found in all areas of their lives.

2.2.1.2 Communication

Papua New Guinea Department of Education (2008) opined that communication deals with the process involved in the transfer of information from one place to another. This transfer can happen in a variety of ways. In computer communications, data travels electronically at very high speed. The speed of computer communication creates a big impact on computer users, in ways never imagined before. Continuous improvement in the use of satellite communications and the internet are making the world a smaller place.

Students understand the use of a range of communications hardware and software devices. They develop an awareness of the opportunities provided by the growing need for communication.

2.2.1.3 Technology

Papua New Guinea Department of Education (2008) encapsulated that Technology is about the knowledge and creative processes that are involved in the development of hardware and software tools, techniques and the use of materials. Technology is designed and produced to meet a range of human needs, from personal to business, education and government. Students learn about technologies that meet user needs and the impacts of those technologies.

2.3 Activities Learners do in Computer Studies

With reference to Papua New Guinea Department of Education (2008) and Curriculum Development Centre of Zambia (2013) using computers enables students to acquire skills in the following as indicated in table 2.1

Table 2.1: activities learners do in computer studies

Designing solutions to a computer problem (problem-solving skills) • investigation • design • production • evaluation	**Operating a computer (operational skills)** • starting up and shutting down a computer • using a keyboard to enter words and data • using a printer and other devices attached to the computer • organising and managing documents and files using a storage device • accessing documents on a network • storing and retrieving documents • backing up files
Using different types of software (software skills) • choosing appropriate software to carry out a particular task − using a word processor to create assignments, essays, reports and stories • using a spreadsheet to solve problems that use numbers • making pictures using graphics programs	**Using a network such as a LAN and internet (network skills)** • using electronic mail to send and receive messages • using a computer to communicate with people • accessing and storing data on a local area network • using a computer to access the World Wide Web

• making changes to information in a database • using a browser to access information on the internet • recording and creating your own video • recording and creating your own sounds • creating and managing a website that includes text, graphics, colour, sound, animation and video	
Finding relevant and useful information quickly (information literacy skills) • using computer software help files located on disk and online • using electronic encyclopaedias and dictionaries • using search engines on the Web to find information • critically evaluating the usefulness of information found	**Producing effective and well-presented documents (document skills)** • arranging information in an interesting manner • making a document easy to read • being able to produce documents to be accessed online
communicating information effectively (communication skills) • producing a document that is well laid out and easy to read • creating a spreadsheet that clearly shows important information • creating a presentation that shows important points clearly and concisely • Creating a webpage that is easy to read and navigate.	

The above chart shows a wide range of learning activities learners in Computer Studies are expected to learn and do. Consequently, for the learners to be able to do these learning activities they must have well qualified teachers of Computer Studies, infrastructure in terms of computer laboratories, availability of computers, pupils and teachers' textbooks. These necessities affect the implementation of the Computer Studies Curriculum in schools and also the ability of the learners to be able to execute the above learning activities.

2.4 The role of staff development in the implementation of the Computer Studies Curriculum

Pelglum and Law (2003) pointed out that teachers play a crucial role in the adoption and implementation of ICT in education since they are key to making learning to happen. Implementation of the ICT curriculum happens right in the classroom. The teacher is an implementer. Thus, Pelglum and Law (2003) indicated that lack of teacher knowledge and skills on ICT is a major barrier in the implementation of ICT in education. Pelglum and Law (2003) charge that the introduction of computers in education is more complicated than any other technologies, thus, there is need for increased training for teachers.

Chen (2010) also pointed out that successful implementation of ICT in the school context calls for teachers' adequate ICT skills and knowledge. Chen (2010) further alluded that sustaining ICT implementation entails good-quality and continuous professional training for enhancing teachers' ICT capabilities. Furthermore, a number of studies which were conducted in Europe revealed that different schools in Europe which succeeded in incorporating ICT into the curriculum indicated that the useful teachers' training programmes increased teachers both ICT skills and pedagogical knowledge of integrating ICT in teaching practices effectively and appropriately. Importantly, most schools which continued advancing in ICT actively engaged in larger national demonstration programmes or other consortia that shared expertise in using ICT, (Chen 2010).

Mofarreh (2016) also asserted that lack of effective ICT training for teachers is the most significant barrier to the implementation of ICT in schools. Mofarreh (2016) charged that a study which was conducted in Turkey revealed that lack of well qualified teachers in ICT were a major barrier in the implementation of ICT. Mingaine (2013)'s study on Challenges in the Implementation of ICT in Public Secondary Schools in Kenya shows that teacher skills as a positive impact in implementation of ICT in schools. Mingaine (2013) Teachers‟ ICT skills and access to professional development play a significant part in implementation of ICT in

schools. Mingaine (2013) added on by stating that in many African countries, lack of well trained teachers and low levels of teachers‟ ICT skill and knowledge has been recognized as major obstacle in implementation of ICT in schools.

Tearle (2004) conducted a study on Implementation of ICT in UK secondary schools and indicates that there are practical factors used to cover the 'tangible' issues which are considered important in relation to teacher take-up and use of ICT. Among these practical factors is the support and training. Tearle (2004) suggested that the need for more training in ICT use has received recent attention having been neglected as a focus for Government intervention for a period between the early 1980s and mid 1990s. There is recognition that training needs to have a carefully planned structure and a focus on 'training outcomes'. Sikazwe et al (2003) also postulates that in a recent research it has been shown that many schools are using ICTs. The schools are using the ICTs in different forms. They point out that sometimes ICT is used in the form of ICT in education and sometimes in the form of education in ICT. However, Sikazwe et al (2003) showed that ICT skills of teachers remain a point of attention. In line with the observations made by other scholars, a study by Mndzebele (2013) on Challenges Faced by Schools when Introducing ICT in Developing Countries reveals that teachers lack of knowledge and skills is one of the main hindrances in the use of ICT in education. These revelations as illustrated in this text re-echo the need to have well qualified teachers in the teaching of ICT and its implementation in all its aspects. Albugami and Ahmed (2015) conducted a study on Success factors for ICT Implementation in Saudi Secondary schools: From the perspective of ICT directors, head teachers and students. The study revealed that training plays a significant role in the implementation of ICT in schools. Thus, one respondent alluded that "About 90% of the school's teachers are not qualified for using ICT, they need training''. Hennessy et al (2009) also made similar observations that there is usually lack of or poorly trained teacher. Hence the need to assess the role of staff development in the successful implementation in the computer studies curriculum.

2.5The role of infrastructure, learning and teaching materials in the implementation of the Computer Studies curriculum.

Pelglum and Law (2003) pointed out that ICT infrastructure include hardware, software, and internet connectivity. Furthermore, quantity and quality of hardware is essential in the implementation of ICT. Therefore, computer to pupil ratio is usually used to determine the availability of computers. A study in a number of countries revealed that among the obstacles to ICT implementations inadequate number of computers accounted 70% on the responses

given by respondents. It was the highest score in percentage. Chen (2010) also made similar sentiments by asserting that sufficient ICT resources are important in the implementation of the ICT curriculum. Chen (2010) suggests that enlarged funding towards ICT infrastructure in school settings is the basis for commencing educational change involving new technologies. Mofarreh (2016) for effective ICT implementation to occur there must be in place the necessary infrastructures to facilitate their use as well as access to expert support to accommodate problem solving as technical issues arise.

Mndzebele (2013) in her study identified a number of challenges hindering effective implementation of ICT in schools. Among these challenges is lack of lack of equipment. Mndzebele (2013) also asserted that the development of ICT infrastructure in a country is dependent on availability of resources. She illustrated in Swaziland rural schools had challenges of lack of electricity. Mndzebele (2013) there are other resources that are needed such as computers, printers, multimedia projectors, scanners, and many other which are not available in the institutions. In addition, Mndzebele (2013) highlighted that the computers are also not enough for the schools, some classes are very large and therefore, it becomes a problem when teaching the students when you do not have enough computers. Mudzebele (2013) also cite the problem of lack of funds as a problem of ICT implementation. She alluded that effective and efficient use of technology depends on availability of hardware, software and having access to resources by teachers and students and administrative staff and that most of the computers usually have are usually donated by donors and private individuals. Therefore, these challenges observed by Mndezebele in her study might also be applicable in the Zambian context because Computer Studies was recently introduced, thus, it is not viable that all schools have put in place all necessities needed to successfully implement the Computer Studies curriculum as also indicated by Mambwe (2016) who noted that ICT equipment was very expensive.

