PEDAGOGICAL USE OF INFORMATION AND COMMUNICATION TECHNOLOGY BY TEACHERS IN SELECTED PRIMARY SCHOOLS

BY

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Authors Declaration

I, **Ngulube Thandiwe**, hereby declare that the work herein is my own, and that all the works of other persons used have been duly acknowledged, and that the work has not been presented at this University or indeed another institution other than that for which I am now a candidate.

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This dissertation of Ngulube Thandiwe has been approved as partial fulfilment of the requirements for the award of the degree of Master of Education in Educational Management (M.Ed. Management) by the University of Zambia in collaboration with the Zimbabwe Open University.

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Dedication

I dedicate this work to my beloved son Godfrey Lumbwe Ngoma for the encouragement offered and the patience shown through his acceptance to be left under the care of his grandmother during my absence in the course of this study programme. For always assuring me that God is on my side.

To my beloved mother Mrs Abigail Phiri Ngulube, you are a true description of a God given Mom. You have always encouraged me to pursue my dreams, and you have prayed for me. You have been there in both good and bad times. To the whole family, thank you for your moral support and for believing in me. Thank you.

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List of Abbreviations and Acronyms

CPD…Continuous Professional Development

DEBS…District Education Board Secretary

DOI…Diffusion of Innovation

ICT…Information and Communication Technology

PEOU…Perceived-Ease-of-Use

PU…Perceived-Usefulness

TAM…Technology Acceptance Model

TGM…Teacher Group Meetings

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Abstract

The study was centred on exploring the Primary School Teachers' attitudes towards the pedagogical Information and Communication Technology (ICT) use. The main focus was on the training, the access to equipment and the frequency of use as these were believed to be the key indicators of the attitudes that teachers have towards ICT use. The objectives of the study were; to ascertain how adequately trained the teachers in Chikuyu zone are in ICT pedagogical use, to explore how often the teachers in Chikuyu zone access ICT facilities for use in classroom teaching, to ascertain how often ICT equipment are used in classroom teaching and to propose initiatives that can be put in place to enhance pedagogical ICT use.

The theories used where Diffusion of Innovation theory by Rogers, (2003) and the Technology Acceptance Model by Baggozi and Warshaw, (1989). The Diffusion of Innovation entails that there are different rates at which people adopt new technologies and these rates are as a result of attitudes attached to the innovation. The Technology Acceptance Models state that two things characterise the acceptance of an innovation by people, these are; Perceived-ease-of-use and Perceived-usefulness. The two theories informed the study through their ability to ascertain the perception and attitude behind every action. The descriptive survey design under qualitative approach was used in the study. Data collection was done using; semi-structured interviews, focus group discussions and observations. Target population were ten schools in Chikuyu zone where a total sample of forty (40) class teachers and ten (10) head teachers was collected using purposive sampling and this made use of the typical sampling procedure. Data was analysed using the emerging themes from the questions which were a mirror of the research objectives.

The major finding were that teachers had a negative attitude towards ICT pedagogical use and this was as a result of having no adequate training, lacking equipment and less frequency in ICT classroom use. Recommendations were made that the Ministry must train teachers,

provide ICT equipment and power sources for village schools, technical support to be offered to teachers during ICT use, build bigger laboratories to match the increasing numbers of pupils and match the pupil-computer ratios.

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CHAPTER ONE: INTRODUCTION

1.0 Overview

This chapter presents the Background, Statement of the Problem, Purpose of the Study, Objectives of the Study, Research Questions, Study Significance, Conceptual Framework, Delimitation, Limitations and Operational Definition.

1.1 Background to the Study

Information and Communication Technology (ICT) gained popularity in the early 1980s. The term 'computers' was replaced by 'IT' (Information Technology) which means a shift from computing technology to the capacity to store and retrieve information. Hence, the term Information and Communication Technology (ICT) increased its' popularity around 1992 (Pelgrum and Law, 2003). In addition, Adeya, (2002) came up with a simplified definition describing ICTs as an "electronic means of capturing, processing, storing and disseminating information". This means that ICTs involves multimedia, the Internet or the Web, as a medium to enhance instruction or as a replacement for other media (Pelgrum and Law, 2003). The olden mode of instruction was limited to the use of manual ways which included the use of a chalk board, chalk, and concrete teaching aids. With the coming in of the information age, there has been a major shift towards the use of ICT. Information and Communication Technology is a scientific and engineering discipline and management technique used in handling information, and its association with social, economic and cultural matters (Bhati, et.al, 2011).

Muhuro, (2007;18) also notes that "The use of information and communication technology in teaching and learning is one way in which educational institutions try to keep pace with the demands of the information age." Despite this realization being so vivid, many factors impact on the ability of institutions to tap into the full potential of technology for teaching and learning. One of these factors being the attitude of people towards the use of ICT.

A research conducted by Chigona and Chigona, (2010), who were investigating the " Capability approach on pedagogical use of ICT in schools", explained that research on ICTs in Education in developing countries has focused mainly on physical access to resources, infrastructure, support and collegiality in Schools, Policies and basic training of the Teachers on how to use the technologies. But most of the times the attention only goes to the ICTs and how they are used in the Schools and not at the capabilities which both educators and learners have to effectively use the technologies. They argued that merely introducing the ICTs in the Schools is not adequate to guarantee the effective integration of the technologies in pedagogy (Chigona and Chigona, 2010). This view happens to suggest that a lot takes place beyond the formulation and implementation of the curriculum and this is true for every form of Curriculum including the one for ICT.

The incorporation of ICT into the Primary School Curriculum has many benefits for the classroom teacher. Using presentation software enables teachers to show ideas dynamically (Moseley et al 1999). This also helps to deliver content effectively. For example, CD-ROMs make broad multimedia worlds available and store large amounts of information that teachers may easily have at their fingertips. (McKnight, 2002). Most importantly however, the use of ICTs in the classroom signals a shift from the conventional position of power held by the teacher to a more collaborative approach to learning. Generally, computer based activities allow the teacher to assume the role of facilitator whilst students take on an-increasing responsibility for their own learning. The use of computer-based technologies can shift the emphasis of activities away from the teacher, towards the learners and make the learning process more interactive.

Research studies have brought forward the fact that the use of ICT, as well as other teaching strategies have enabled students to move to higher-order thinking (Jonassen and Carr, 2000; Kearney and Treagust, 2001; Oliver and Hannafin, 2000). Thus, students develop

constructive thinking skills. As a result the students are learning in order to prepare themselves for the future information age, and to meet the needs of the modern labour market. ICT can therefore, be used to enhance student understanding thus increasing the Quality of Education.

In the local Zambian context, Government through the Ministry of General Education incorporated the use of ICT into the primary school curriculum. The core learning areas at upper primary level includes Technology Studies which encompasses topics and sub-topics of ICT/computer related aspects (MoE, 2013). Avis, et.al (2014), authored a text book for grade five Technology Studies which had topic such as; windows manipulation, Microsoft word, Microsoft paint, Microsoft notepad, windows navigation, cursors and program running, and computer graphics, packages, images, pattern creation, designing, saving files and file locations among others (Avis, et.al, 2014: 31-43). The revising of the curriculum coupled with the publication of these instructional materials marked the beginning of ICT use in Primary Schools of Zambia. Among some changes that were introduced during this period in the Zambian Curriculum, it was suggested that ICT shall be offered by all teacher education institutions in order to equip Student Teachers with sufficient skills in the new area of learning and teaching.

The debate is no longer on whether to use the ICT in education in Zambia, but how to do so considering the different (attitudes) and understanding that might be obtained by the implementers of the curriculum, who in this case are the teachers. British Council (2011), indicates that the British Council Digital Ambassador, Isaac Katete has conducted numerous ICT training workshops in several Zambian schools. Katete says ICTs are beneficial, especially in the area of education. Knowing the fact trainings have been conducted and the skills developed in the Teachers, it is necessary to consider the attitudes and perceptions that are adopted by the Teachers as they deliver their learning experiences.

UNESCO, (2003) argues that, "ICT is a major tool for building knowledge and particularly, as a mechanism at the school education level that could provide a way to rethink and redesign the educational systems and process that leads to quality education for all." Quality education is entirely based on the perceptions and attitudes that teachers have towards the use the process that leads to its attainment, which in this context is the pedagogical use of ICT (Sangra, 2016). This research focused on the attitudes and perceptions that teachers have towards use of ICT as a classroom tool. The perceptive of teachers has become highly relevant, highlighting them as crucial players in this process. Teachers particularly use technology depending on their perceptions and trust in the way it can contribute to their teacher and learning processes.

Through knowing what teachers think, it makes it easy to understand what teachers could do with technology in their classrooms in relation to their work. To this effect, the study explored the Primary School Teachers' perceptions and attitudes towards the pedagogical use of Information and Communication Technology (ICT) in Chikuyu zone of Nyimba district in Eastern province.

1.2 Statement of the Problem

Although the use of Information and Communication Technology in teaching and learning is one way in which educational institutions try to keep pace with the demands of the information age, (Muhuro 2008). Despite this realization being so clear, many factors impact on the ability of institutions to tap into the full potential of technology for teaching and learning. Recent studies show that, the successful implementation of the educational technologies (which includes ICT) depends largely on the attitudes of the Educators (Klieger, Ben-Hur, & Bar-Yossef, 2010). These attitudes can either be positive or negative depending on the circumstances that surround the inception and running of the subject matter. It is however, still unclear as to what attitudes and perceptions Primary School Teachers of

Chikuyu zone in Nyimba district have had towards ICT use since its' inception. It is to this effect that the researcher explores the attitudes that Primary School Teachers have towards the pedagogical ICT use in Primary Schools of Chikuyu zone of Nyimba district and further recommends ways that could enhance ICT use by the teachers as a classroom tool.

1.3 Purpose of the Study

The purpose of this study was to explore the attitudes and perceptions that primary school teachers have towards pedagogical Information and Communication Technology (ICT) pedagogical use in Chikuyu zone of Nyimba district. The study may be used to inform the educational leadership at School, Zone, District and Provincial level with the view of devising possible solutions that would promote positive attitudes and perceptions in ICT pedagogical use and further maximise ICT use by teachers as a pedagogical tool.

1.4 Research Objectives

1. To ascertain how adequately trained the teachers in Chikuyu zone are in ICT pedagogical use.
2. To investigate the extent to which teachers in Chikuyu zone access ICT facilities in their schools.
3. To ascertain how often ICT equipment are used in classroom teaching.
4. To propose initiatives that can be put in place to enhance pedagogical ICT use.

