

**ENHANCEMENT OF ONLINE LEARNING STRATEGIES IN PUBLIC AND
PRIVATE HIGHER EDUCATION INSTITUTIONS IN ZAMBIA**

BY

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the requirement for the degree of Doctor of Philosophy in Education**

Administration and Management

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DECLARATION

I, Alvin Chiwoya, do hereby declare that this thesis represents my own work and that it has not been previously submitted for a degree at the University of Zambia or at another university except in the case where acknowledgement has been made in the text.

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CERTIFICATE OF APPROVAL

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ABSTRACT

The study investigated the innovative strategies for enhancing online learning in higher education institutions in Zambia. The research was guided by the Constructivist Learning Theory and Social Cognitive Theory. The researcher employed a pragmatist paradigm and a descriptive survey research design. Maximum variation purposive sampling technique was used to come up with the study sample. The sample was made up of 180 educators who were purposely selected from four universities. Additionally, 4 Directors of Distance Education in charge of Online Learning in the four universities, 1 ICT Expert from the Ministry of Technology and Science and 1 ICT engineer from the Internet Service Provider in the selected universities were also purposely selected. Four research instruments were used to collect data; a questionnaire which was used to collect quantitative data from educators and three interview guides which were used to collect qualitative data. Data was analyzed thematically. The findings of the study showed significant steps taken by the Government of Zambia to enhance online learning such as introduction of 5G technology, connection of Zambia to satellite internet via Star Link, and mandating and funding of ZAMREN to provide cheaper and quality internet connectivity. Additionally, the study showed that some higher learning institutions conducted online learning without a clear policy guideline. Three out of the four sampled learning institutions relied on distance learning policy developed many years ago for guidance. The study revealed that educators were generally satisfied with the computer expertise they acquired, but were not satisfied with the resources that were provided by the respective universities, the ICT support provided and generally had a negative perception of the online learning pedagogy. Furthermore, the study showed efforts made by Internet Service providers to enhance online learning in higher education institutions in Zambia through provision of learning management systems for free. On the other hand, the study brought to the fore some of the strategies that could be used to enhance online learning in Zambia such as facilitation of learners' acquisition of ICT gadgets at an affordable price, pushing more investment in online learning software such as zoom, introduction of mandatory ICT courses in colleges and universities, and introduction of tax incentives on all ICT equipment bought by higher learning institutions. The study also highlighted innovative strategies for funding the purchase of ICT gadgets for disadvantaged learners in remote areas such as the use of Constituency Development Fund under the Ministry of Local Government and Rural Development. The major contribution of this study to the body of knowledge is the development of a contextualised regulatory policy framework on online learning in institutions of higher learning in Zambia, which, if adopted, will help to enhance effective instructional delivery in colleges and universities. In view of the findings, the study recommends the adoption of the proposed online learning regulation policy framework by the Government of Zambia through Ministry of Education and introduction of mandatory ICT training courses for both learners and educators in the training curriculum by Higher Learning Institutions.

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DEDICATION

To my beloved wife, Dr. Mirriam Phiri Chiwoya and my beloved children; Chipu Hildah Chiwoya, Alvin Junior Chiwoya and Lushomo Rhoda Chiwoya.

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ACRONYMS AND ABBREVIATIONS

DDE: Directors of Distance Education

HHSREC: The University of Zambia Humanities and Social Sciences Research Ethics Committee (HHSREC)

ICT: Information Communication Technology

IDE: Institute of Distance Education

ISP: Internet Service Provider

IT: Information Technology

MNO: Mobile Network Operators

SPSS: Statistical Package for Social Sciences

STEM: Science Technology Engineering Mathematics

ZAMREN: Zambia Research Education Network

ZESCO: Zambia Electricity Supply Cooperation

ZICTA: Zambia Information Communication Technology Authority

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter introduces the study and provides a comprehensive context of the investigation which explored the strategies that could help to enhance online learning in Zambia. In this report, the researcher first discussed the background of the study. He then highlighted the statement of the problem and the purpose of the study. Additionally, the researcher outlined the objectives of the study and research questions that guided the study. Further, the significance of the study was discussed, followed by the scope and delimitation of the study. In addition, the theoretical and conceptual framework that guided the study were discussed. The chapter was concluded by highlighting operational definitions of terms that were used frequently in the rest of the report.