Albugami and Ahmed (2015) have also contended that lack of infrastructure is a hindrance in the implementation of the ICT curriculum in schools. This is as a result of lack of finance resources. In the same vein, Albugami and Ahmed (2015) their study established that lack of ICT resources was viewed as one of the main barriers that hinder ICT application in schools. They pointed out that there were various reported resources either available or lacking in schools that created a number of problems. Some of the respondents (head teachers and teachers) stated that “Devices are not enough and most of the equipment was brought by teachers’ self-efforts, some devices broke down and were abandoned in the warehouse and the school administration does not have sufficient resources to fix them, we share (four or five

students) on one computer." Also, ''there is no Internet". Bingimlas (2009) in his paper, Barriers to the Successful Integration of ICT in Teaching and Learning Environments- A Review of the Literature pointed out that in some dilapidated learning materials such as computers, printers, low internet connectivity were making it difficult to teach ICT and classified this barrier as school level problem. Hennessy (2010) also mentions of high cost of connectivity, lack of computers and internet in schools and classrooms as challenges to implementation ICT in primary and secondary schools in Sub-Saharan Africa.

2.6 Research Gap

There are variations among schools in the manner the Computer Studies curriculum was implemented. Some schools were in the right direction while others were still lagging behind as revealed by various scholarly works. The ideal situation is that all the requisites must be in place in order to implement the computer studies curriculum in schools. These include the will from school leadership, staff development through the required training, the availability of ICT infrastructure and learning and teaching materials. Furthermore, findings from other studies cannot be generalised hence, the need to conduct an investigation how the ICT curriculum is being implemented in Kitwe district by sampling some schools. This will help in fact finding on what is prevailing on the ground.

Summary

In chapter two of this dissertation, the researcher reviewed literature of the study. Literature from various studies was presented into three themes. These themes are; the role of leadership in the implementation of ICT curriculum in schools, the role of staff development and the role of infrastructure, teaching and learning materials in the implementation of the computer studies curriculum in schools.

CHAPTER THREE

METHODOLOGY

Overview

Research methodology takes into accounts several components such as the research design, study site(s), study population, sample size, sampling procedure, research instruments, procedure for data collection, data analysis and presentation, ethical issues and reliability and

validity of the study. In this chapter, the researcher explained how the study was conducted by giving details of the research method used.

3.1 Qualitative Research

The study was underpinned by a qualitative approach. Golafshani (2003) commented that Qualitative research, broadly defined, means "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification". Golafshani (2003) pointed out that qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such as "real world setting [where] the researcher does not attempt to manipulate the phenomenon of interest".

3.2 Research Design

The study used a descriptive design. A descriptive research is used to "describe" a situation, subject, behaviour, or phenomenon. It is used to answer questions of who, what, when, where, and how associated with a particular research question or problem. Descriptive studies are often described as studies that are concerned with finding out "what is" in this type of design the researcher's gathers information that can be used to analyze a target audience or a particular subject. Kothari (2004) contended that the major purpose of descriptive research is description of the state of affairs as it exists at present. Furthermore, Salaria (2012) postulated that descriptive design is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation.

3.3 Study Sites

Every research is conducted in a site. A researcher is expected to get into the site so that the needed information is obtained. The identified site for the study is Kitwe District on the Copperbelt province of Zambia. The study was further restricted to three selected schools in Kitwe peri-urban district.

3.4 Study population

According to Vanderstoep and Johnston (2009) a population is the universe of people to which the study could be generalized. The study population included the District Education Board Secretary Officers (standard officers), all head teachers, all teachers and all learners in Kitwe peri-urban.

3.5 Sample size

Vanderstoep and Johnston (2009) postulated that a sample size is the subset of people from the population who would participate in the current study. Sampling is important because, in almost all cases, it is not practical to study all the members of a population. This study employed a sample size of 56 participants drawn from the target population.

3.6 Sampling Procedure

The study employed purposive sampling because it is the most suitable for a qualitative study. This type of sampling is also known as non-probability sampling. According to Vanderstoep and Johnston (2009) in non - random sampling, participants are selected based on characteristics they possess or their availability to participate. Therefore, each population member was not equally likely to be selected to participate. A non - random sample does not use a probabilistic aspect of selection. Under purposive sampling Quota sampling was adopted in the study. Kothari (2004) opines that Quota sampling is also an example of non-probability sampling. Kothari (2004) further contends that the actual selection of the items for the sample is left to the interviewer's discretion and that this type of sampling is very convenient and is relatively inexpensive. Therefore, during the study head teachers, teachers of Computer Studies and other participants were selected through non-probability sampling by utilising quota sampling.

3.7 Data collection

Data collection was done through two main forms namely secondary data and primary data. Kothari (2004) the primary data are those which are collected afresh and for the first time, and thus happen to be original in character. The secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process. Primary data was collected through interviews and observation while the secondary data was obtained through document analysis.

3.8 Instruments for data collection

The study used interviews, focus groups and observation as research instruments. Marczyk et al (2005) a thorough interview is a form of self-report that is a relatively simple approach to data collection. Although simple, it can produce a wealth of information. An interview can cover any number of content areas and is a relatively inexpensive and efficient way to collect a wide variety of data that does not require formal testing. Vanderstoep and Johnston (2009) also note there are various forms of interviews namely informal, guided and structured. Semi-

structured interviews were adopted in the study. This is because guided interviews have an advantage of the provision of additional information from the respondents relevant to the study.

Vanderstoep and Johnston (2009) encapsulated that Focus groups bring together a group of six to ten people who, under the guidance of a moderator, engage in a group question- and - answer discussion. Focus groups have the primary advantage of creating an opportunity for group interaction where each participant contributes to questions being asked.

Marczyk et al (2005) suggested that observation is another versatile approach to data collection. This approach relies on the direct observation of the construct of interest, which is often some type of behaviour. In essence, if you can observe it, you can find some way of measuring it. The use of this approach is widespread in a variety of research, educational, and treatment settings. In relation to this study, this approach of collecting data enabled the researcher to physically see the kind of infrastructure, learning and teaching materials schools had for the implementation of the computer studies curriculum. An observation Check list was used.

3.9 Procedure for data collection

Collection of data in all the study sites began with seeking for permission from the relevant authority. An introductory letter was obtained from the University of Zambia institute of distance education so that these relevant documents can be presented to the relevant authorities such as the District Education Board Office and offices of the Head Teachers where the study was conducted from.

3.10 Data Analysis

The process of data analysis began with the categorisation and organisation of data in search of patterns, critical themes and meanings that emerged from the data. Ritchie and Lewis (2003) stated that data analysis includes data management so that the raw data can be sorted and labelled to be meaningful. In most analytical approaches, data management initially involves deciding upon the themes under which the data will be labelled, sorted and compared. Creswell (2007) also contended that data analysis in qualitative research consists of preparing and organizing the data. That is text data in transcripts or image data in photographs for analysis, then reducing the data into themes through a process of coding and condensing the codes and finally representing the data in figures, tables or a discussion. The data obtained was descriptively analysed and therefore, the major themes were identified and later described in prose writing. Furthermore, simple charts, bar graphs, tables, figures and pie charts were used to present simple data.

3.11Reliability and Validity of the Study

Saunders et al (2007) reliability refers to the extent to which your data collection techniques or analysis procedures will yield consistent findings. It was assessed by posing the following three questions;

1. Will the measures yield the same results on other occasions?
2. Will similar observations be reached by other observers?
3. Is there transparency in how sense was made from the raw data?

Saunders et al (2007) validity is concerned with whether the findings are really about what they appear to be about. Is the relationship between two variables a causal relationship? For example, in a study of an electronics factory we found that employees' failure to look at new product displays was caused not by employee apathy but by lack of opportunity (the displays were located in a part of the factory that employees rarely visited). This potential lack of validity in the conclusions was minimised by a research design that built in the opportunity for focus groups after the questionnaire results had been analysed.