1.5 Research Questions

1. Are the primary school teachers in Chikuyu zone adequately trained in ICT (computer) use for classroom instruction?

2. How often do the primary school teachers of Chikuyu zone access ICT equipment in their schools?

3. How often do primary school teachers of Chikuyu zone use ICT in their classroom instruction?

4. What initiatives can be put in place to enhance pedagogical ICT use?

1.6 Significance of the Study

The findings of the study may be relevant to the broader knowledge in the management of education. The educational management at school level, district level, and Provincial level in the teacher education department, Standards department and teacher education institutions might benefit from this study due to the fact that it may act as an eye-opener towards the issues that hinder participation in the pedagogical use of ICT in Primary Schools. This study highlights the influencing factors behind different attitudes that Teachers have towards the use of ICT in their daily instruction delivery, and recommends ways through which these may be addressed.

1.7 Theoretical Framework

Kombo and Tromp (2006:56) define a theoretical framework as "a collection of interrelated ideas based on theories. It is a reasoned set of prepositions, which are derived from and supported by data or evidence". In simple terms, a theoretical framework is a set of broad concepts that guide the research or study. The researcher is aware that there are several theoretical frameworks, depending on the researcher's goals and purposes, which guide qualitative and mixed research methods in order to analyse data. In this regard, the researcher used two theories; the Diffusion of Innovation and Technology Acceptance theories. Korpelainen (2011) in his working paper stated that, "DOI is a general theory of how new ideas are spread and adopted in a community, and it seeks to explain how communication channels and opinion leaders shape adoption." The Diffusion of Innovation theory was

founded by French sociologist Gabriel Tarde in the year 1903 (Toews, 2003), and this was further popularized by Everett Rogers.

Rogers (1983) proposed the first process model, a five-stage model of the implementation and adoption of innovation in organizations. The diffusion of innovation refers to the process that occurs as people adopt a new idea, product, practice, philosophy, and so on. Rogers mapped out this process, stressing that in most cases, an initial few are open to the new idea and adopt its use. As these early innovators 'spread the word' more and more people become open to it which leads to the development of a critical mass. Over time, the innovative idea or product becomes diffused amongst the population until a saturation point is achieved. Rogers distinguished five categories of adopters of an innovation: innovators, early adopters, early majority, late majority, and laggards. Sometimes, a sixth group is added that of non-adopters (Kaminski, 2011).

In his theory, Rodgers (2003) explained that each category on the list has its own characteristics. The category of the Innovators, whom he also called the Technology enthusiasts only required short adoption period and for that they are considered to be risk takers. These also applied technical knowledge to cope with the high degree of uncertainty; they appreciate technology, are motivated and are peer educators in nature. He called the second category as the Early Adopters/ visionaries. These were considered to be opinion leader, trend setters and role models, competitive, attracted by high risk and high reward, cost sensitive and provided excellent tester subjects to trial. The early majority category came third and it was also known as the pragmatist's category. It also contained the opinion leaders, who considered deliberate contact, considered revolutionary changes in practice, focussed on productivity enhancement, wanted proven applications, reliable service, considered prudent, stay within the budget, they make slow and steady progress and need simple user friendly training.

The fourth category consisted of the late majority, and it was called the conservative category. This category responded to peer-pressure, economic necessity and sceptical, cautious, often technological shy, cost sensitive, require bullet proof solutions, motivated only with need to keep up with the competitors or proven trends in their industry and these are easily influenced by laggards. Finally on the list are the Laggards or the sceptics, who stay isolated from the opinion leaders, whose point of reference is in the old way of doing things, suspicious of innovation, always wanting to maintain the status quo, they think technology is a hindrance to operations and these can only invest in technology when other alternatives are worse (Kaminski, 2011).

Rogers (2003) explained that diffusion of innovation was the process by which an innovation is communicated through certain channels over time among members of a social system. It is important to examine why some innovations are successful, while others never become widely accepted. Five distinct innovation characteristics have been identified by Rogers to explain this mystery. These characteristics include Observability, relative advantage, compatibility, trial ability, and complexity. These characteristics also provide a valuable evaluation list for technology project leaders to apply when first considering innovative changes (Kaminski, 2011). Within this theory, the goal is not to move people within the five adopter categories into another category, but to streamline the innovation to meet the needs of all five categories (Rodgers, 2003).

The Diffusion of innovation has got for main elements that it relies on. These are; Innovation, Communication channels, Time and Social Systems. Rogers offered the following description of an innovation: "An innovation is an idea, practice, or project that is perceived as new by an individual or other unit of adoption" (Rogers, 2003: 12). An innovation may have been invented a long time ago, but if individuals perceive it as new, then it may still be an innovation for them. The newness in characteristic of an adoption is more related to the three

steps (knowledge, persuasion, and decision) of the innovation-decision process. In addition, Rogers claimed there is a lack of diffusion research on technology clusters. For Rogers (2003: 14), "a technology cluster consists of one or more distinguishable elements of technology that are perceived as being closely interrelated". Uncertainty is an important obstacle to the adoption of innovations. An innovation's consequences may create uncertainty: "*Consequences* are the changes that occur in an individual or a social system as a result of the adoption or rejection of an innovation" (Rogers, 2003: 436). To reduce the uncertainty of adopting the innovation, individuals should be informed about its advantages and disadvantages to make them aware of all its consequences. Moreover, Rogers claimed that consequences can be classified as desirable versus undesirable (functional or dysfunctional), direct versus indirect and anticipated versus unanticipated.

The second element of the diffusion of innovations process is communication channels. For Rogers (2003: 5), communication is "a process in which participants create and share information with one another in order to reach a mutual understanding". This communication occurs through channels between sources. Rogers states that "a *source* is an individual or an institution that originates a message. "A channel is the means by which a message moves from the source to the receiver" (Rogers, 2003: 204). Rogers states that diffusion is a specific kind of communication and includes these communication elements: an innovation, two individuals or other units of adoption, and a communication channel. On the other hand, "diffusion is a very social process that involves interpersonal communication relationships" (Rogers, 2003: 19). Thus, interpersonal channels are more powerful to create or change strong attitudes held by an individual. In interpersonal channels, the communication may have a characteristic of "homophily", that is, "the degree to which two or more individuals who interact are similar in certain attributes, such as beliefs, education, socioeconomic status, and the like," but the diffusion of innovations requires at least some degree of heterophily,

which is “the degree to which two or more individuals who interact are different in certain attributes.” In fact, “one of the most distinctive problems in the diffusion of innovations is that the participants are usually quite heterophilous” (Rogers, 2003: 19).

According to Rogers (2003), the time aspect is ignored in most behavioural research. He argues that including the time dimension in diffusion research illustrates one of its strengths. The innovation-diffusion process, adopter categorization, and rate of adoptions all include a time dimension. In other words, an adoption requires a considerable period of time before it can be fully adopted.

The social system is the last element in the diffusion process. Rogers (2003: 23) defined the social system as “a set of interrelated units engaged in joint problem solving to accomplish a common goal”. Since diffusion of innovations takes place in the social system, it is influenced by the social structure of the social system. For Rogers (2003: 24), structure is “the patterned arrangements of the units in a system”. He further claimed that the nature of the social system affects individuals’ innovativeness, which is the main criterion for categorizing adopters.

The relevance of Diffusion of Innovation theory to this study is that it informed the study in providing an insight in the area of innovation categories under which Primary School Teachers fell. These further helped to explain the possible perceptions and attitudes found among primary school teachers towards the use of ICT. Other than the said characteristics, the Diffusion of Innovation theory mentions of the elements such as innovation, channels of communication, time and the social systems which are also very vital in the adoption process of an innovation. In this regard, the theory was perceived to have traits that could produce some form of relevant guide to the study as it tried to explore the reasons behind the identified attitude in the way ICT is used in classrooms among Primary School Teachers.

This is because the attitude and perception that one might have about some innovation can be as a result of how it was communicated to them, the time frame and the social systems around them and how the innovations have been interpreted to the implementer.

The second theory to this study is the Technology Acceptance Model by Davis, Bagozzi and Warshaw (1989). The technology acceptance model (TAM) is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness (PU) which was defined by Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance", and Perceived ease-of-use (PEOU) which Davis further defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

The theory explains that due to the fact that new technologies such as personal computers are complex and an element of uncertainty exists in the minds of decision makers with respect to the successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using. Attitudes towards usage and intentions to use may be ill-formed or lacking in conviction or else may occur only after preliminary strivings to learn to use the technology evolve. Thus, actual usage may not be a direct or immediate consequence of such attitudes and intentions. (Bagozzi, Davis and Warshaw, 1992).

This entailed that the theory was relevant to the study as the study aim was to ascertain the attitudes that teachers have towards ICT use, which in this context is a new technology. The perceived usefulness of ICT in classroom teaching, and its' perceived ease of use by the

teachers determines the attitudes and perceptions that the primary school teachers possibly have towards the pedagogical ICT use.

1.8 Conceptual Framework

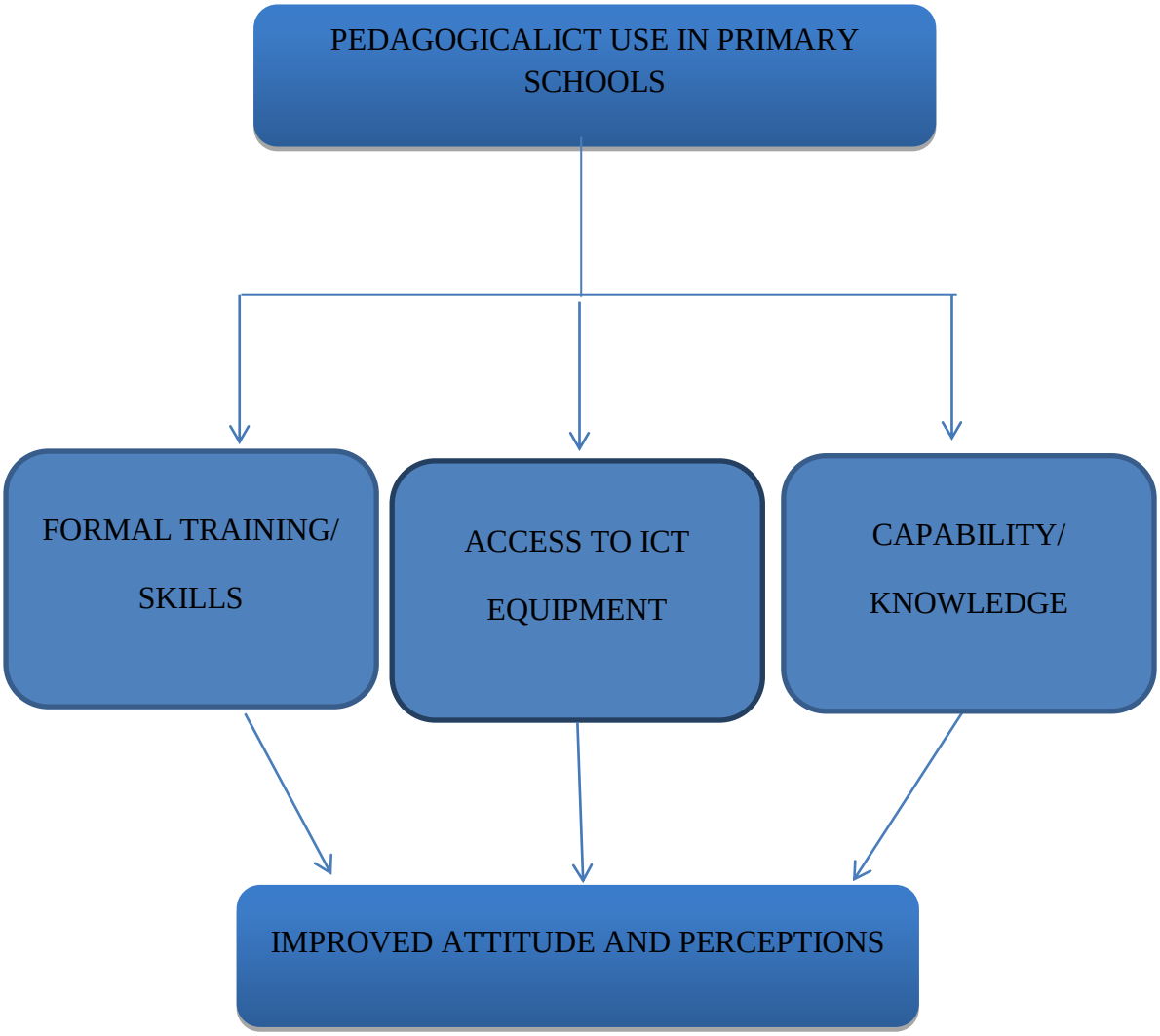
A conceptual framework can be defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Kombo and Tromp, 2006). It is a plan of action that directs the movement of the whole research. In other words, the conceptual framework directs the collection and analysis of data and shows the way ideas are organized to achieve a research project's purpose. The conceptual framework for this study therefore, shows the relevant aspects that portray teachers' attitude towards use of ICT if not taken care of.