1.1 Background of the Study

Online learning is a wide range of curricula that is taught through the internet which includes Zoom, Google meet, MOODLE, and many others to facilitate teaching and learning and provide materials, as well as an interface between educators and learners or among the group of learners (Nguyen, 2015). It is also said to be a virtual classroom on the internet that provides a platform for educators to interact with the learners and assist learners to study in their own spare time (Kotoua et al., 2015). Further, online learning is defined as the use of online technology tools to deliver at least 80% of the course content (Persada et al., 2020). Thus, online learning can be said to be a way of teaching and learning through the internet.

The problem of ineffective online learning in Zambia has been studied by many researchers especially on the opportunities and challenges of online learning. However, challenges such as poor network connectivity (Hapompwe et al., 2021), high cost of internet bundle (Mwila et al.,

2021), inadequate infrastructure and inadequate orientation (Magasu et al., 2022) and lack of basic Information Communication Technology (ICT) skills (Kaumba et al., 2021) among others in the implementation process have not been addressed. Further, Mikre (2011) and Kisanga & Ireson (2015) argue that lack of Information and Communication Technology (ICT) policy on education that set milestones in place is one of the biggest challenges that face online learning in developing countries. The challenges highlighted have hindered students' and educators' satisfaction with the online learning environment since its advent in March 2020 (Mwansa et al., 2021; Magasu et al., 2022).

Furthermore, findings of the studies conducted on the implementation of online learning in some higher education institutions in Zambia revealed a number of challenges which the institutions encountered. For example, a study conducted by Hapompwe et al. (2021) on the challenges and prospects for quality higher education via E-Learning platforms in private universities; a case study of Acacia University, Zambia; revealed that ClanEd platform, which was mostly used for textual interaction and posting of teaching and learning materials and the Zoom platform had challenges which included lack of effective interactions for ClanEd platform and network intermittence for the Zoom platform on both institutional and learner ends. Other noted online learning challenges included poor network connectivity, non-electrification of students' houses, electricity outages and costs associated with internet use (Henaku, 2020; Mwila et al., 2021).

The above stated factors were noted to have severely affected rural students' access to online learning and subsequently affected their academic work and performance. This justified the significance of carrying out this study as it aimed at engaging key stakeholders in online learning such as Internet Service Providers (ISPs) through interviews with ICT engineers on how the major challenges of poor internet connectivity especially in rural areas and high cost of internet bundle which have been affecting students and educators' academic work since the

advent of online learning pedagogy in Zambia could be ameliorated. The outcome of the study provided data for the development of an online learning enhancement framework for higher learning institutions in Zambia.

Furthermore, at Kwame Nkrumah University, challenges experienced included limiting online learning tool (Moodle) and insufficient infrastructure to support blended learning (Magasu et al., 2022) while at Levy Mwanawasa Medical University, a study on the assessment of online learning among students of higher learning institutions in the midst of COVID 19 lock down showed that; out of the 96.9% of the students who participated in the survey and attended online learning classes, majority of the students opined that face to face learning approach was the most preferred. This was premised on the poor online learning experiences which the students encountered such as poor internet network, lack of data bundle and load shedding by the country's power supply company ZESCO (Mwansa et al., 2021).

These noted challenges require urgent solutions that would enhance online learning so that it could take its rightful role as a leading learner centered teaching pedagogy. It is for this reason that this study used a survey design to solicit views of educators in the selected universities on how online learning could be enhanced in order for it to meet the expectations of the learners and educators. Furthermore, Directors of Distance Education (DDE) in the selected universities were interviewed with respect to online learning processes using a semi structured interview guide in order to gather information on how they thought online learning could be enhanced in the universities in view of the many noted challenges revealed in the various research findings.

A study carried out by Kaumba et al. (2021) on the enablers and disablers in the uptake of ICT in rural primary schools of Mwinilunga District of Zambia revealed that the teaching of the ICT component particularly in Creative and Technology Studies faced many challenges such as poor internet connectivity, lack of supportive infrastructure, lack of ICT equipment and

limited skilled human resources. This agreed with the findings of the study conducted by Mwalimu et al. (2017) which highlighted challenges associated with online learning such as high cost of data bundle, lack of privacy, time constraints in preparing lessons, inaccessible Wi-Fi, insufficient computers and technophobia.