Simon (2011) noted that there are many ways of determining reliability and validity of a study. Some of these ways include triangulation, expert review and member checking. Expert review is one the techniques the study adopted to enhance validity and reliability of the study. Through expert review research instruments were submitted to the supervisor so that he would give advice on the need to adjust so that correct information is obtained. The final research report was also given to the researcher's supervisor for corrections. Simon (2011) suggested that expert review is one of the primary evaluation strategies used in both formative (How can this study by improved) and Summative (How data helped answer the research questions?). It is a good idea to provide experts with some sort of instrument or guide to ensure that they critique all of the important aspects of the study to be reviewed such as interview questions.

Another technique the study employed in order to enhance validity and reliability was Respondent Validation. Noble and Smith (2015) respondent validation includes inviting participants to comment on the interview transcript and whether the final themes and concepts created adequately reflect the phenomena being investigated.

3.12 Ethical Issues

According to Jackson (2009:38) ``When conducting research with human (or nonhuman) participants, the researcher is ultimately responsible for the welfare of the participants. Thus,

the researcher is responsible for protecting the participants from harm.'' Jackson (2009:38) further indicated that ``The ethical guidelines that were used have their basis in the Nuremberg Code. This code lists 10 principles, developed in 1948, for the Nazi war crimes trials following World War II. The Nazis killed and abused millions of Jews, many of whom died in the name of "research." For example, Nazi doctors used many Jews for inhumane medical research projects that involved determining the effects on humans of viruses, poisons, toxins, and drugs.''

During the study the researcher ensured that all research ethics were adhered throughout the process. Hence, the following research ethics were strictly adhered to;

3.12.1 Treating participants with respect:

Dawson (2002) pointed out that a researcher must always remember that the research process intrudes on people's lives. Some of the people who take part in research may be vulnerable because of their age, social status or position of powerlessness. In whatever state participants may be respect was accorded to them.

3.12.2 Informed Consent

Marczyk et al (2005) encapsulated that the principle mechanism for describing the research study to potential participants and providing them with the opportunity to make autonomous and informed decisions regarding whether to participate is informed consent. For this reason, informed consent has been characterized as the cornerstone of human rights protections. The three basic elements of informed consent are that it must be (1) competent, (2) knowing, and (3) voluntary. Kumar (2011) Informed consent implies that subjects are made adequately aware of the type of information you want from them, why then information is being sought, what purpose it will be put to, how they are expected to participate in the study, and how it will directly or indirectly affect them. It is important that the consent should also be voluntary and without pressure of any kind. This study adhered to the principle of informed consent.

3.12.3 Ensure anonymity and confidentiality:

Dawson (2002) also stressed the need to keep the identity of participants anonymous because they can be victimised for releasing information during research. The researcher showed the steps that were taken to ensure that what participants had said could not be traced back to them when the final report was produced.

Kumar (2011) also postulated that sharing information about a respondent with others for purposes other than research is unethical. Therefore, during the study all the participants were kept anonymous to ensure that the information given was solely used for the academic purposes of this study.

3.12.4 Beneficence

Marczyk et al (2005) pointed out that persons are treated in an ethical manner, not only by respecting their decisions and protecting them from harm, but also by making efforts to secure their well-being. Such treatment falls under the principle of beneficence. Marczyk et al (2005) the term "beneficence" is often understood to cover acts of kindness or charity that go beyond strict obligation. Marczyk et al (2005) also pointed out that two general rules have been formulated as complementary expressions of beneficent actions in this sense:(1) do not harm, and (2) maximize possible benefits, and minimize possible harms. The researcher in relation to beneficence made sure that participants were protected.

Summary

Chapter three was the backbone of the study. Hence, the researcher presented in detail the research methodology that was employed in the study. The components explained in research methodology chapter included; research design, study sites, population and sample size, sampling procedures, data collection and data collection instruments, data analysis techniques and ethical considerations that were adhered to in the study.

CHAPTER FOUR

FINDINGS

Overview

In this chapter, the researcher presented the findings of the study. Data was collected and analyzed according to the study objectives. The chapter began by presenting the demographic characteristics of the respondents, followed by the presentation of the responses of head teachers, teachers and pupils on the types of resources and infrastructure, availability of trained manpower and remedies of improving the implementation of the computer studies curriculum. The responses were based on the research questions which were related to the study in question. The data was also presented in forms of frequency distribution tables, pie charts and bar graphs. The analysis of the data and presentation of the findings were organized under the following themes:

i) Demographic information.

ii) Computer Studies Curriculum Implementation.

iii) Type of the resources and infrastructure available.

iv) Teachers' skills and training in ICTs.

v) Remedies for effective implementation of Computer Studies curriculum.

4.1 Demographic Characteristics of Respondents

In this section, the demographic description of the head teachers and teachers are outlined. It shows their gender, professional qualification and the number of years in the teaching profession.

4.1.1 Gender of the Respondents

Table 4.1 indicates information on the gender of the respondents.

Table 4.1: Frequency and percentage distribution of head teachers and computer studiesteachers according to gender.

Gender	*Computer studies teachers*		*Headteachers*	
	f	*%*	*f*	*%*
Female	*1*	*12.5*	*2*	*66.6*
Male	*7*	*87.5*	*1*	*33.3*
Total	*8*	*100*	*3*	*100*

Eleven (11) respondents were reached in this study. These were one (1) male head teacher, three (2) female head teachers, seven (7) male computer studies teachers and one (1) female Computer Studies teachers. This means that there were more male teachers representing 87.5% as compared to the number4 of female teachers represented by 12.5%. The female head teachers were represented by 66.6% while the male s was 33.3%

4.1.2 Professional Qualification of Head teachers and Computer Studies Teachers

This study also aimed at establishing the professional qualifications of the Computer Studies teachers and the Head teachers. The data obtained was recorded in table 4.2.

Table 4.2: Frequency and percentage distribution of head teachers and computer studies teachers according to professional qualifications

Professional qualification	*Computer studies Teachers*		*Headteachers*	
	f	*%*	*f*	*%*
degree	1	12.5	3	100
diploma	*7*	*87.5*	*0*	*0*
certificate	*0*	*0*	*0*	*0*
Total	*8*	*100*	*3*	*100*

The data tabulated in table 4,2 indicates that 12.5% of the teachers had a degree in Education, while 87% (12) had Diplomas in Business studies. No teacher had a certificate. All the head teachers were degree holders which made up 100% as is the minimum requirement for a school Head teacher. This indicates that of the eight (8) teachers, none were trained to teach computer studies. However, they were trained to teach other subjects.

4.1.3 Teaching Experience

This study further sought to establish the professional teaching experience of the Computer Studies teachers and Head teachers. The data collected was presented in table 4.3.

Table 4.3: Frequency and percentage distribution of head teachers and computer studies Teachers according to professional teaching experience

Professional teaching experience (years)	*Computer studies teachers*		*headteachers*	
	f	*%*	*f*	*%*
0-5	*4*	*50*	*0*	*0*
6-10	*4*	*50*	*0*	*0*
11-above	*0*	*0*	*3*	*100*
Total	*8*	*100*	*3*	*100*

Table 4.3 shows that 50% (4) respondents had served for the period of 0 -5 years. The other half of the computer studies teachers were in the range 6 – 10 years representing 50% (4). However, the study established that all the head teachers representing 100% (3) had more than ten years of teaching experience. It can be deduced that most respondents had been in the service for 6-10 years and only three had served for over 11 years. This means that 50% of the respondents had acquired teaching experience from the number of years that they have served and were competent to teach other subjects and not computer studies.

4.2 Computer Studies Curriculum Implementation

This study further sought to establish whether the schools in the study sample had implemented the Computer Studies Curriculum. This was aimed at establishing the actual extent to which the implementation of computer studies curriculum in peri-urban schools in Kitwe district was implemented. Head teachers and teachers were asked if their schools had implemented the Computer Studies curriculum.

It was disclosed to the researcher that the Computer Studies curriculum was implemented in all the schools. All the respondents who included head teachers, computer studies teachers and pupils representing 100.0% indicated that it was implemented in all their schools.