There is a clear distinction between teachers who have a positive attitude towards ICT resources and those with a negative attitude. Moseley, (1999) argues that when educators use their knowledge of the subject and along with their knowledge of how learners understand the subject, as well as their pedagogical knowledge on integrating the technology into the curriculum delivery, their use of ICT has the benefit of enhancing teaching and learning. This means pedagogical uses of technology require the development of a complex, situated form of knowledge which may be acquired through relevant Training, (Mishra and Koehler, 2006: 1017).

Effective teaching using ICT requires an understanding of how the technology relates to the pedagogy and content; hence the knowledge about technology cannot be dealt with as context-free. This entails that where there is relevant training, impartation of skills, access to ICT resources and positivity towards the benefit of ICT, teachers should be able to effectively use it. However, where the necessities are present and the teachers are still unable to use ICT in their teaching, the implication is that they possess a negative attitude towards it.

There are other factors that can determine positivity and negativity in ICT use. These factors include individual capabilities to use ICTs, access to resources, ease of use, incentives to change, support and collegiality in their school, school policies, attitudes, commitment to professional learning and background in formal ICT training (Mumtaz, 2000; Becta, 2003). The teachers' capabilities and constraints determine their efficacy to use the technology in their classrooms. The study was however, going to be able to ascertain whether or not some of the stated issues concerning ICT use could be part of the reasons affecting teacher use of ICT among the target population.

Figure 1.8.1: Conceptual Framework



1.9 Delimitation

The study was confined to Chikuyu zone of Nyimba district in eastern province. The research participants were drawn from a total of ten Schools in the stated zone, two of which are privately owned school. The reason for the scope of study was that, the problem was observed in the selected schools and surrounding areas. The inclusion of the selected privately owned schools emerges with an aim of conducting further exploration on the existing trends where ICT use as a classroom tool is concerned.

1.10 Limitations

This study was confined to ten Primary schools of Nyimba district owing to financial and time limiting factors. Due to that fact, the findings of the study shall not be generalised to all the primary schools in Zambia, let alone those in the district. The other limiting factor was that of literature as there was no any related research was ever conducted in the district, especially the zone.

1.11 Operational Definitions

It is important to identify and define the operational terms, acronyms and phrases used in this study as these will enable the reader to understand the contextual meanings of the stated words. In this study, the most used phrases are; gender, pedagogy, attitude, ICT, internet.

- **Attitude**: A psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour.
- **ICT:** This is an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems, all audio and video processing and transmission, and network-based control and monitoring. In this study, ICTs refers to any electronic device and technology that can be used to store, process or communicate information.
- **Innovation:** The introduction of new things, ideas or ways of doing something.
- **Learning:** To gain knowledge or skill by studying from experience or from being taught.
- **Internet:** A seamless and global network of individual, organisational, and national computer systems providing information to users across the globe 24 hours a day.
- **Pedagogy:** The discipline that deals with the theory and practice of education. The art and science of teaching.
- **Perception**: The ability to understand the true nature of something, an idea, a belief or an image you have as a result of how you or understand something.

1.12 Conclusion

This introductory chapter presented the Background to the study, Statement of the problem, Purpose of the Study, Study Objectives, Study Questions, the Significance of the Study, the Theoretical Framework, Conceptual Framework, Delimitation, Limitations, Operational Definitions and Ethical Considerations. The next chapter will present the Literature that informed the Study.

CHAPTER TWO: LITERATURE REVIEW

2.0 Overview

The previous chapter introduced the study by giving its' Background, Statement of the Problem, Purpose, Objectives, Questions, Significance, Theories, Conceptual Framework, Delimitation, Limitations, Operational Definitions and Ethical Considerations. However, this chapter explored what others have written in line with ICT use in classroom teaching as a Pedagogical tool. This will cover the Global Context, African Literature and the Zambian Literature on ICT use in classroom teaching.

2.1 Global Literature

Loveless (2003: 323) in her research of primary school teachers' perceptions of ICT and their pedagogy, found that teachers' perceptions of ICT are fashioned by their 'identity and participation in wider cultural and social spheres which influence the professional arenas and settings in which they practice'. She grouped teachers' perceptions of ICT into three categories: ICT in society: teachers talked about the 'Information Society' and its impact on children's future working lives; ICT capability: teachers talked about the ICT skills or 'information literacy' children require as a subject and as a cross curricular tool; and ICT in schools: teachers talked about 'new' technology in schools and how the lack of resources influenced its integration. Loveless suggests that these perceptions reflect on-going negotiations of the meanings of ICT in teachers' work and that seeing them as sources of tension rather than as sources of anxiety is more constructive for continued meaning-making.

In the Inspectorate Evaluation study, (2008), a conclusion was made that the majority of teachers make some use of ICT in lesson planning and preparation. However, the newly qualified teachers are more likely to use ICT for this purpose than their more experienced colleagues. Very few teachers were found planning for the use of ICT in teaching and learning. The school Principals and teachers identified the provision and maintenance of

hardware in schools and the provision of professional development opportunities in ICT as being strategically important for the development of ICT in their school. The inspectorate also observed that ICT actually being used in only 22% of the lessons observed. 78% of the lessons observed did not use any ICT in their pedagogy.

The Inspectorate Evaluation Study, (2008), came up with recommendations that were thought as valuable in the process of improving ICT pedagogical use. Some of which were; infrastructure improvement, technical support, CPDs and guidance. These recommendations however, did not consider that attitude could all that needs to be taken care of in order to get things done. The fact that the newly deployed teachers used ICT much more than the old timers might imply that attitudes and perceptions of the old timers need to be explored.

Mahati, et.al, (2012), conducted a study on teacher attitudes towards the ICT teaching process. In this study, it was noted that successful implementation of ICT is dependant largely on the attitudes of the educators (Klieger, Ben-Hur and Bar Yossef, 2010). The teachers with positive attitudes towards the technology feel more comfortable while using it and, they usually incorporate it into their teaching activities. Negative attitudes of teachers and the limited knowledge of teachers about technology integration are found to be the main barriers for the technology integration in education (Klieger, Ben-Hur and Bar Yossef, 2010).

On the other hand, Prestige, (2012), on the study of the beliefs behind the teacher that influences their ICT practices, observed that what was emerging from the data was the relationship between ICT competence, confidence and practice. Teachers expressed greater personal competence with ICT. They were more confident to use ICT in the classrooms, however, levels of confidence or competence did not shape the types of ICT practices. Their ICT practices could be considered as operating within a traditional teacher centred approach where developing ICT skills and functionality were concerned. In the conclusion of the study,

it was explained that beliefs can idealistic and desirable, but when the reality of the classroom is encountered, beliefs may not inform practice. This ends up contradicting the study by Klieger, et.al (2010), which implied that beliefs (attitudes) are key supporting factors in ICT classroom practice.

2.2 African Context

The Capability approach study is a research which was conducted in Khanyain Nigeria by Chigona and Chigona, (2010). This study concluded that capability deprivation among educators was as a result of insufficient technological skills and lack of content. This point is in agreement with Klieger et.al in Mahati, (2012), which also attributed the teacher's limited knowledge of ICT to being a barrier for technology integration. Chigona and Chigona, (2010), further stated that the policies were also limiting some groups while supporting others, lack of technical support and high learner-to-computer ratios which result in less-conducive learning environments. The question still stands on whether taking care of these concerns would foster a positive attitude in ICT use among teachers.

In his study, Tedla, (2012), explored internal and external factors that surround ICT issues, policies of ICT integration, and factors that facilitate or impede the use of ICTs, with the focus of improving the quality of the teaching-learning process. The study revealed that the inhibiting factors are unrealistic policies of ICT, poor infrastructure, lack of teacher competence, confidence, incentive, perception and beliefs, imposed curriculum, lack of proper network, political instability, brain drain, sporadic electricity, poor transportation, lack of public awareness and participation, poor school leadership, technological illiteracy, and lack of pedagogical skills. The study further revealed that ICT integration was far behind in East African schools as a consequence of ICT deficiency, absence of pre-service and in-service teacher training and poor teachers' welfare and morale. This study is relevant to this

current study as it informs the research in line with the possible factors that influence the use of ICT in Chikuyu Zone of Nyimba district. These factors could as well be attached to personal attributes and policy related attributes.

In Tanzania, little is seen in the use of ICT as a pedagogical tool in teaching. It is said that less than 2% of the country's population is connected to the national power grid. Less than 1% of the country is covered by physical data networks which make ICT policy to be poorly implemented. With the stated limitations, teachers find it difficult to integrate ICT in teaching and sometimes have negative attitudes towards ICT (Ndibalema, 2014).