However, it was further revealed during the same paper presentation that the use of social media among University of Zambia lecturers in teaching and learning also showed positive benefits of online learning to the learners through the use of digital tools such as YouTube, SlideShare, Blogs, LinkedIn, Facebook, and Podcasts. These findings are a clear testimony that proper use of the digital technologies with well-developed policy framework guidelines as per the objective of this study, would be a catalyst for enhanced learner-centered approach to teaching, social presence, collaborative learning, reduced cost of education, interactiveness, global reach and searchability of beneficial information by both the learners and educators (Mwalimu et al., 2017).

Similarly, findings of the study by Mundende et al. (2021) provided evidence that about 80% of the distance learning students at the University of Zambia accessed the Astria E-Learning platform and that their interfacing with the platform made their academic life easier, cheaper to use, and it was generally easy to access study materials online. On the other hand, the study further revealed that, despite the many benefits that came with the introduction of online learning at the University of Zambia, some students still experienced challenges which included high cost of internet bundle, erratic network connectivity, inadequate orientation and lack of basic Information Technology (IT) skills. This was in line with the findings of the study which was conducted in west Africa entitled; COVID -19: Online learning experiences of college students: The case of Ghana; where students experienced internet connectivity challenges, financial difficulties because of the high cost of internet bundle, problems with devices and disruptions in the course of lectures (Henaku, 2020).

It is clear from the findings of the different studies carried out at various institutions of learning by different scholars that online learning in Zambia and indeed among other countries in Africa need enhancement for it to produce desired results. Much as there are benefits of online learning experienced by the learners such as reduced cost of education, breaking of distance barriers, improved access to teaching and learning materials, improved levels of interactions (Mwalimu et al., 2017; Mundende et al., 2021), there were many challenges which hampered the effectiveness of online learning such as erratic network connectivity, power outages, high cost of internet bundle, inadequate infrastructure, inadequate orientation and lack of basic Information Technology (IT) skills which need to be addressed (Kaumba et al., 2021; Hapompwe et al. 2021; Mwila et al., 2021).

Therefore, this study will add value to the body of knowledge on online learning due to its broadened scope and delimitation that saw both public and private universities in Zambia that offer online learning being incorporated as a study sample in one study, which was a clear departure point from other studies that have been conducted on the subject of online learning in Zambia this far, which concentrated either on private universities or public universities in their research. Online learning has been regarded as a sleeping giant in the delivery of education in Zambia especially in the rural parts of the country as noted by Sakyi et al. (2019), hence the need to investigate ways in which the challenges of poor internet connectivity, high cost of internet bundle, inadequate online learning infrastructure and lack of capacity building in the universities could be resolved through a consultative and participatory process by key stakeholders via their submissions which could be a turning point in the provision of digital education to every Zambian in every part of the country.

1.2 Statement of the Problem

Globally, online learning plays a pivotal role in facilitating distance education in higher learning institutions. Kenzig (2015) revealed that, approximately 5.5 million learners take at least one online course at every institution of higher education in the United States per year and over 70 million people take part in online learning opportunities for professional development, employment training, and personal growth each year. In Zambia, online learning has taken a center stage in facilitating distance learning in most of the higher learning institutions. A study conducted by Mwalimu et al. (2017) revealed that; use of digital tools such as YouTube, SlideShare, Blogs, LinkedIn, Facebook, and Podcasts among University of Zambia lecturers in teaching and learning had positive benefits to online learning learners.

However, ineffective online learning has been a major problem since the advent of online learning following the outbreak of COVID–19 in March 2020 (Mwansa et al., 2021; Magasu et al., 2022). Some of the major challenges to effective online learning include erratic network connectivity, high cost of internet bundle, inadequate ICT infrastructure, inadequate orientation on the use of online platforms and lack of basic Information Technology (IT) skills (Kaumba et al., 2021; Hapompwe et al., 2021; Mwila et al., 2021).

On a global scale, most of the research has focused mainly on determining the cause of ineffective online learning (Queiros and de Villiers, 2016; Mikre, 2011; Kisanga and Ireson, 2015). Similarly, recent studies in Zambia have focused on challenges that hamper effective online learning in higher learning institutions (Kaumba et al., 2021; Hapompwe et al., 2021; Mwila et al., 2021). There appears to be a gap in knowledge on the innovative strategies for enhancing online learning in higher education institutions in Zambia. Hence, if studies on this important topic are not conducted, there may be a dearth of literature on innovative strategies for enhancing online learning in higher education institutions in Zambia. In view of the

foregoing, this study investigated the innovative strategies which the Government of Zambia, Internet Service Providers and higher learning institutions were putting in place to enhance online learning in Zambia.