This study also sought to establish from the Head teachers and computer studies teachers if the introduction of computer studies into the curriculum was a good policy. The responses from the eight (8) computer studies teachers and three (3) head teachers all stated that it was a good owing to the fact that the world is in the computer edge and that Zambian learners should not be left behind. The teachers see it as an opportunity to equip learners with competencies that are necessary as they leave school. However, the respondents expressed disappointment at the hast at which the government had in implementing this policy and failure to provide necessary environment in order for it to be effectively implemented.

Concerning the issue of whether the computer studies curriculum policy was good or not, one head teacher said that,

> *Learners have to move with the times, which fortunately demands that one has some knowledge of computers.*

Further, commenting on the Computer Studies curriculum policy one teacher said that,

> *The policy is welcome but would not serve the purpose without being accompanied by adequate facilities. He further said that, the computer studies subject should not have been compulsory at the moment until there was improved infrastructure and facilities in schools.*

Another teacher said that the computer studies curriculum policy was good but he went on to say that,

The government had rushed into implementing the policy because there were no computers in schools to help pupils.

4.3. Availability of Resources and Infrastructure

4.3.1 Types of Resources and Infrastructure

This study also sought to establish the type of resources and infrastructure that were available in the schools for effective implementation of the computer studies curriculum. Thus, head teachers and computer studies teachers were asked to assess the rate of the availability of facilities and resources. The responses from eight (8) computer studies teachers and three (3) head teachers are presented in table 4.4

Table 4.4: Frequency and percentage distribution of the availability of computer resources and infrastructure in schools.

Resources and infrastructure	*Available*		*Not available*	
	f	*%*	*f*	*%*
Computer	*33*	*100*	*0*	*0.0*
Electricity	*33*	*100*	*0*	*0.0*
Backup generator	*26*	*79*	*7*	*21.2*
Uninterrupted power supply (UPS)	*0*	*0.0*	*33*	*100*
Printers	*9*	*27.27*	*24*	*72.7*
Overhead projectors	*0*	*0*	*33*	*100*
Computer laboratory	*2*	*6*	*31*	*93.3*
Book/materials	*8*	*24.2*	*25*	*75*

Results in table 4.4, reviewed that 100% of respondents indicated that computers and electricity were available though they were inadequate. Further 27% of the respondents reported that printers were available while 6% stated that computer laboratories were available. Availability of books / materials for Computer studies were indicated by 24.2% of the respondents while 75% stated that they had some references that were in line with the syllabus. Uninterrupted Power Supply (UPS) and overhead projectors were unavailable according to 100% of the respondents. Backup generators were absent according to 21.2% of the respondents. Availability of computer laboratories was further investigated in the pupils Focus Group Discussion and 100% of the pupils reported that their schools had a computer laboratory even though the majority were just renovated from classrooms and turned into computer laboratories. It was also stated by 80% of the pupils that computers were available though they were inadequate. 98% of the learners stated that text books, printers, projectors, backup generators and Uninterrupted Power Supply were not available.

During the Focus Group Discussions learners were asked to comment on the facilities and resources that were used in the teaching and learning of Computer Studies and one of them said,

> *We have few computers. If you consider the number of pupils who take computer studies as a subject, with the number of computers and computer laboratories you will find the pupils are too many compared to the number of facilities. That can be a threat to pupils who can't learn because of the situation.*

Others simply did not know what was required in order for them to effectively learn. They could not say what a projector or printer was.

On pupils' responses concerning the availability of electricity in schools, 100% of the learners said that their schools were supplied with electricity by the Zambia Electricity Supply Corporation (ZESCO). However, they expressed some sentiments that load shedding was so frequent and it affected their learning at times. One of the learners stated that,

> *There are power outages most times which disturbs our learning time table and our teachers sometimes asks us to come and learn over the weekend which is not possible for some of us as we have to tend to other chores at home.*

Another observation made by the researcher was that classrooms are the oneswhich were being used as computer laboratories. Only one school has been able to construct proper computer laboratories with the aid of the Lion's Club of Zambia. Other resources such as the backup generators, UPS, projectors were not available in almost all schools.

4.3.2 Distribution of Computers in Schools

The study further sought to establish the number of computers in schools in the study sample. The Head teachers and computer studies teachers were both asked through interviews to indicate how many computers their schools had. The findings obtained were presented in figure 4.1

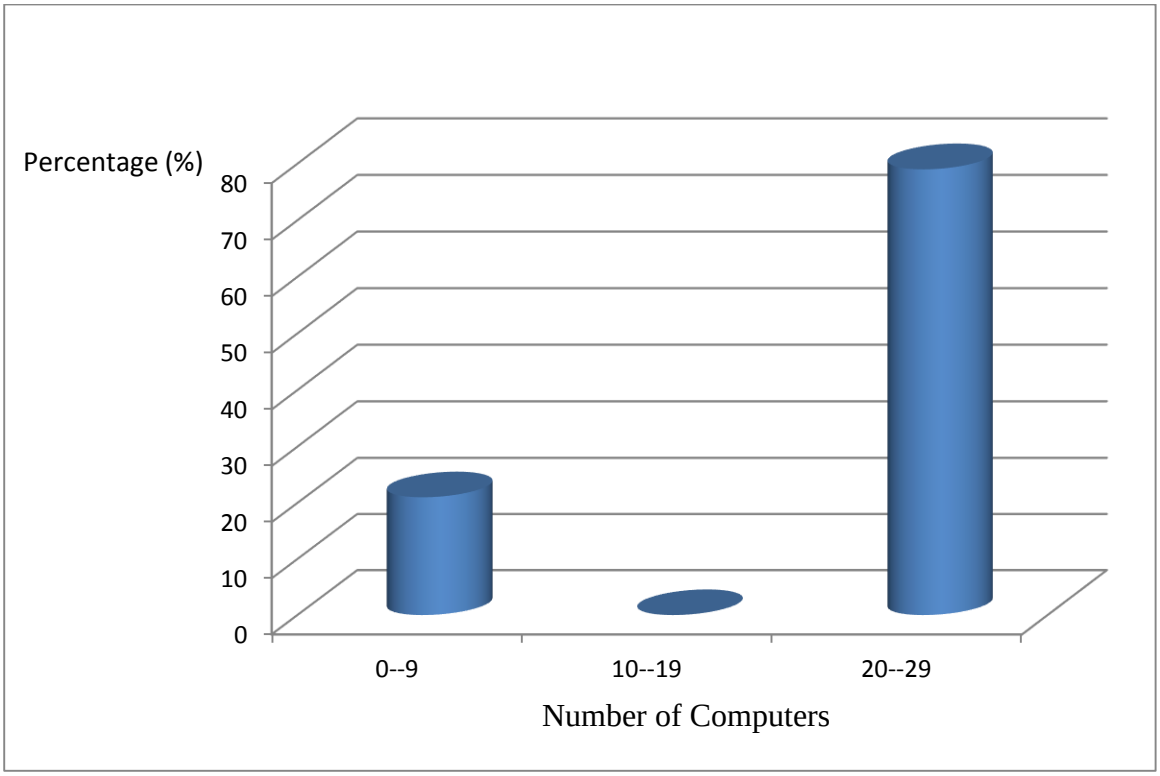


Figure 4.1: Percentage of the availability of computers in schools.

The data in figure 4.1 shows that 21. % of the schools in the study sample had between 0 – 9 computers. While 79% of the schools in the study sample had between 20 – 29 computers. This study further sought to establish the number of computers which were in good working condition. It was established that 85 % of the computers were in good working condition with 15% being defective. The researcher also observed that schools did not have enough computers for use by the learners.

4.3.3 Computer-Learner Ratio in Peri-urban Schools of Kitwe district

The study further sought to establish the computer-learner ratio for the schools in the study sample. The head teachers and computer studies teachers were asked to state the computer-ratio in their respective schools.The researcher observed that the school with the biggest number of computer-learner ratio was 1:6 which is represented by one (1) school. The two (2) other schools had 1:15 representing 22.20% which means one computer for every fifteen and twenty-five pupils respectively. The researcher also observed that in all the schools as many as 10 pupils were sharing one computer when learning.