In his study, Livingston, in Ndibalema, (2014), found that some teachers continue to display reluctance to engage with new technology, others remain fearful of trying new approaches which they perceive might have negative impact on examination results. ICT is perceived as risky by some teachers. Holmfeld (2010) attributes teachers' negative perception of ICT use in the teaching process to lack of support material, lack of computer skills and confidence in using ICT, lack of practice in computer laboratory, exam driven educational system and studying to learn only what is to be taught. The question still stands as to whether the same may be applied to the context of Chikuyu zone of Nyimba district in Eastern Zambia. In his conclusion in the study of Teachers attitudes towards ICT as a pedagogical tool, Ndibalema, (2014) states that teachers in Tanzania have low familiarity on using ICT as a pedagogical tool. The basic level ICT used by teachers does not enable teachers to use it as a pedagogical tool in teaching and learning.

A Microsoft Corporation (2007:4) in Hannessy, et.al (2010), report on its ICT initiatives in Africa acknowledged that technology alone does not drive development but enables it. In the report, while noting that 300 million Africans live on less than $1 per day, it is asserted that 'ICTs offer special opportunities to stimulate growth and increase innovation in every local

setting, thereby enabling individuals and institutions to interact more productively with the global economy and the wider world. . . But to realize their potential, technologies must be part of a mix of productive changes and supporting capabilities. Resources must be matched by resourcefulness combined with other initiatives by local leaders, educators and entrepreneurs to achieve individual and institutional objectives.'

2.3 Zambian Context

Lufungula, (2015) asserted that the world has embraced Information and Communication Technologies (ICTs) as an enabler of social and economic development. Thus, ICTs are receiving focus at various platforms as demonstrated by the UNMDGs and The World Summit on the Information Society. In Zambia, its' importance in education is demonstrated by its' inclusion in the Fifth National Development Plan, 2006 -2010, the country's participation in the E-African Commission, the enactment of the ICT policy and, more currently, by the Ministry of Education Draft ICT policy (Mwale, Chilala & Kumar, 2011). This study however, tries to ascertain if the importance that the Ministry of Education has attached to the process of learning through ICT, reflects the attitudes and perceptions that teachers have towards the same. If not, the study aims at also highlighting the possible causes towards the ascertained negativity towards classroom use of ICT among teachers of Chikuyu Zone.

In the journal of African studies by Hannessy, et.al (2011), it is indicated that primary schools in Sub-Sahara Africa typically lack whole class set of teaching materials and in particular, those supporting interactive learning. Teachers usually resort to using traditional teacher centred methodologies such as chalk and talk, involving the rote chanting or copying from the board. Such teaching methods foster superficial learning and do not encourage productive interaction between learners and materials. Majority of schools by 2011 were not ICT equipped or internet enabled. However, access was still increasing because the teacher

already used community internet cafés. The internet offers numerous educational resources that can potentially be adapted for learning in the Zambian classroom. However, teachers lack equipment and skills in searching for digital resources and for using ICT in the classroom. More generally they lack experience in creating appropriate inquiry-based learning environment (Hannessy, et.al, 2011). This question that is yet to be answered is whether the shortages in equipment and relevant skills have resulted in attitude change among teachers in relation to ICT use as a pedagogical tool.

In his study, entitled 'Integration of Information and Communication Technologies (ICTs) in the Teaching Process in selected Colleges of Education in Zambia,' Kangwa (2011) investigated the extent to which ICT are integrated in the teaching process in selected colleges of education (CEs) and the effect of integration. He concludes that there is a general lack of adequate knowledge on effective use of ICTs in the teaching process, majority of lecturers who integrate ICTs in their teaching only use it in PowerPoint presentations and that ICTs equipment is inadequate in most colleges of education while internet connectivity is unreliable and most lecturers in CEs are in the emerging stage of ICT integration in the teaching process. This study is relevant to the current study as it also seek to explore the possible state of affairs in relation to ICT use as a classroom tool among primary school teachers.

Furthermore, according to Isaacs, (2007), the Computers for Zambian Schools Trust (a partnership between the Ministry of Education, Zamnet, SchoolNet Zambia, the Beit Trust, The British High Commission, HSBC, The British Council and Computers for African Schools' project) have provided 4,500 computers to 300 schools. This project is co-ordinated from a boys' school in Lusaka where computers are received, refurbished and distributed to schools and used in support of computer studies. The AfriConnect iSchool Project is in the process of creating a National iSchool Network in Zambia by connecting schools across the

country via internet and by accessible iSchool website learning content (Bennett, 2009). The key objectives of the iSchool Project are to teach children to "learn 2 learn", to create a workforce capable of operating in a knowledge economy (driven by ICT), and to create a population of self-motivated and life-long learners. By March 2009 iSchool facilities had been trialled in 16 schools in different locations across Zambia. AfriConnect will continue to provide teacher training and support, internet connectivity, computer equipment, physical plant, 24 hour technical support, and support in developing online learning materials for school websites (Hannessy, et.al, 2010). What is still unknown is whether this initiative has contributed positively towards teacher ICT use as a classroom tool, or the state of affairs has remained the same.

According to the Zambia education curriculum framework 2013 in Ministry of Education, (2013), the focus of the Revised Zambian curriculum is the incorporation of current social, economic and technological developments among other focus points. In realising the focus points of the vision 2030, the ministry designed and developed a curriculum that is aimed at producing learners who are analytical, innovative, creative, versatile, employable, entrepreneurial, productive and constructive. In order to produce such a learner, the following key competencies for learners at primary level were formulated; Literacy skills in English and Zambian language or sign language, numeracy skills, life skills and Information and Communication Technology (ICT) skills (Curriculum Development Centre, 2013). Despite this being the focus of the Government, little is seen in the area of ICT use in primary schools. The reasons may not yet been established, however, the main focus of the study was to explore the attitudes and perceptions that Primary School Teachers have attached to the use of ICT in Primary Schools for Teaching purposes.

As concluded by Lufungulo, (2015), in her research paper, the schools on which the research was conducted were fully equipped with ICT equipment and the teachers had a positive

attitude towards the integration of ICT in their teaching. The research therefore concluded that, despite being located in rural areas, provided with right knowledge (training) and persuasion, teachers can adopt new technological innovations in education. This informs the current study as it embarks on exploring the attitudes and perceptions adopted by teachers of Chikuyu Zone in Nyimba district, towards pedagogical ICT use, and the possible factors that influence the attitudes.

2.4 Conclusion

In conclusion, chapter two has presented the relevant literature that informs the study. This was presented in three categories namely; the Global Context, the African Literature and the Zambian Literature.

CHAPTER THREE: METHODOLOGY

3.0 Overview

The previous chapter presented the relevant literature which was reviewed during the course of the study. This chapter, on the other hand, will discuss the research design to be used by the researcher; the Study Site, the Population, the Sample, the Sampling Procedure, the Methods and Instruments for Data Collection, the Data Analysis, Ethical Considerations and Validity and Reliability will be presented in this chapter.

3.1 Research Design

The design of the study is basically the overall approach used to investigate the problem of interest that is to shed light on, or answer the question of interest. Bless and Achola, (1988) say a research design is a plan of any scientific research from the first step to the last step in the study. The design of the study is basically the overall approach used to investigate the problem of interest that is to shed light on, or answer the question of interest. In its wide sense, it is a guide to data collection, analysis and interpretation. In this study, qualitative research was used. Bryman, (2001) explains that qualitative research is a strategy that usually emphasises words rather that quantification in the collection and analysis of data. However, Creswell, (2009) states that qualitative researchers endeavour to understand the context of the participants by making visits to the context and gathering information personally. This type of research involves the collaboration and interaction between researcher and subjects, and allows the collection of information in a natural environment (Ziwa, 2014).

The study adopted a descriptive research design and particularly a survey design under the qualitative approach. This approach is suitable for collecting information about attitudes, opinions, habits or any such variety of education or social issues. Descriptive survey collects information by interviewing or administering questionnaires to a sample of individuals (Orodho, 2009). The choice of this design was based on the explanation by Kothari (2006),

who considers surveys as being concerned by with describing, recording, analysing and reporting conditions that exists. Kerlinger (1973) further asserted that survey method is widely used to obtain data useful in evaluating present practices and providing basis for decision making.

To this study, the design enabled the research to explore the attitudes that teachers have towards the pedagogical use of ICT in Primary Schools of Chikuyu zone of Nyimba District. This was appropriate to the study due to the fact that research used interview guides and focus group discussion guides which are also part of the used design. Study sample and study questions were also identified through the use of the designed descriptive information.

3.2 Study Site

The site for this study was Chikuyu zone of Nyimba district. This covered government schools namely; Nyimba Primary School, Nyimba East Primary School, Kampala Primary School, Kabvuma Primary School, Ndake Primary School, Mfumbizi Primary School, Mulira Primary School and Walter Heibert Primary Schools were visited for this study. MEJOCAMA and Aunt- Olie private schools were picked for the study as they are the only privately owned schools in the zone that strictly follows the government curriculum. The choice of Chikuyu zone as a study site was because it is where the problem was observed, secondly, it is in close proximity to the researcher's residence and work area, hence a cut in cost of research and time saving. Furthermore, the researcher teaches at one of the stated school within the zone.

3.3 Target Population

Bryman, (2001), states that a population is a group of elements or individuals, objects and events that conform to specific criteria and to which the research intends to generalise the results. It is the whole set of objects and events or groups of people on whom the research is

conducted. The target population for this study comprised of ten (10) head teachers and ninety (90) teachers from ten (10) schools of Chikuyu zone in Nyimba district of eastern province of Zambia. It was believed that these would provide the relevant information that was needed for the study.

3.4 Sample

The sample of this study comprised of fifty (50) respondents, these consisted of ten (10) head teachers of the selected schools and forty (40) grade teachers from ten schools within the zone. Head teachers were key participants to this study as they are the supervisors that ensure that instructions are given to learners in effective ways. In all the schools, a total of 4 teachers were interviewed and the head of the school also underwent an interview session. Focus group discussions were conducted in groups of four (4) per school, and only one respondent per school received an observation. The teachers' role in this study was pivotal because the study intended to explore how they felt, perceived and believed was the benefit of including ICT in the teaching of learners in primary schools. This is the reason why all the respondents were interview.

3.5 Sampling Procedures and Techniques

Sampling procedure is a process or criteria that the researcher puts across to gather people, places or things to study. It is a process of selecting a number of individuals or projects from a population such that the selected group contains elements representative of the characteristics found in the entire group (Orodho and Kombo, 2002). Therefore, the study used Purposive Sampling and in specific terms, Typical Sampling procedure was used. Purposive Sampling is a sampling procedure a researcher uses to target a group of people believed to be reliable for the study. In purposive sampling, a researcher samples with a purpose in mind, usually with one or more specific predefined groups. Therefore, Purposive Sampling was used to select teachers from the selected primary schools. This sampling

procedure was adequate for this study as it targeted respondents who were expected to have adequate knowledge on ICT pedagogical use. Primary consideration in this study was given to both teachers who taught at lower primary and those at upper primary. Purposive sampling was also used to select key informants in the study. These were people who hold particular positions in relation to the subject of study and have an input that is of value to the subject. Thus, Head teachers and the teachers of Primary Schools were also the key informants who were sampled in this study.