1.3 Purpose of the Study

The purpose of this study was to explore innovative strategies which could enhance online learning in higher education institutions in Zambia.

1.4 General Objective

The general objective of the study was to assess measures put in place to resolve the challenge of ineffective online learning in higher education institutions. Furthermore, the study focused on developing a workable online learning policy framework for enhancing online learning in higher education institutions in Zambia.

1.5 Specific Objectives

1. To assess measures the Government of Zambia has implemented to ensure fast, accessible, and affordable internet service in all higher learning institutions.
2. To evaluate the support which university management offered to educators and learners involved in online learning in Zambia.
3. To investigate what Internet Service Providers were doing to enhance internet connectivity in higher learning institutions.
4. To explore innovative strategies which could be put in place by the Government of Zambia, higher education institutions and internet service providers to enhance online learning in higher education institutions.
5. To propose an ideal online learning policy framework that can enhance online learning in higher education institutions.

1.6 Research Questions

1. What is the Government of Zambia through the Ministry of Technology and Science doing to ensure fast, accessible and affordable internet service in all higher learning institutions?
2. What kind of support is provided by university management to educators and learners engaged in online?
3. What strategies are the Internet Service Providers putting in place to enhance internet connectivity in higher learning institutions?
4. What strategies should be put in place by the Government of Zambia, higher education institutions and internet service providers to enhance online learning?
5. How should an ideal online learning policy framework be that can enhance online learning in higher education institutions?

1.7 Significance of the Study

The significance of this study is hinged on its potential to contribute to the body of knowledge on how online learning in Zambia could be enhanced for the benefit of the learners and educators. The study's findings will inform policy development and quality assurance mechanisms at both institutional and national levels on the roles that must be played by the government such as tax reduction on ICT equipment for higher education institutions, development of an online learning regulatory framework to guide the implementation of online learning in all higher learning institutions and ICT infrastructure development for enhancement of online learning in Zambia.

Additionally, the proposed online learning enhancement policy framework displays the roles which ISPs need to play to support online learning like; provision of quality and affordable internet connectivity to all higher learning institutions and installation of learning management

systems and Eduroam for free. Further, the framework highlights the roles which higher education institutions need to carry out in quest for enhanced online learning such as provision of ICT training, ICT Support and ICT resources to both educators and learners. The implementation of the research outcomes could have a direct benefit on key online learning stakeholders such as learners, educators, policymakers, and quality assurance bodies in view of the many challenges that hamper the effectiveness of the online learning pedagogy in Zambia.

1.8 Scope and Delimitations of the Study

The study focused on higher education institutions in Lusaka, Copperbelt and Southern Provinces of Zambia. This is because the three provinces host the top ranked public and private universities. Of the top ten universities according to the 2022 Zambian university ranking, 6 universities were in Lusaka province, while the other universities were in the Copperbelt and Southern Provinces. The researcher purposely selected the top two public universities and two well established private universities as the sample. This was done in order to ensure that all the types of higher learning institutions under the Ministry of Education in Zambia are represented in the study. In addition, the researcher believed that the selected universities could supply credible data based on their long history of providing education service to the citizens in Zambia and beyond which was very cardinal in the attainment of the objectives of the study and also because the selected universities use online learning platforms for teaching and learning as well.

1.9 Limitations of the Study

The researcher encountered two major limitations in the course of the study. Firstly, the researcher had challenges with interviewing some participants from Internet Service Providers and universities that were initially earmarked to be part of the study sample. This was because

the prospective respondents declined to take part in the study when they were called upon to do so due to strict company policies. This made the researcher to adjust in terms of the targeted institutions. Secondly, some respondents were not willing to complete the survey questionnaires within a day as earlier planned by the researcher but asked for more time. This made the researcher to take a longer time than anticipated at the data collection stage, which resulted in additional financial implications to the study. Nonetheless, the limitations encountered in the data collection process did not have a significant bearing on the research design or the methodology of the study and the researcher was able to gather sufficient data that informed the study accordingly.

1.10 Theoretical Framework

This study was anchored on the Constructivist Learning Theory and Albert Bandura (1986)'s Social Cognitive Theory. The Constructivist theory was developed by Jean Piaget (1896-1980), who is considered as the father of the constructivist view of learning (Ertmer & Newby, 1993). According to Ültanır (2012), constructivism is a theory of knowledge and learning in which individuals generate knowledge in the process of tackling problems and the knowledge constructed lead to learners being connected to new ideas. In other words, the central focus of this theory is new knowledge acquisition and learning. Under this theory, it is believed that learners construct meaning from the knowledge they acquire by linking new ideas to their existing knowledge, for example, adaptation of the traditional face to face teaching approach to online learning.