4.3.4 Adequacy of Resources and Infrastructure

This study also sought to establish the level of adequacy of the resources and infrastructure availability for the implementation of computer studies curriculum. This was captured in computer studies teachers' interview guide and head teachers interview guide. The results of the findings are summarized as presented in table 4.5

Table 4.5: Frequency and percentage distribution of the level of adequacy of the resources and infrastructure

Resources and infrastructure	Adequate		Inadequate	
	f	%	*f*	%
Computer	*26*	*78*	*7*	*21*
Backup generator	*1*	*3*	*1*	*97*
Uninterrupted power supply (UPS)	*33*	*100*	*0*	*0*
Printers	*5*	*15*	*0*	
Overhead projectors	*0*	*0*	*0*	*0*
Computer laboratory	*2*	*6*		*94*
Book/materials	*8*	*24*		

Table 4.5 shows that electricity was supplied in all the schools of the study sample, this was according to head teachers, computer studies teachers and pupils. It was also observed that electricity was supplied by the Zambia Electricity Supply Company (ZESCO). However, the researcher was informed that the schools experienced power interruptions that affected the delivery of computer studies lessons. 97% of the respondents indicated that backup generators were inadequate. From the study sample only one school is reported to have a backup generator representing 3%. The respondents also revealed that printers, overhead projector were also in adequate. With regards to infrastructure 0nly 6% indicated that, they had proper computer laboratories constructed with the help of the Lion's club of Zambia while 94% indicated that they were inadequate. The number of computers was observed to be inadequate in 21% of the study sample while 78% of the respondents indicated they were adequate. Similarly, books and other materials were inadequate.

The research also revealed during the learner's' focus group discussions that the resources and infrastructure in this section were not adequate. When pupils were asked to discuss if they had enough computers, all of them representing 100% indicated that they did not have enough computers and hence this affected their learning. For instance, one pupil said that,

> *We only have seven (7) computers at our school and our teacher has resorted to teaching us in sessions. This means that if you are not in the session scheduled for lessons, you will be idle as are many who learn computer studies. So it is very difficult to even touch a mouse or keyboard when you are doing a practical.*

The researcher also observed that none of the respondents indicated any of the resources and infrastructure to be adequate. Regarding text books, the researcher observed that schools that hadtextbooks only had one or two which they were sharing amongst themselves. Pupils'text books were non-existent in all these schools. All the mentioned resources and infrastructure in this section were inadequate according to the researcher's observations.

4.3.5 Government Involvement

This study sought to establish if the government was involved in the provision of computers and human resources development in peri-urban schools of Kitwe district. Teachers were asked to state if there was any government initiative which had helped the schools in the

implementation of the Computer Studies in schools. The results obtained are presented in table 4.6.

Table 4.6: Frequency and percentage distribution of Government involvement in Provision of computers and human resources development

Government involvement	Yes		No	
	F	%	f	%
Recruiting trained computer teachers	4	50	40	50
Organising workshops and seminars	2	25	6	75
Organising and sponsoring in-service training for computer studies teachers	0	0	8	100
The government has donated some funds to school to procure computers and accessories	0	0	33	100
The government has supplied computers to schools	0	0	33	100

The data in table 4.6 shows that 25% of the respondents were of the view that the government was involved in organizing regular workshops and seminars, while 75% indicated that the government was not doing anything in that line. Further 50% of the respondents felt that the government had recruited computer studies teachers in peri-urban schools of Kitwe district. 100 % of the respondents were of view that the government had not organized in-service training for computer studies teachers in their district. In addition 100% of the respondents were of the view that the government was not involved in donating funds to schools to procure computers and their accessories. Further 100% of the respondents felt that the government had not supplied computers to schools.

4.4 Teachers' Skills and Training in computer studies

The study further sought to establish teachers' skills and training for teachers of computer studies in the schools.

4.4.1 Teachers' Training in computer studies

This study further sought to establish the level of computer training of computer studies teachers. Computer studies teachers were asked if they were trained computer studies teachers

and state the level of qualification they had if at all they were trained in ICTs. The findings are presented in table 4.7

Table 4.7: Frequency and percentage distribution of the level of ICT training among teachers of computer studies teachers

Level of the computer training	Computer studies teachers	
	F	%
No. Computer training	3	37
Certificate	0	0
Diploma	5	63
Degree	0	0
Others	0	0
Total	8	100

Table 4.7 shows that 37% of the teachers of computer studies had no computer training at all. However, those computer studies teachers with no formal computer training reported that they had gained some computer literacy through use of school, personal computers or internet cafes. The researcher recorded no teacher with a qualification of a certificate, degree or any other qualification. Further, Head teachers were asked to state if the teachers teaching computer studies were qualified and one of them said that,

> *We have competently trained teachers of Business studies, who are overwhelmed and so the administration has asked teachers who have knowledge of computers to help. This is so that implementation can be achieve.*

On the qualifications of teachers, another Headmaster mentioned that,

> *We do not have teachers that have been trained to handle computer studies, but have those that had it as a component of other subjects like business studies.*

4.4.2 Computer Literacy Level

The researcher sought to find out the computer literacy levels amongst other teachers in the school who do not teach computer studies. The respondents were asked to comment on the computer literacy level among other teachers in their schools. The responses given by 27 respondents in the study sample were as presented in table 4.8.

Table 4.8: Frequency and percentage distribution of computer literacy among other teachers

Computer literacy level	Responses	
	F	%
Very literate	0	0
Literate	4	50
Fairly literate	4	50
Illiterate	0	0
Very illiterate	0	0
Total	8	100

The results in table 4.8 show that 50% of the respondents felt that the teachers are computer literate. According to 50% of the respondents, the teachers are fairly computer literate. Another 0% of the respondents felt that teachers in their school were computer illiterate.

4.4.3 Effect of Computer Literacy Level on curriculum implementation

This study further sought to establish whether computer literacy levels of the teachers affected the effective implementation of computer studies curriculum in a school. The research findings

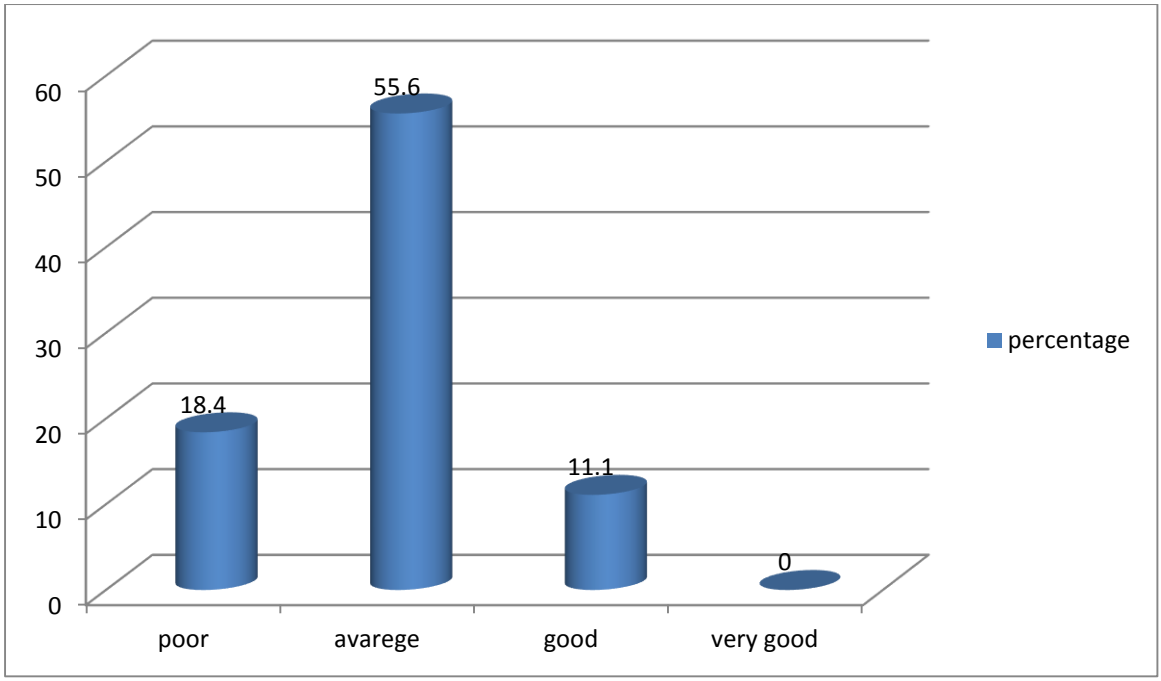
from all the respondents who included the three(3) head teachers, eight(8)computer studies teachers and forty(40) computer studies pupils indicated that computer literacy levels among teachers affected the implementation of the curriculum.