3.6 Data Collection Methods and Instruments

3.6.1 Interview

The main aim of the interview is to have the participants reflect on their experiences and then relate these experiences to the interview in such a way that the two come to a mutual understanding about the meaning of the experiences or of the account of the experiences (Bryman, 2001). An interview is defined as a situation in which the interviewer or researcher questions respondents face-to-face and records their views or answers. Kombo and Tromp, (2006) argue that interviews are well suited for exploring and confirming ideas and provide in-depth information about particular cases of interest. The rationale behind the use of interview is that it has a high response rate and the interviewer is placed in a situation where she is able to probe the respondents for clarification. In the same vein, the respondents also get the liberty of seeking for clarity in situations where they perceive questions to be complex. The researcher also gains full understanding of what the respondent really wants to say (Creswell, 2003). Interviews focus on the world of the interviewees and seek to reveal their beliefs, values, reality, feelings and experiences of a phenomenon (Creswell, 2007). In this process, it is important to take note and record as it helps with credible analysis of data. This ensures that the interviewer takes all points. This data collection method is vital to this study as it will allow the researcher to get insights from the grade teachers concerning their

beliefs, values, reality, feelings and experiences concerning the use of ICTs inside the classroom situation.

The most useful interview format for conducting qualitative research is often "semi-structured" (sometimes called "moderately scheduled"). This means that the interview is not as highly structured as is the case of an interview that consists of all closed-ended questions, nor it is unstructured, such that the interviewee is simply given a license to talk freely about whatever comes up. Semi-structured interviews offer topics and questions to the interviewee, but are carefully designed to elicit the interviewee's ideas and opinions on the topic of interest, as opposed to leading the interviewee toward preconceived choices. They rely on the interviewer following up with probes to get in-depth information on topics of interest. Two underlying principles of the following suggestions are (1) strive to avoid leading the interview or imposing meanings, and (2) strive to create relaxed, comfortable conversation (St John's University, 2016; Zorn, 2015). In this regard, this study used the semi-structured interview in order to obtain the required data from the Teachers and the Head Teachers respectively.

3.6.2 Focus Group Discussion

According to Bryman, (2001: 503), focus group discussion is "a form of group interview in which there are several participants in addition to the moderator or facilitator, and there is an emphasis on the questioning on a particular fair tightly defined topic; and the emphasis is upon the interaction with the group and a joint construction of meaning". Kombo and Tromp, (2006), adds that a focus group discussion should be composed of 4-6 individuals who share certain characteristics which are relevant for the study and that the discussion is carefully planned and designed to obtain information on the participants belief and perception on the defined area of interest. Teachers in the study did the discussions in groups of four (4) in

order to gain insights on what their perceptions were concerning pedagogical ICT use. This was important to the study as it enabled the researcher to gain insight on teacher's different views of their understanding of ICT use in their instruction delivery and was therefore, one of the data collection tools used.

3.6.3 Observation Checklist

Sihdu, (2014) states, that observation method is a more natural ways of collecting data. He further notes that data collected through observation is more real and true than data collected by any other method. The advantages of using such a method is that data collected is not affected by the future attitudes and that the information is collected on the basis of what the researcher is seeing without asking the respondents (Upagade and Shende, 2012). Direct observation has recently come to be looked at as a scientific procedure of collecting data to meet the needs of a particular situation. However, it is important to state that direct observation of behaviour has become an important means of appraising the work of progressive schools and of teachers who are interested in certain outcomes in addition to academic ones (Ibid, 2014). This means that in the field of education, observation method is important to judge teacher's skills in teaching. Thus, this method of data collection is vital to this study as it also requires direct observation of real classroom teaching in order to assess whether the teachers teach using any ICT equipment.

3.7 Data Analysis

Qualitative data analysis according to Kasonde, (2013), is a manipulation of the collected data for the purpose of drawing conclusions that reflect on the interest, ideas and theories that initiated the study. She further holds that data analysis involves uncovering underlying structures and extracting important variables. Hammersley, et.al (1995:209), suggests that in analysing qualitative data, the initial task is to find concepts that help "make sense of what is

going on". Patton, (1990), seems to suggest that these concepts about data analysis start arising during data collection and that marks the beginning of the analysis and this continues throughout the study. This entails that unlike in quantitative research where data analysis only takes place after data collection, in qualitative research like this one, collection and analysis of data go hand-in-hand to build a coherent interpretation of the data (Sarantakos, 1995).

During data analysis in qualitative research, the researcher will have to put into consideration the following steps which can be found in interview, focus group discussions and observation transcriptions (Booth, 1997). Sjostrom's study, (2002), stated that the analysis includes seven steps. The steps he referred to, and which are to be used in this study are;

1. The first step: familiarisation, which means that the researcher will become familiar to the material by means of reading through the transcripts. This step is important as it facilitates the making corrections to the transcript.

2. The second step: compilation stage, which involves the compiling of answers from participants to a certain question. The researcher should identify the most significant elements from the answers given by the participants.

3. The third step: the consideration or reduction of individual answers to find the central part of the dialogue.

4. The fourth step: the preliminary grouping or classification of the similar answers is done in this stage.

5. The fifth step: the preliminary comparison of categories.

6. The sixth step: this stage involves the naming of the categories made.

7. The seventh step: the last step is the contrastive comparison of categories.

This study therefore, analysed data from the interview guide and focus group discussions by grouping the Emerging Themes (Thematic Analysis) with emphasis on the main variables from the research questions and the objectives of the study.

3.8 Trustworthiness

This study used a combination of methods and sources of data. The study used tree methods of data collection to enhance its trustworthiness. This examines the extent to which the results of the study could be generalised to the real world (Achola and Bless, 1988). The combination of the methods increases credibility of the findings of the study. Multiple methods of data collection make the research trustworthy. This is because the methods complement each other without overlapping weaknesses (Brewer and Patton, 2002). Combination of methods ensures the inconsistencies are removed and thus, trustworthy data emerges. This is also known as triangulation.

In order to make the findings credible during field work, the researcher listened to the recordings at the end of each day so as to check for unclear material and then cross check with the respondents (Patton, 1990). While cross checking, the researcher also made use of the responses for the verification of the findings. This process is called Member checking.

3.9 Ethical Considerations

This research conceptualised ethical considerations as moral integrity of the researcher throughout the process of data collection to the eventual completion. Considering that the research involved human subjects, the research followed the following ethical considerations among others; firstly and foremost, the research observed Anonymity and Confidentiality. In observing this, the researcher kept all information of participants relating to their identity as

anonymous and confidential so as not to jeopardise the social, professional and psychological safety of the participants.

Informed consent is another consideration that the researcher adhered to. In compliance to this, the researcher had to seek informed consent from the participants. To attain this, potential participants were informed of what the research is about so that their decision to participate is made entirely with an informed mind.

Finally, all the respondents were offered Protection by the researcher. The subjects were not subjected to any form of torture or blackmail (physical or mental), in gaining their participation to this was on voluntary basis. The researcher also ensured that no participant was coerced into participating as a respondent in the study.

In this regard, the researcher had to seek authority from the District Education Board Secretary (DEBS) office as well as the Head Teachers of the stated schools for they are responsible for the teachers on which the research was conducted.

This introductory chapter highlighted the Background to the study, the Statement of the problem, Purpose of the Study, Research Objectives, Research Questions, the significance of the Study, the Theoretical framework, Conceptual Framework, Delimitation of the Study, the Limitations, Operational Definitions and the Ethical Considerations that have been used in the course of the study.

3.10 Conclusion

In conclusion, this chapter presented the Research Design that was used in the study, the Study Site, the Population, Sample, Sampling Procedure, Data Collection Methods and Instruments, Data Analysis and the Validity and reliability.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.0 Overview

The previous chapter presented the methodology that was used in the study. This chapter will however, present the findings from the data collected through the interviews, focus group discussions and the questionnaire. The findings will be presented according to the themes guided by the research questions. These are; Computer/ICT training, Access to ICT Equipment, Frequency of ICT use in the classroom, beliefs/Values attached to ICT use in the classroom and what the teachers would wish their Administrators would do to enhance their use of ICT use in the classroom.

4.1 ICT Training

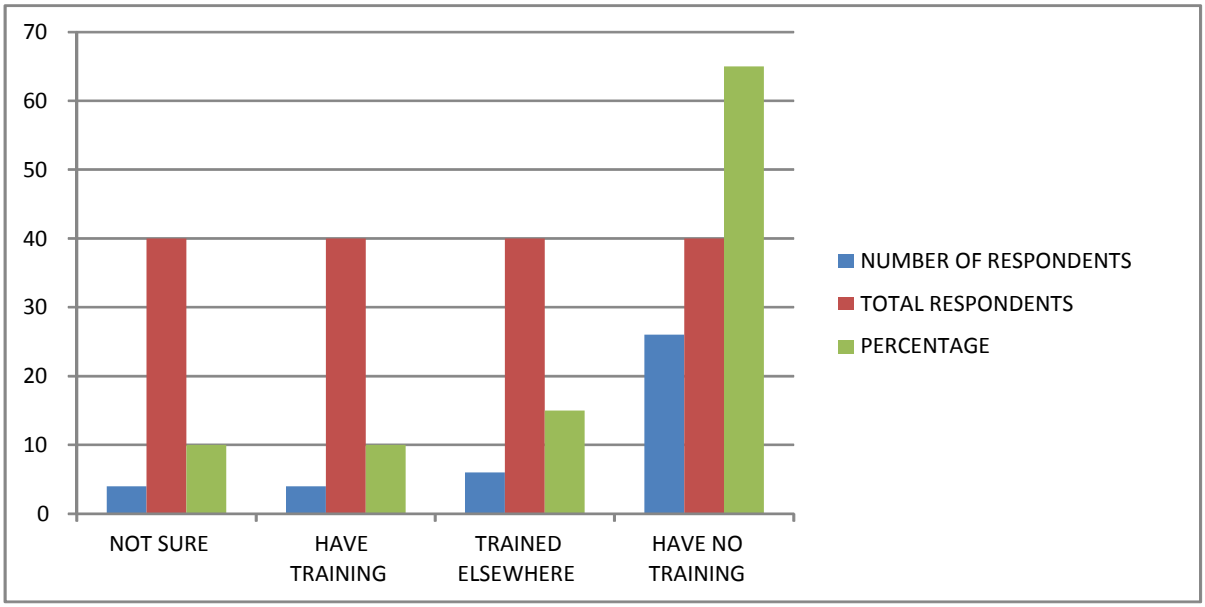
Interviews conducted from the sampled 40 respondents, findings show that 4 respondents had received some ICT training, but not from their schools or Ministry of education. The training was done from other sources organised at personal level. 6 respondents have had the training done through some mini-workshops prepared by the ministry of education at district level to try and promote awareness of ICT use among teachers. Out of the 40 respondents, 24 of them stated that they have never received any ICT training of any kind. It is not clear on the other 4 who did not prove to be sure of where they stand in terms of ever having had received ICT training.