Mikre (2011) argues that constructivism is a paradigm of learning that assumes learning as a process in which an individual constructs new knowledge or meaning based on prior knowledge and experience. This theory fits in very well in the 21st century advent of online learning, which is the subject of the study, where educators and learners had to adapt to the use

of online technologies in teaching and learning as catapulted by the problem of school closures brought by the outbreak of the COVID-19 in March 2020 for teaching and learning to continue.

Further, Bada and Olusegun (2015) argue that the constructivist theory focuses on learner centered learning, social experience or collaboration and use of multiple modes of presenting information such as video, audio and text. This is similar to the approaches which the online learning pedagogy espouses like learner-centered approach to teaching, social presence, collaborative learning, interactiveness, global reach and searchability of beneficial information by both the learners and educators (Mwalimu et al., 2017). The purpose of this study which was to investigate what was being done by the Government of Zambia, ISPs and higher learning institutions for online learning to be enhanced sits well with the ideology of this theory. Hence, the constructivist theory as developed by Jean Piaget provided a strong foundation to this study.

The Social Cognitive Theory, which was another theory upon which the study was anchored focuses on what learners learn from interacting with other people and also from observations on what is going on in the environment (Hapompwe et al., 2021). In other words, this theory advocates for hands-on experience, social interactions and construction of knowledge as a way of enhancing learner material accommodation, assimilation and absorption.

The two theories that underpinned this study project the view that learning takes place in a social environment where there is a reciprocal relationship between the learner and the environment. The Social Cognitive theory posits that learners are not simply shaped by the environment around them, but are active participants of the learning process. This process involves observation, thinking, planning, experimentation, reflection and review. By engaging in these processes, learners are able to construct meaning in a manner so unique to each one of them, incorporating the cognitive, affective and physical aspects of learning. This implies that,

learning which has a high possibility of producing desired learning outcomes is one which is learner centered (learning approach that emphasises interactive, flexible and collaborative learning experiences). Thus, these two theories advocate for learner centered learning through their ideologies of learner engagement socially, cognitively and also hands on to some extent. Therefore, online learning content, as supported by the Constructivist Learning Theory and Social Cognitive Theory must be able to fascinate and inspire learners to acquire greater skills by also being able to rewind, retrieve and refer information for further personal analysis. Hence, the study was anchored on these two theories.

1.11 Conceptual Framework

The conceptual framework clarifies the research's course. Miles & Huberman (1994) interprets a conceptual framework as a visual product, one that describes graphically the main variables to be studied and the presumed interrelationships among them. This study was guided by a conceptual framework that depicted the hypothetical conceptions as its foundation. With the help of the extensive review of literature, the study focused on a three-dimensional approach. Online learning service was considered as an independent variable and was studied with the help of four parameters, namely ICT Policy in Zambia, Computer Expertise, Resources and ICT Support to Learners and Educators. Educators' Perception was considered as the moderating variable; and Educators' Satisfaction or Dissatisfaction with the online learning service as the dependent variable.

The concept of ICT policy as one of the independent variables was considered in this study due to its influence on online learning by setting the framework for technology integration in education. The ICT policy provides guidance and direction on the use of digital platforms in education, hence its consideration in this study. Computer expertise, as one of the independent variables, is understood to mean the level of knowledge and skills an individual possesses in

using computers, software, and related technologies. It can be stated that, when educators and learners are digitally literate and trained on how to use ICT tools effectively, educators and learners benefit a lot as educators tend to provide creative and individualized platforms for learners to express their understanding and learn via online platforms with little or no challenges. Therefore, computer expertise has a link to the ICT policy because training of educators and learners in computer skills acquisition can mostly be enhanced where there is a clear policy guideline. This also has a direct link to resources, which is another independent variable contextualized to mean hardware like computers, laptops, mobile devices, educational software, networking services and the internet which educators and learners need for online learning to take place effectively.