Most of the respondents felt that teachers who were not computer literate discouraged the pupils about the subject as they told them it was a difficult subject to learn. Additionally, they did not give the learners confidence in their delivery of the subject matter. The other respondents were of the view that teachers that were not computer literate did not embrace nor appreciate the technological advancements. While others felt that teachers who were not computer literate did not offer career guidance on computer related courses to the learners. The respondents also expressed that the subject should not be compulsory until such a time when infrastructure and materials are made available in peri-urban schools of Kitwe district. One of the teachers stated that:

> *"it is difficult to support and effectively teach what one does not fully understand."*

4.4.4 Learner's Performance in Final Examinations

This study also sought to establish the performance of learners in the national (final) examinations. Head teachers and computer studies teachers were asked to rate the performance of learners in computer studies final examinations which were first written in 2015.



Figuer 4.2: Percentage of learner performance in computer studies final examinations

The respondents indicated that they recorded a 100% pass rate from the learners. This was despite the numerous challenges faced by the administrations, teachers and the learners. The findings were rated on a scale ranked as Very good (4), Good (3) Average (2), and Poor (1). The responses of eight (8) computer studies teachers and three (3) head teachers from the school that had implemented the computer studies curriculum were presented in figure 4.10 Teachers were asked to comment on pupils' performance in the final examinations and one of the teachers said that,

> *The learners' performance in the final examination has been average and we have been able to record 100% pass rate. This was of course with difficulty. Conducting practical examinations was a challenge and was only managed by asking the community to help our learners by lending the schools computer from their homes in order for the examinations to be conducted.*

It was further observed by the researcher that the performance of pupils was poor,even though the pass rate was at 100%.The quality of the grades obtained by the learners was poor. The researcher also further verified with the 2015 ECZ Report document which indicated that

Computer Studies had the second lowest mean score of 30.07% amongst all the other subjects that the grade nines wrote.

4.5 Remedies for the effective implementation of the Computer Studies Curriculum

The study further sought for suggestions from the respondents on the remedies for effective implementation of computer studies curriculum in peri-urban secondary schools of Kitwe district. The following remedies were proposed;

4.5.1 Government Support

All the respondents; 100% of the head teachers, 100% of computer studies teachers and 100% of computer studies learners proposed that the government should provide grants to enable schools procure more computers, their accessories and set up infrastructure such as computer laboratories.

On the recruitment of qualified staff, suggestions proposed by all the head teachers representing 100% from all the (3) schools and computer studies teachers stated that the government should recruit computer studies teachers in all peri-urban secondary schools. One of the head teachers stated that,

> *The government should consider recruiting teachers of computer studies to work in peri-urban in order to effectively deliver to the learners.*

Further findings from all the respondents (Head teachers, Teachers and learners) representing 100% indicated that government should also employ technical persons to be repairing the equipment.

4.5.2 Teacher In-service Training

In-service programmes; seminars, workshop and conferences. The findings established that 100%of head teachers and 100% of computer studies teachers proposed that MoGE should organize regular seminars and workshops to sensitize head teachers and other stakeholders on the importance of implementing computer studies curriculum. Another suggestion proposed by head teachers representing 66.7% and 83.3% of the computer studies teachers was that teachers engaged in teaching this subject should be sponsored and sent for further training in computer studies.Further, it was suggested that even CPDs should be encouraged amongst teachers of

computer studies and all head teachers in schools should provide financial and material support. One head teacher stated that:

> *The importance of in-service activities cannot be over emphasized as they provide a platform for teachers to enrich their knowledge and competencies.*

Yet another teacher mentioned that:

> *CPDS give us an opportunity to learn from fellow teacher on how best to deliver concepts that we may have not competently done so.*

4.5.3 Administrative Support

From the findings, it was established that all the respondents representing 100% indicated that administrators in schools were all supporting the computer studies curriculum implementation since it was now a compulsory subject. All the Head teachers indicated that they were putting up some initiative such as fundraising ventures in order to raise funds to purchase the necessary accessories to make sure that resources and infrastructure are provided. The researcher was informed by the respondents representing 67%that the computers that they had in the schools was as a result of lobbying from different organizations such as The Lions club of Zambia and institutions such as The Copperbelt University. Further, 100% of the head teachers indicated that they were also lobbying for trained computer studies teachers and others said they had employed some teachers to teach computer studies on the Board/PTA. One head teacher explained that:

> *We had to write to a number of organization such as the Copperbelt University to ask for computers that were not in use at the institution as a matter of fulfilling the government policy.*

Summary

In this chapter, the researcher outlined the findings of the study it gathered from respondents during the interviews, observations carried out and also from learners during the focus group discussion.

The findings on the resources and infrastructure indicated that though they were available in schools, they were inadequate. The number of computers in schools was not enough and hence, it was revealed that there was a high computer pupil ratio. Trained teachers of computer studies were in most cases not available. On suggestions, it was said that government should support the implementation of the computer studies curriculum by providing grants to schools and also recruit trained and qualified teachers to teach computer studies subject. Further, administrators were encouraged to give support to the new curriculum implementation. These findings were presented in form of tables, and graphs as well as basing on emerging themes and verbatim statements.

CHAPTER FIVE

DISCUSSION OF FINDINGS

Overview

Discussions of the findings were outlined in this chapter by the researcher as presented in chapter four. The study aimed at assessing the implementation of computer studies curriculum in peri-urban schools of Kitwe district. A number of themes emerged from the findings and have been presented in the preceding chapter. The themes include; Implementation of Computer Studies Curriculum, type of resources and infrastructure available, teachers' skills and training.Furthermore, the discussion of the findings are in relation to the theory and literature that was reviewed.

5.1 Availability of resources and infrastructure

From the study, the respondents indicated thatbackup generators, uninterrupted power supply (UPS), printers, overhead projectors, wireless fidelity (wi-fi) and text books were unavailable. This is likely to affect the implementation of the computer studies curriculum as successful implementation requires availability of teaching and learning resources. These findings concur with Magambo (2007) who supported these findings that there was an outcry from teachers on lack of basic resources which affected the implementation of the computer studies curriculum. Computer studies require supporting physical infrastructure to be in place before it can be implemented. However, in most government school there is no such thing as free room. Administrators have taken to improvisation in order to aid implementation .For instance, a rooms that do not have proper fitting are chosen as computer laboratories.

In this study, the findings showed that all the facilities and resources computers, computer laboratory, printers, backup generator, uninterrupted power supply (UPS), overhead projectors, text books and electricity were available in some schools though all of them were inadequate. The findings in this study were in agreement with Ndwiga (2005) who indicated that there were inadequate resources such as computer laboratories of schools in poor countries which was a major setback in the implementation of computer studies. According to IFIP-UNESCO (2006), in any educational system, the level of available resources places a restriction on the degree to which any new subject can be introduced into the school curriculum.

This means that without the necessary resources and infrastructure, the computer studies curriculum cannot be effectively implemented. Implementation of a new curriculum requires

the availability of resources and infrastructure in order for it to be effective and produce the desired results in terms of academic performance by learners.

5.2.2 Distribution of computers in schools

Computer studies is a practical subject which requires the learners to have a feel of the computer in order for them to grasp concepts. The study discovered that the schools targeted for the research all had less than twenty computers. One school was recorded to have had no computer to its name, however, the school administration and the teachers were doing all they could to make sure that lessons in computer studies were taught. The teachers informed the researcher that at times they had to draw the computers and their accessories on the board in other to help explain concepts. This was evident that the schools did not have adequate computers in order to effectively teach and effectively implement the computer studies curriculum.

5.2.3 Computer-pupil ratio

The computer-pupil ratio was very high owing to the fact that there a few computers available in schools: 1:15. This is in line with Waiharo (2007) findings who established that more than 50% of the schools had students to computer ratio of 1:30. This is an un-favourable computer to pupil ratio and hence is a major hindrance in the implementation of computer studies curriculum in peri-urban secondary schools of Kitwe district.