> I did receive ICT training from my previous employment before I became a teacher…. I trained in ICT when I was doing my bachelor's degree….I trained in ICT from True Vine computer short courses on personal arrangements, (interview with teachers from school number 1, on 05/07/2017)

The ICT equipments that the respondents were familiar with were computers, phones and Televisions which were used by 3 respondents whose schools were under the world vision v-learning programme. The computers were learnt on personal arrangement from various

institutions that vary from learning institutions to previous Job experiences that were undertaken by respondents before they joined the ministry of education.

4.1.1 Figure : ICT TRAINING



Out of a total of ten (10) Head Teachers that were interviewed, it was indicated from two (2) of the Head Teachers were not sure whether their Teachers were trained in ICT or not. One respondent indicated that the Teachers in his school were trained in ICT, while three (3) of the respondents indicated that the teachers were fairly trained. The largest portion of five (5) out of ten (10) Head Teachers indicated that their Teachers were not trained in ICT use for pedagogical purposes.

4.2 Access to ICT Equipment

The findings on the access to ICT use indicated that four (4) respondents had computer laboratories in their schools. On the other hand, thirty-six (36) respondents indicated that their schools had no computers Laboratories and no computers/ IT equipment. The findings also revealed that the respondents that indicated that their schools had computer laboratories

came from the same school. This further implied that out of ten (10) schools that were sampled, only one school was equipped with ICT equipment through the presence of a computer laboratory.

On the question of how often the respondents access the computer laboratories and its' equipment, the response from those whose schools have no computer laboratories was they never do so. The question proved to be non-applicable to those from the non-equipped schools. Out of the four respondent s that indicated that their school had a computer laboratory, their responses were that they rarely visited the premise. One respondent indicated that the computer laboratory is never visited. The fourth respondent indicated that the only time that she visits the premise is when she is doing data entry in relation to examination registrations. Entry into the computer laboratory in line with teaching and learning is never done. The respondents who indicated that they had computer laboratories in the school further indicated that despite having the equipment in the school, IT equipment are rarely or never assigned to them. This was a common response from all the four respondents whose school had ICT laboratory.

> So far we have not used the computer lab because the school is big, it runs from Pre-school to grade twelve and mostly the senior ones are the ones usually given the opportunity to use the computer laboratory. As for me I do not go there with my class, (interview with teacher from school number 1, on 05/07/2017).

On assigning of ICT equipment for classroom use, the common response from the teachers was that, the equipment was never assigned to teachers for classroom use. However, three (3) of the respondents indicated that computers were assigned once a term, through borrowed means. The other respondent indicated that a television set was assigned to her class but the school is not electrified, hence, failure to put it to use.

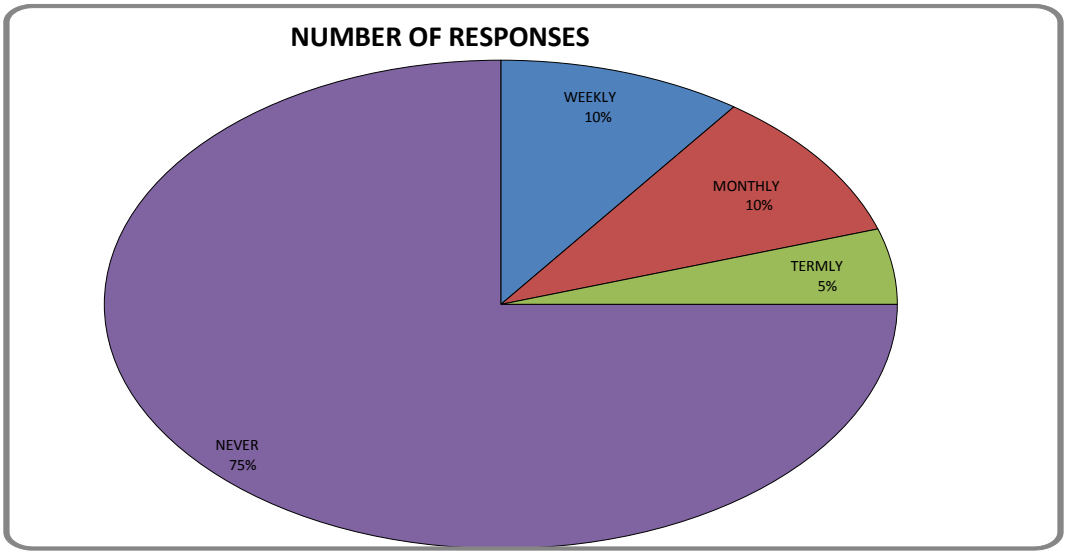
> I only use my personal computer when I have a lesson that requires the use of a computer. I am never assigned with any. A television set was assigned to my grade one class but the school has no electricity, hence I don't use it (teachers from school number 6, on 06/07/2017).

From the Head Teachers interviewed, it was indicated that only one school had a Computer Laboratory out of the ten sampled schools. The rest of the schools had no even a single Computer belonging to the school. The school that had a computer laboratory had about sixteen (16) computers in it against a total population of 1489 pupils. Apart from Computers, the school (school number 1) that has got a laboratory, the school also has a Television set and Radio. School number 2, 3 and 4 also have a plasma Television set that is used during V. learning. School number 3 and 5 are equipped with radios that they use when teaching lessons that are related to phonics in literacy. School number 6 has got a printer, power generator, Television, DVD player and 7 computer laptops. These equipment are however, rarely accessed by the teachers for unknown reasons.

4.3 Frequency of ICT Use

Findings on Frequency of ICT Use

Figure 4.3.1



In explaining the findings on frequency of ICT use, four (4) respondents indicated that they use ICT equipment in their classrooms once per week. The other four (4) respondents indicated that they use it on monthly basis. Two (2) of the respondents stated that they use ICT on term basis. On the other hand, the bigger group consisting of 30 respondents indicated that they never use any ICT equipment for their classroom instruction.

The interviews conducted on the Head Teachers on ICT use gave an indication that only two (2) Head Teachers were "somehow" satisfied by their Teacher' use and expertise of ICT use for classroom teaching. The remaining eight (8) respondents indicated that they were not satisfied by the level of their teachers' ICT use, let alone their expertise in the in ICT use. The reasons behind this assertion were that the most schools have no Computers and the teachers lacked training (computer illiterate) in the same.

> The school has got no computers and the teachers have got scanty knowledge about computers. We do not use ICT because only a few are able to practice and use the computers available. We need a lot of time and training in computer use, (interviews conducted on Head Teachers from 05-08/07/2017).

A respondent further stated that even ICT lessons (CTS/Technology) is taught orally because the schools lack computers and the teachers lack they skill. Teachers are supposed to teach using ICT but the school has got no single computer.

4.4 Proposed Initiatives to Enhance ICT Use

The finding on what could be done in order to enhance ICT classroom use; three (3) respondents out of the forty (40) respondents that were interviewed indicated that teachers must be taken for ICT training in order to equip them with the needed skill in use of the ICT equipment. A respondent from one school, head teachers must introduce ICT lessons to teachers to help those who are unable to use them.

Thirty-five (35) out of the forty (40) respondents indicated that the administration must work extra hard in the area of purchasing the needed ICT equipment. This covered resources such as infrastructure as well as the equipment which included computers, power-point projectors, television sets and radios for schools. The respondents further showed concern with the size of the existing laboratory, of which they suggested that an expansion of the same is needed.

> All the teachers and their classes must be given an opportunity to use the computer lab. Computers must be purchased to meet the increased numbers of the learners that we have in schools, (teachers from school number 9, on 08/07/2017).

In more precise terms, the respondents advocated for increased access of ICT equipment to all the teachers and their classes. This was seen as the only way to enhance the use of ICT. However, two of the respondents remained mute on the issue of initiatives they would wish to be put in place in order to enhance the use of ICT among Primary School Teachers.

The Head Teacher's interviews indicated that they unanimously advocate for the idea of the government purchasing ICT equipment, training of all teachers on how to use the equipment for classroom use and for the construction of computer laboratories in all Primary Schools in order to enhance ICT use.

They further, advocated that ICT equipment must be procured by the Ministry of General Education and given to schools for use as the world is changing due to new technology. I feel that the government should provide computers to all schools not only to selected schools as the case is.

From further discussions conducted with the respondents, it was found that out of the total number of respondents (40), all except six (6) wished to use ICT for their classroom teaching. In justifying their choice of computer over the use of chalk and black board, it was indicated that computers could make their work; accurate, enhance research, promote learner participation, easy delivery of lessons, they help keep pace with current trends, effective, interesting, up-to-date, keep learners exposed, less time consuming, efficient and promote discovery by learners. Some respondents further said they could prefer ICT because chalk has an effect on teachers' health.

> Given the choice, I would prefer to use ICT because it gives learners a chance to participate and that computers would make my work easy. Computers are accurate, and promote efficiency. Promote research and would arouse learner interests. I will choose to use computers because we live in a dynamic world, computers help in accessing information, they act as teaching aids and they are less time consuming, (common responses from 39 respondents in interviews conducted between 05-08/07/2017).

Those who chose the natural old way of using chalk and black board gave reasons behind their choice. These were because; chalk is easily accessible, cheap, it does not promote laziness and that learners who are not gifted also would find it easy to learn.

Responses from Head Teachers indicate that they all would prefer their teachers use ICT for their classroom instruction. Only one Head Teacher out of the ten opted to use the natural old way of using chalk and blackboard and her reason was because computers were still scarce. The rest opted for ICT citing reasons such as; ICT is now compulsory, it is a national policy to incorporate it in teaching, the world has changed and ICT is inevitable, we are living in the information age, it makes work easy, arouses learner interest and helps save time for both the teacher and learner.

> We are living in the modern world where technology has taken the centre stage. Teachers and learners should switch to the new development, (interview with head teacher from school number 9 on 08/07/2017).

This implied that they see the need to adopt the shift from the old traditional way of teaching to the new way of using ICT. Despite this realisation, no/ very little effort has been put in place to enhance the use of ICT by the management and the teachers.

4.5 Conclusion

In conclusion, this chapter presented the findings from the themes that were obtained from the Research Questions. The Research Questions which the findings attempt to answer were; Computer/ICT training, Access to ICT Equipment, Frequency of ICT use in the classroom, beliefs/Values attached to ICT use in the classroom and what the teachers would wish their Administrators would do to enhance their use of ICT use in the classroom.