More than 10 pupils were sharing one computer during a lesson. This limits the pupil's interaction with the computer making it difficult to learn the subject. The teachers also stated that a pupil being able to have a hand on experience boosts confidence not only in the subject computer studies but also other areas of their lives. In order to reduce the numbers of pupils at a computer in a lesson, the teachers had also opted to teach in session. However this means that coverage of the syllabus will be slow because of the time taken to teach extra sessions. This indicates that learners have been unable to get the one on one time at a computer at scheduled times making the acquisition of knowledge and skill difficult.

5.2.4 Adequacy of resources and infrastructure

The findings revealed that the resources and infrastructure were not adequate. These findings are in line with Rok (1999) who stated that quality and adequacy of resources such as teaching and learning materials determine the effectiveness of curriculum implementation. This shows that when resources and infrastructure are inadequate both teaching and learning becomes difficult. The findings revealed that all the resources and infrastructure were not adequate.

Resources also include qualified teachers of computer studies who were absent in all schools. This has a negative effect on teaching and learning and ultimately effective curriculum implementation.

5.2.5 Government Involvement

The findings revealed that government's involvement in the implementation of the computer studies curriculum had just gone as far as making pronouncement that the subject is to be compulsory, providing the syllabus and a limited number of text books. It has not done enough to ensure that computer studies curriculum is effectively implemented. This is in agreement with Karuru (2005) who established that the government had not done enough on the issue of assisting schools to procure computers and called for the Government's intervention in their supply by putting in place regulatory and supervisory oversight to safeguard access, equity and quality of ICT facilities.

5.3 Teacher training

The findings revealed that some teachers that were tasked to teach computer studies were not qualified to handle the subject. These results were in agreement with Waiharo (2007) findings who established that 87.2% of teachers in the secondary schools in Kenya did not have any computer training. The study also revealed most teachers that teach computer studies are those that teach business studies. These findings are similar to those of Oduda (1998) who stated that although computer studies is an examinable subject at grade nine (9), few teachers were trained in the subject. He further stressed that schools depend on hired personnel to teach the subject most of whom are not professional in classroom delivery. Similarly, Mwaniki (2007) identified low number of qualified teachers being among the factors that had adversely affected the implementation of computer studies curriculum. This can have a negative impact on the successful implementation of the computer studies curriculum.

5.3.1 Effects of teacher's computer literacy on implementation of computer studies curriculum.

The study revealed that the majority of teacher had some knowledge of computer and had gained competencies only to some degree. These finding are in line with those of Mwaniki (2007) who established that implementation of computer studies in educational institutions was affected by low number of teachers who were computer literate. This had a negative impact on the effective implementation of the computer studies curriculum. Teacher literacy in computer studies boosts the teacher's confidence as he or she knows the subject matter in order to

effectively impart knowledge. In addition Mburu (2008) observed that teachers' literacy level in computers have a big influence on success of implementation of e-learning in public primary schools. On the other hand, when teachers are computer literate, they tend to encourage pupils to learn computer studies and provide career guidance to them and stir an interest in learning ICT.

5.4 Remedies for effective implementation of computer studies curriculum

5.4.1 Government Involvement

In order to effectively implement the computer studies curriculum, there is need for the government to provide a conducive learning environment by constructing computer laboratories and other necessary infrastructure that will aid effective implementation of computer studies. Schools also need to be furnished with grants so that they are able to buy more computers and their accessories. Further there is need for the government to recruit trained computer studies teachers.

5.4.2 Teacher in-service training

From the study, it was evident that the majority of teachers were not given the opportunity to attend in-service in computer. Further, the majority of the respondents indicated that it was important for them to attend in-service training such as such computer courses, seminars, workshops and CPDs where they could learn new ideas and techniques from each other as teachers. All these enable teachers learn new ways of doing things and also share ideas of how best to go about the teaching of computer studies. The findings from this study are also supported by Bishop (1995) who explained that a more conventional way of introducing teachers to new ideas and techniques and methodologies in education was by courses such as seminars, workshops and conferences. This would positively aid implementation of the computer studies curriculum. The findings are also similar to those by Godwyl (2008) in his study who reported that lack of professional development programs for teachers to upgrade their skills on emerging technologies was a hindrance to ICT implementation. With this it is safe to say that professional development is key in the implementation of the computer studies curriculum. That is why seminars, continuous professional development (CPDs) and other professional development meeting should be encouraged as the positively impact the quality of curriculum implementation.

5.4.3 Administrative support

The respondents indicated that the school administrators were in support of the implementation of the new curriculum by facilitating infrastructure and putting in efforts to see to it that schools have teachers with some level of competencies to teach computer studies. One respondent said that administrator had engaged the community in the implementation process by asking them to make computers available to learners during examinations in order administer examinations effectively. (Krysa,1998). The findings are also supported by Bulaliya & Mubika (2011) who said that administrative support could also take the form of policy enactments where ICT competence is made mandatory for school teachers. This means that school administrators were doing their best to see to it that the computer studies curriculum was implemented. However, it was difficult for them to get the necessary support for stake holder such as the government.

5.5 Implementation of computer studies curriculum: a failure or success.

The implementation of the computer studies curriculum had been a failure in peri-urban schools of Kitwe district considering the many challenges that the schools face.

The challenges include; lack of computers, lack of appropriate infrastructure, lack of qualified man power, and government support. This is an indicator that in the absence of the necessary requirements, the computer studies curriculum cannot be effectively implemented.

Summary

Findings of the study were discussed in this chapter. From the findings, a number of factors have affected successful implementation of the computer studies curriculum such as lack of infrastructure, lack of computers, poor electricity supply, lack of qualified man power. It has also outlined that the implementation of the computer studies curriculum has been a failure due to a list of challenges.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

Overview

In this chapter, the researcher presented the conclusions and recommendations of the study based on the findings and discussions on the implementation of the computer studies curriculum in peri-urban schools of Kitwe district of the Copperbelt province. It further gave suggestion for further research.

6.1 Conclusions

The following conclusion was arrived at from the study:

The researcher observed that there was more that needed to be done in order to successfully implement the computer studies curriculum. Thus it was concluded that the implementation of the computer studies curriculum in peri-urban schools of Kitwe district was a failure. The researcher concluded that all schools in the study sample had tried to implement the computer studies curriculum though a number of factors had hampered successful implementation. The researcher also arrived at the conclusion that the secondary schools in peri-urban Kitwe district had introduced computer studies in line with government policy even though there was so much that needed to be done in terms of teacher training, infrastructure and other resources.

The resources and infrastructure that were available in secondary schools of peri-urban Kitwe district included computers, computer studies text books, printers, among others were inadequate to effectively implement the computer studies curriculum.

Teacher skills and competencies had a negative impact on the implementation. It was concluded that there were no trained computer studies teachers and that a number of teachers were not competent enough to teach computer studies. It was further observed that the Head teachers called upon teachers who had some knowledge but not qualified to teacher computer studies in order to aid implementation as stipulated by the government.

Therefore, the researcher concluded that without qualified teaching staff, it is impossible to effectively teach computer studies and implement its curriculum.

6.2 Recommendations

The following recommendations were made:

1. There is need for The Ministry of General Education to sensitize school head teachers, teachers, learners and the community on the importance of the implementation of the computer studies curriculum.
2. The government should provide schools with funds in order for them to be able to procure computers and computer accessories
3. The Ministry of General Education must recruit trained teachers of computer studies that should be deployed to peri-urban schools of Kitwe district.
4. Teachers must undertake Continuous Professional Development (CPDs) meetings in computer studies.

6.3 Suggestions for further studies

There is need to replicate this study in other districts especially in rural areas.

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APPENDICES

APPENDIX I

INTERVIEW GUIDE

TO BE ADMINISTRED TO HEAD TEACHERS

This interview is aimed at finding out your opinion concerning the implementation of computer studies curriculum in peri-urban schools of Kitwe district. You are therefore requested to be as objective as you can in view of what you know about Computer Studies Curriculum in Zambian Schools.

SECTION A: DEMOGRAPHIC INFORMATION

1). The gender of the head teacher.

……

2). What is your highest professional qualification?

……

3). What is your professional experience?

……

4). How long have you been a head teacher?

……

SECTION B:

PART I: THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM

5) Has your school implemented computer studies curriculum?

i) Yes ii) ☐ ☐

6). If yes to question 5 above, how is it being offered?

i) Integrated in all the subjects ☐

ii) Integrated in some subjects ☐

iii) As a separate subject ☐

iv) As part of extra curricula activities ☐

v) Any other specify……

7). If no to question (5) above, give reasons why.

…….

…….

8a). Is the introduction of computer studies into the curriculum a good policy?

Yes ☐ No ☐

b) If yes to question (8a) above, give reasons why.

……

……

c) If no to question (8a) above, give reasons why.

…….

…….

PART II: TYPES OF THE RESOURCES AND INFRASTRUCTURES AVAILABLE FOR THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM

9a). Has your school got computers for use in the implementation of computer studies curriculum?

……

b). If your school has computers, how many computers does your school have?

…….

c). How many computers listed in (b) above are in good working condition?

……..

10). How many pupils take computer studies?

……..

11). What is the ratio of computer to students at this school?

…… 7

12a). Are the following facilities and resources for implementation of computer studies available or not in your school?

Resources and Infrastructures	**Available**	**Not Available**
Computers		
Electricity		
Backup generator		
Uninterrupted Power Supply (UPS)		
Printers		
Overhead Projectors		
Computer Laboratory		

b) Others (specify) ……

c) How can you rate the level of adequacy for facilities and infrastructure?

Resourcesand Infrastructure	**Adequate**	**Inadequate**
Computers		
Electricity		
Backup Generator		
Uninterrupted Power Supply (UPS)		
Printers		
Overhead Projectors		
Computer Laboratory		
Books/Materials		

PART III: THE LEVEL OF TEACHERS' TRAINING IN COMPUTERS

13a). Are teachers who teach computer studies trained in computers studies?

……

b). If yes in (a) above, for how long were they trained?

……

14a). How do you rate the computer literacy levels of the teachers in the school?

……..

……

b). Does the literacy level of teachers in the school affect the implementation of computer studies curriculum in this school?

……..

c). If yes, how does it affect?

……...

……..

15). Do you have computer technicians to provide the technical know-how at your school?

……..

16). How can you rate the performances of computer studies subject in the final Examinations?

Very good ☐

Good ☐

Average ☐

Poor ☐

Very poor ☐

17a). Do you as a leader of the school support the implementation of the computer studies curriculum? Yes No

b) If you answered ‘yes’ to question ‘17’ above, state the type of support?

……..

……

……..

……..

c) If you answered ‘no’ to question ‘17’ above, give reasons why.

……

……

18). What challenges does your school face in implementing computer studies curriculum?

……

……

……

PART IV: REMEDIES TO IMPROVE THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM

19). What remedies would you give to ensure effective implementation of computers studies in primary schools?

……..

……..

Thank you for your participation.

THE END

APPENDIX II

INTERVIEW GUIDE

TO BE ADMINISTRED TO COMPUTER STUDIES TEACHERS

This interview is aimed at finding out your opinion concerning the implementation of computer studies curriculum in peri-urban secondary schools. You are therefore requested to be as objective as you can in view of what you know about Computer Studies Curriculum in Zambian Peri-urban secodary Schools.

SECTION A: DEMOGRAPHIC INFORMATION

1). The gender of the teacher.

……

2). What is your highest professional qualification?

……

3). What is your professional experience?

……

4). How many years of teaching experience do you have?

……

SECTION B:

PART I: THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM

5). Has your school implemented computer studies curriculum?

i) Yes No

6). If yes to question 5 above, how is it being offered?

i) Integrated in all the subjects ☐

ii) Integrated in some subjects ☐

iii) As a separate subject ☐

iv) As part of extra curricula activities ☐

v) Any other specify……

7). If no to question (5) above, give reasons why.

……..

……

8a). Is the introduction of computer studies into the curriculum a good policy?

Yes ☐ No ☐

b) If yes to question (8a) above, give reasons why.

……

……

c) If no to question (8a) above, give reasons why.

……

……

PART II: TYPES OF THE RESOURCES AND INFRASTRUCTURES AVAILABLE FOR THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM

9a). Does your school have computers for use in the implementation of computer studies curriculum?

……

b). If your school has computers, how many are they ?

……..

c). How many computers listed in (b) above are in good working condition?

……

10). How many pupils take computer studies?

……..

11). What is the ratio of computer to students at this school?

……

12 (a How do you rate the availability of the following resources in your school?

Resources and Infrastructure	Available	Not Available
Computers		
Electricity		
Backup generator		
Uninterrupted Power Supply (UPS)		
Printers		
Overhead Projectors		
Computer Laboratory		

b) Others (specify)……

13). How many computer studies teachers in this school are employed by:

(a) BOARD …… (b) Others (specify) ……

14). Identify any government initiatives which have helped in implementation of Computer Studies in the school.

a) Recruiting trained computer studies teachers

b) Organizing workshops and seminars

c) Organizing and sponsoring in-service training for computer studies teachers

d) The government has donated some funds to the school to procure computers and accessories.

e) The government has supplied computers to the schools.

15). How can you rate the level of adequacy for the facilities and resources?

Resources and Infrastructure	Adequate	Inadequate
Computers		
Electricity		
Backup generators		
Uninterrupted Power		
Supply(UPS)		
Printers		
Overhead Projectors		
Computer laboratories		
Books/materials		

16a). Do you as a leader of the school support the implementation of the computer studies curriculum? Yes No ☐ ☐

b) If you answered 'yes' to question '16' above, state the type of support?

……..

……..

……..

c) If you answered 'no' to question '16' above, give reasons why.

……

……

PART III: THE LEVEL OF TEACHERS' TRAINING IN COMPUTERS

17). Which are your teaching subjects in this school?

……

18a). Are you a trained computer teacher by training?

……..

b). If yes, what is your level of qualification in computers?

……..

19a). How do you rate the computer literacy levels of the other teachers in this school?

Very literate ☐

Literate ☐

Fairly literate ☐

Illiterate ☐

Very illiterate ☐

b). Does the literacy level of teachers in the school affect the smooth implementation of Computer studies curriculum in this school? (i) Yes ☐ (ii) No ☐

c). If yes in (b) above, explain how:……

……..

……....

20). How can you rate the performances of computer studies subject in final examinations (2015)?

Very good ☐

Good ☐

Average ☐

Poor Very poor ☐

21). What challenges does your school face in implementing computer studies curriculum?

……
……
……
……

PART IV: REMEDIES TO IMPROVE THE IMPLEMENTATION OF COMPUTER STUDIES CURRICULUM

22). What remedies would you give to ensure effective implementation of computers studies in peti-urban secondary schools?

……

……

……

Thank you for your participation.

THE END

APPENDIX III

Focus Group Discussion Guide for Pupils

Name of School…….

Dear Pupils,

This FGD guide intents to investigate more about the implementation of Computer Studies curriculum in primary schools. Please assist. Your contribution in this discussion is highly valued and the information recorded will be treated confidentially. The discussion will take one hour. Two questions will be involved in the discussion. Time allotted for each question is 30 minutes.

Discussion Questions:

1) In your opinion, what challenges does Computer Studies teaching and learning face in peri-urban secondary schools? (Probe questions will be whether: learners have easy access to computers; learners have enough computers; learners access the computer laboratory; does it have enough time on the timetable to learn this subject; should it be a compulsory or optional subject)

2) What ways (measures/remedies) should be taken in order to improve the situation? (Probe questions will be on what learners would like: what the government should do; what schools should do; what other stake holders should do).

Thank you

APPENDIX IV

OBSERVATION CHECKLIST

1. Are computers available or not?
2. Number or computers available in the school.
3. Are computers enough?
4. Number of computers in working condition.
5. Number of computers not in working condition.
6. Availability of computer laboratory.
7. Are the computer lessons scheduled in the block time table?
8. Computer examination results in the past final examinations. 9. Are there overhead projectors used in teaching?
10. What is the ratio of computers to pupils?