CHAPTER FIVE: DISCUSSION OF THE RESEARCH FINDINGS

5.0 Overview

The previous chapter outlined the findings that were presented by the respondents based on the various themes that emerged from the research questions. This chapter will however, present the discussion of the findings that emerged from the emergent themes. These were based on the research objectives that guided the study which include;

1. To ascertain how adequately trained the teachers in Chikuyu zone are in ICT pedagogical use.
2. To investigate the extent to which teachers in Chikuyu zone access ICT facilities in their schools.
3. To ascertain how often ICT equipment are used in classroom teaching.
4. To propose initiatives that can be put in place to enhance pedagogical ICT use.

5.1 Inadequate ICT/Computer Training

In discussion of the first question that tries to enquire whether Primary School Teachers are adequately trained in ICT use, it can be stated that the introduction of the Zambian Revised Curriculum to the educational sector tries to equip the learners with the relevant knowledge and skill that will enable them to fit in the labour market. It is to this effect that the emphasis went to technological skills among other practical skill. It however established from the findings on teacher ICT training in this study that 65% of the teachers in the sample are not trained in ICT or any Computer skill, 10% of the sample had respondents who are not sure as to whether they could claim to be trained in the same. 10% had respondents trained using other personal initiatives and only 15% had some in-service training from the Ministry arranged workshop. This can be discussed in the light of the study by Mahati, et.al, (2012), who conducted a study on teacher attitudes towards the ICT teaching process. His conclusion was that negative attitudes of teachers and the limited knowledge of teachers about

technology integration are found to be the main barriers for the technology integration in education. On the other hand, Prestige, (2012), on the study of the beliefs behind the teacher that influences their ICT practices, observed that what was emerging from the data was the relationship between ICT competence, confidence and practice.

Chigona and Chigona, (2010) conducted a research on Capability approach to ICT use. This study concluded that capability deprivation among educators is as a result of insufficient technological skills and lack of content. This point is in agreement with Klieger et.al in Mahati, (2012), which also attributed the teacher's limited knowledge of ICT to being a barrier for technology integration. This further goes in line with the findings of this study which show that teachers suffer capability deprivation as a result of insufficient skill and lack of content.

The 10% of respondents that that indicated that they trained in ICT use through their private means can symbolize what Rodgers (2003) in the diffusion of Innovation theory explained that each category on the list has its own characteristics. The category of the Innovators, whom he also called the Technology enthusiasts only required short adoption period and for that they are considered to be risk takers. These also applied technical knowledge to cope with the high degree of uncertainty; they appreciate technology, are motivated and are peer educators in nature. He called the second category as the Early Adopters/ visionaries. These were considered to be opinion leader, trend setters and role models, competitive, attracted by high risk and high reward. These are the teachers that do not just admire an innovation from a distance but takes up the challenge to learn it and also utilise it.

According to Rogers (2003) the final group on the list are the Laggards or the sceptics, who stay isolated from the opinion leaders, whose point of reference is in the old way of doing things, suspicious of innovation, always wanting to maintain the status quo, they think

technology is a hindrance to operations and these can only invest in technology when other alternatives are worse (Kaminski, 2011). In this study, a small representation of respondents indicated that they would prefer to continue using chalk and black board despite the labour demands on the labour market. This could be the reflection/confirmation of the Laggards described by the Diffusion of Innovation theory.

In view of the second theory to this study, the Technology Acceptance Model by Davis, Bagozzi and Warshaw, (1989). The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness (PU) which was defined by Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance", and Perceived ease-of-use (PEOU) which Davis further defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989). Lack of personal effort by the 65% respondents may apply to this research and be interpreted that these perceive the innovation as difficult hence, the reluctance in learning it in the name of waiting for the government to train them.

The theory further explains that due to the fact that new technologies such as personal computers are complex and considered to be an element of uncertainty in the minds of decision makers with respect to the successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using. Attitudes towards usage and intentions to use may be ill-formed or lacking in conviction or else may occur only after preliminary strivings to learn to use the technology evolve (Bagozzi, Davis &Warshaw, 1992). In the same regard, the lack of training by the teachers forms an attitude in the teachers which in return may impact on the intentions to even learn the new technology.

5.2 Limited Access to ICT Equipment

The findings on the access to ICT use established that four (4) respondents have computer laboratories in their schools. On the other hand, thirty-six (36) respondents indicated that their schools have no computers Laboratories and no computers/ IT equipment. The findings also revealed that the respondents that indicated that their schools have computer laboratories came from the same school. This further implied that out of ten (10) schools that were sampled, only one school was equipped with ICT equipment through the presence of a computer laboratory. Relevant training, impartation of skills, access to ICT resources and positivity towards the benefit of ICT will make teachers to be able to effectively use it. However, where the necessities are present and the teachers are still unable to use ICT in their teaching, the implication is that they possess a negative attitude towards it. There are other factors that can determine positivity and negativity in ICT use. These factors include individual capabilities to use ICTs, access to resources, ease of use, incentives to change, support and collegiality in their school, school policies, attitudes, commitment to professional learning and background in formal ICT training (Mumtaz, 2000; Becta, 2003).

On the question of how often the respondents access the computer laboratories and its' equipment, it was established from those whose schools have no computer laboratories that they never do so. One respondent indicated that the computer laboratory is never visited for the purpose of teaching/ learning. The only time that the premise is visited is when the school is doing data entry in relation to examination registrations. Entry into the computer laboratory in line with teaching and learning is never done. The respondents who indicated that they had computer laboratories in the school further indicated that despite having the equipment in the school, ICT equipment are rarely or never assigned to them. This agrees with the views of Rogers (2003) in his diffusion of innovation theory; since diffusion of innovations takes place in the social system, it is influenced by the social structure of the social system. For Rogers

(2003: 24), structure is "the patterned arrangements of the units in a system". He further claimed that the nature of the social system affects individuals' innovativeness, which is the main criterion for categorizing adopters. Non-access of ICT equipment was a common response from all the four respondents whose school had ICT laboratory. This establishes that they teachers do not access ICT equipment, and never make any effort to do so because of the trend.

Holmfeld (2010) attributes teachers' negative perception of ICT use in the teaching process to lack of support material, lack of computer skills and confidence in using ICT and lack of practice in computer laboratory. This is answering the findings from the Head Teachers' interviews, which indicated that only one school had a Computer Laboratory out of the ten sampled schools. The rest of the schools had no even a single Computer belonging to the school except for one more school. The school that had a computer laboratory had about sixteen (16) computers in it against a total population of 1489 pupils. Apart from Computers, the school has got a laboratory; the school also has a Television set and Radio. However, only the television was reported as being accesses in the school for classroom teaching. School number 2, 3 and 4 also have a plasma Television set that is used during V. learning. School number 3 and 5 are equipped with radios that they use when teaching lessons that are related to phonics in literacy. The findings from school number 6 show that have got a printer, power generator, Television, DVD player and 7 computer laptops which teachers do not access.

The above assertion is further supported by the journal of African studies authored by Hannessy, et.al (2011), where it is indicated that primary schools in Sub-Sahara Africa typically lack whole class set of teaching materials and in particular, those supporting interactive learning. Teachers usually resort to using traditional teacher centred methodologies such as chalk and talk, involving the rote chanting or copying from the board.

Such teaching methods foster superficial learning and do not encourage productive interaction between learners and materials.

These findings on the other hand, question the view by Isaacs (2007), who stated that the "Computers for Zambian Schools Trust (a partnership between the Ministry of Education, Zamnet, SchoolNet Zambia, the Beit Trust, The British High Commission, HSBC, The British Council and Computers for African Schools' project) have provided 4,500 computers to 300 schools. By March 2009 iSchool facilities had been trialled in 16 schools in different locations across Zambia… AfriConnect will continue to provide teacher training and support, internet connectivity, computer equipment, physical plant, 24 hour technical support, and support in developing online learning materials for school website." This is because years have passed and still more, very little can be seen in terms of Computer supplies to schools in Zambia.

5.3 Limited Computer use

Avis, et.al (2014), authored a text book for grade five Technology Studies which had topic such as; windows manipulation, Microsoft word, Microsoft paint, Microsoft notepad, windows navigation, cursors and program running, and computer graphics, packages, images, pattern creation, designing, saving files and file locations among others (Avis, et.al, 2014: 31-43). The revising of the curriculum coupled with the publication of these instructional materials marked the beginning of ICT use in Primary Schools of Zambia. On the other hand, the findings on frequency of ICT use have shown that, four (4) respondents use ICT equipment in their classrooms once per week, the other four (4) respondents use it on monthly basis, two (2) of the respondents use ICT on term basis and the bigger group consisting of 30 respondents never use any ICT equipment for their classroom instruction. This establishes that the Ministry of general education is still far from achieving the goals of

the revised curriculum, while is to equip all learners with technological skills. This is because much leaves to be desired in terms the attitudes portrayed towards the classroom use.

The interviews conducted on the Head Teachers on ICT use gave an indication that only two (2) Head Teachers were "somehow" satisfied by their Teacher' use and expertise of ICT for classroom teaching. The remaining eight (8) respondents indicated that they were not satisfied by the level of their teachers' ICT use, let alone their expertise in the in ICT use. The reasons behind this assertion were that the most schools have no Computers and the teachers lacked training (computer illiterate) in the same. Five distinct innovation characteristics have been identified by Rogers to explain this mystery (Diffusion of innovation). These characteristics include how observable it is, relative advantage, compatibility, trial ability, and complexity (Rogers, 2003). These innovation characteristics inform this study in the sense that, the non-satisfactory expertise and use of ICT by the teacher are because of the compatibility issues that have not materialised since the inception of the ICT use as a classroom tool. Teachers have not yet found themselves compatible with this new requirement, hence, failure to use it. This may further take us to the Technology Acceptance theory by Davis, warshaw and Bagozzi, (1989), who attributed the teachers' failure to use ICT to, its' perceived-ease-of-use and perceived-usefulness. The teachers still find the innovation as a complex matter simply because it has not yet been tried and its' relative advantage is still unknown.

A respondent further stated that even ICT lessons (CTS/Technology) is taught orally because the schools lack computers and the teachers lack the skill. Teachers are supposed to teach using ICT but the school has got no single computer. Moseley (1999) argued that when educators use their knowledge of the subject and along with their knowledge of how learners understand the subject, as well as their pedagogical knowledge on integrating the technology

into the curriculum delivery, their use of ICT has the benefit of enhancing teaching and learning. This study however, established that not only do teachers lack knowledge on the integration of ICT into classroom instruction, but also the use of the equipment itself. It was found that teachers use the natural way of teaching where chalk and board are used despite knowing what benefits lay in the use of ICT.

From further discussions conducted with the respondents, it was found that 85% of the respondents wished of using ICT for their classroom teaching. In justifying their choice of computer over the use of chalk and black board, it was indicated that computers could make their work; accurate, enhance research, promote learner participation, easy delivery of lessons, they help keep pace with current trends, effective, interesting, up-to-date, keep learners exposed, less time consuming, efficient and promote discovery by learners. Never-the-less, Prestige, (2012) in his study argued that beliefs can be idealistic and desirable, but when the reality of the classroom is encountered, beliefs may not inform practice. It all depends on the inner attitude that entails what can be fulfilled having been given all the necessities.

5.4 Proposed Initiatives to Enhance ICT Use

The study established that teachers must be taken for ICT training in order to equip them with the needed skill in use of the ICT equipment. This is as a consequence of the responses which came from the respondents. A respondent from one school implied that head teachers must introduce ICT lessons to teachers in order to help those who are unable to use the facilities. This was seen as key to enhancing the use of ICT for pedagogical use. The Inspectorate Evaluation Study, (2008), came up with recommendations that were thought as valuable in the process of improving ICT pedagogical use. Some of which were; infrastructure improvement, technical support, CPDs and guidance. The part of CPDs agrees with the

proposition from respondents which entails that training must be given to teacher for enhancement of ICT use. On the contrary, Klieger, Ben-Hur and Bar Yossef, (2010) asserts that negative attitudes of teachers and the limited knowledge of teachers about technology integration are found to be the main barriers for the technology integration in education. This implies that no matter how much training can be offered, those who do not want ICT (negative attitudes) will still not use it. On the other hand, Prestige, (2012), on the study of the beliefs behind the teacher that influences their ICT practices, explains this phenomenon by adding that there is a relationship between ICT competence, confidence and practice.

Chigona and Chigona, (2010), further stated that the policies were also limiting some groups while supporting others, lack of technical support and high learner-to-computer ratios which result in less-conducive learning environments. This informs the study where respondents concretely proposed that the administration must work extra hard in the area of purchasing the needed ICT equipment. The list covered resources such as infrastructure as well as the equipment which included computers, power-point projectors, television sets and radios for schools. The respondents further showed concern with the size of the existing laboratory, of which they suggested that an expansion of the same was needed. In more precise terms, the study advocated for increased access of ICT equipment to all the teachers and their classes. This was seen as the only way to enhance the use of ICT.

5.5 Conclusion

In summary, this chapter discussed the findings from the four emerging themes of the study. These were; (a) ICT training (b) access to ICT equipment (c) Computer use (d) proposed initiatives to enhance ICT use. The discussions under these themes established what the findings of the study indicated and these were; (a) teachers are not adequately trained in pedagogical ICT use (b) Teachers have less access to ICT equipment (c) 75% of teachers have never used ICT for teaching before (d) ICT training and equipment to be organised. The next chapter gives conclusions of the study and some recommendations based on the research findings.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.0 Overview

The previous chapter discussed the findings of this research which indicated that teachers have inadequate computer training, limited access to ICT equipment and limited use of ICT equipment. Initiatives needed for enhancement of ICT were as well highlighted. This chapter will, on the other hand, outline the conclusions that were drawn from this study based on the findings of the study, as well as the necessary recommendations.

6.1 Conclusion

In line with the objectives of the study, the following conclusions were made;

On the ascertaining how adequately trained the teachers in Chikuyu Zone of Nyimba District are, it was can be concluded that teachers in Chikuyu Zone are not adequately trained in ICT pedagogical use despite this being the new requirement of the Ministry of General Education through the introduction of the revised curriculum. According to the DOI theory, the teachers can be categorised among the Laggards, who in this theory represents the least adopters (sceptics), of an innovation, which in this case is the ICT pedagogical use. These according to Rogers are suspicious of innovation, always wanting to maintain the status quo, they think technology is a hindrance to operations and these can only invest in technology when other alternatives are worse. The fact that teachers were still not ready to invest in their own ICT training implied that the attitude towards the innovation is still bad and their perception is in accordance with the TAM theory which considers the Perceived Usefulness of the technology. This considers new technologies such as personal computers as complex and an element of uncertainty exists in the minds of decision makers with respect to the successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using. According to the findings, it is clear

that teachers had formed an attitude towards learning this new technology and that attitude was a negative one.

Because of the fact that training was still lacking, it also came to light that ICT equipment were never used in classroom teaching, and not even when teaching Computer related lessons. The manual old way was still in existence and the learners had no experience with hands-on training in ICT. This was the case because, the fact that teachers had not trained made it difficult for Head Teachers to entrust them with the existing computer/ ICT equipment for the few schools that had the equipment.

Lack of equipment had worsened the case in some areas and was used as an excuse for non-use. Those with no equipment had attributed it to the lack in electricity, of which some Head teachers had indicated that power generators were purchased to enhance the use of ICT equipment. This takes us to the Perceived-ease-of-use which was brought forward by Baggozi and Warshaw in the TAM, and this was said to be a cause for building up of negative attitude towards the technology. A few teachers have used Computers and television sets but the percentage is too little for a claim to be made that the attitudes and perceptions were okay.

In view of the frequency of use, it can also be concluded that it portrayed negativity in the sense that 75% of the teachers in the study have never used any ICT before, especially for classroom use. This entailed that the manual way of teaching was perceived as a comfort zone by most teachers which further implied that efforts of learning and using the new ways were not there. This was a clear indication of a negative attitude towards the technology, which however, had however, accumulated excuses as contributing factors. The blame went to lack of training and shortage of resources.

6.2 Recommendations

In view of the results of the study and the conclusions drawn from the study, the following recommendations were made;

1. Following the outcry from most of the teachers concerning their lack of training, a recommendation is made that the government in collaboration with local level administration must train teachers through workshops and in-service training programmes such as teacher group meetings (TGM).
2. There should be on-going technical support given to teachers during their use of ICT as a classroom tool. This is because the technology can be said to still be new for them.
3. The Ministry of General Education should also make efforts to engage stake holder in order to supply more computers to school so that the pupil-computer ratios must be balanced.
4. The government must also construct computer laboratories that have increased sitting capacities in order to meet the growing numbers of pupils following the pronouncement of free primary education.
5. In order to enhance ICT pedagogical use and foster positive attitudes in teachers towards the same, there should be an effort towards providing sources of power to all schools in rural areas because almost all ICT equipment requires power sources in order to work.

6.3 Recommendation for Further Research

Having explored the Primary School Teachers' attitudes and perceptions towards the pedagogical ICT use, it is necessary that future research on the subject at this level focuses on assessing the effectiveness of government efforts towards the supply of equipment to schools following ICTs' inclusion in the revised curriculum.

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Appendix

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ZIMBABWE OPEN UNIVERSITY

A. Interview Schedule for Class teachers

1. **Opening**

Dear Respondent,

The purpose of this interview is to conduct a research on the perceptions and attitudes that primary school teachers have toward the use of ICT as a pedagogical tool. This research is a requirement needed for the completion of my study programme as a Masters' degree student. Your identity shall remain anonymous. The interview shall take about 10 minutes. Are you available to respond to some questions at this time?

2. Demographic data: Let me start by asking you about yourself; (tick appropriate answer)

A. What is your age?

B. What is your highest qualification?

C. What are your years in service?

3. COMPUTER TRAINING

1 What does the acronym ICT stand for?

_____

3 What ICT gadgets are you most familiar with?

_____

4 Have you ever received any training in ICT use?

_____

5 State any ICT equipment you have ever used in classroom teaching if any.

_____

4. ACCESS TO ICT EQUIPMENT

1. Do you have a computer lab in your school?

   _____

2. If yes to question above, how often do you access the computer lab equipment?

   _____

3. How often do you have any ICT equipment or computers assigned to your class for use during lessons? Name the equipment.

   _____

4. FREQUENCY OF ICT USE IN THE CLASSROOM

1. How often do you use ICT gadgets during classroom instruction?

   _____

2. What factors have led to your answer in the question?

   _____

3. If left with a choice, would you prefer to use computers/ any ICT gadgets in your lessons or the natural old way of chalk and black board? Give reasons.

   _____

   _____

5. INITIATIVES TO ENHANCE ICT USE

1. What would you wish your administrators could do in order to enhance your use of ICT in classroom teaching?

_____

2. Do you have anything you would love to tell me in relation to our discussion?

_____

_____

THANK YOU VERY MUCH FOR PARTICIPATION IN THIS STUDY AND FOR YOUR TIME.

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B. INTERVIEW SCHEDULE FOR HEAD TEACHERS

TEACHER'S ATTITUDES/ PERCEPTIONS TOWARDS PEDAGOGICAL ICT USE

Dear Respondent,

This study aims at exploring the attitudes/perceptions that primary school teachers have towards the use of ICT as a teaching and learning strategy. Your participation will be highly appreciated.

1. **QUESTION RELATED TO ACCESS OF ICT EQUIPMENT IN THE SCHOOL.**
2. How many computers do you have as a school?
3. Do you have a computer lab in your school?
4. If yes, how often do your teachers access the computer lab equipment?

2. **QUESTIONS RELATED TO ICT TRAINING**

1. How trained are your teachers in computer use for classroom teaching?
2. Do you feel satisfied with the level of teacher use/expertise of ICT?

3. **QUESTIONS RELATED TO FREQUENCY OF ICT USE BY TEACHERS**

1. Have you ever observed the teachers in your school using ICT equipment in classroom instruction?
2. How often do the teachers use ICT in their classroom teaching?

4. QUESTIONS RELATED TO ENHANCEMENT OF ICT USE

1. Have you done anything in order to enhance ICT use in your school?

2. If given a choice to make, would you prefer that your teachers use ICT to facilitate their classroom instruction?

END OF INTERVIEW

THANK YOU

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C. FOCUS GROUP DISCUSSION

DATE: TIME: PLACE**:**

DATA COLLECTION EVENT:

QUESTIONS FOR INTERACTION PURPOSES

1. What do you think is the role of ICT in teaching?
2. Do you think teachers in your school are well equipped with skill for ICT use in their teaching?
3. Do you think teaching using computers as a tool would be easy?
4. Are there enough computers in your school?
5. Would you ever wish to teach a class using computers as instructional strategies?
6. What do you think should be done in order to allow everyone to be able to use ICT in teaching?

D. OBSERVATION CHECKLIST

Date:_____Duration_____Class:_____

S/N	INDICATOR	YES	NO	COMMENT
1	Introduction of the lesson as learner centred			
2	Methods of teaching in the development involved ICT games, songs, dialogues			
3	Methods of teaching in the development of the lesson as learner-centred			
4	The teaching/learning aids ICT related			
5	The Content taught is appropriate for the level of pupils			
6	Pupils' activities applicable to the lesson and the level of learners.			
7	The conclusion of the lesson was learner-centred.			
8	There evidence of teaching and learning with appropriate ICT equipment			
9	Did the lesson portray any ICT pedagogy?			