Additionally, ICT support to both learners and educators in an online learning program has a strong connection to resources as it allows for access to wider range of information, facilitates collaboration and enables personalized learning, which is very important when it comes to online learning. Thus, the introduction and effective application of the identified independent online learning variables could help to develop a positive perception of online learning on both educators and learners due to its potential to enhance online learning, and could ultimately result in online learning service delivery satisfaction among educators and learners. Failure to operationise the identified online learning pedagogy independent variables could cause dissatisfaction among educators and learners. Figure 1 shows the research's Conceptual Framework:

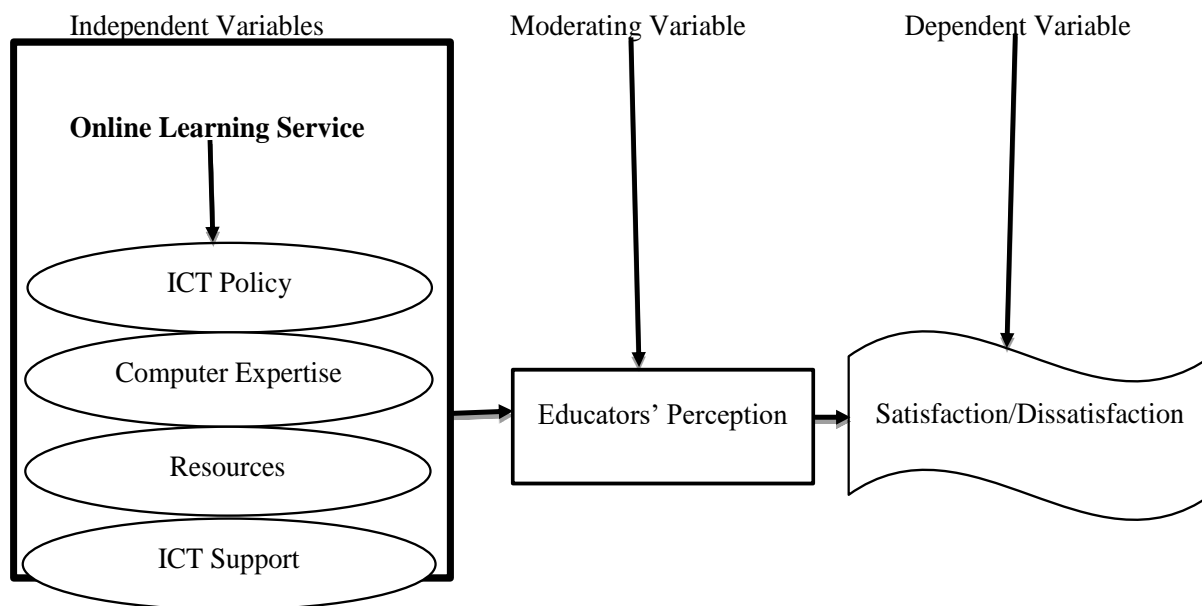


Figure 1: Study's Conceptual Framework

Source: (Field Data, 2025)

One of the most important variables in online learning enhancement is the ICT policy itself. The policy highlights the potential of ICTs to improve the quality of education and training through online learning. Some of the objectives of the Zambia National e-Learning Strategic Plan are to make ICT infrastructure available, fully integrated and functional throughout Zambia (Konayuma, 2012). This study contributes greatly to the current debate on online learning by evaluating the functionality of the ICT policy in selected universities.

Online learning has the potential to revolutionize the education sector and improve the country's literacy levels once it is enhanced as it has the capability to bring on board young people who cannot afford on campus learning due to high costs, the working class who cannot afford to relinquish their jobs in the quest to improve themselves academically, family men and women who cannot manage to leave their families to go to school just to mention but a few disadvantaged society groups in our current education system set up. As Mukosa & Mweemba

(2019) put it, online technologies offer learners control over content, learning experiences, pace of learning and time, which is a catalyst for online learning enhancement.

Furthermore, a study conducted by Sahin and Shelley (2008) on the distance education student satisfaction model project the view that students' enjoyment of the online instruction is promoted if they have the skills to use online tools and perceive that online education is a useful and flexible way of learning, communicating and sharing information. Thus, possession of computer expertise was noted to be one of the most important determinants for one to use and enjoy the online learning platforms. Hence, the consideration of computer expertise as one of the key variables for this study on the conceptual framework was very important.

Besides that, the resource variable was also noted to be one of the major influencers of online learning in the digital learning space (Mukosa & Mweemba, 2019). The resource variable was evaluated in the context of the role in which government and learning institutions play in the provision of equipment such as computers, affordable cost of the internet bundle, adequate internet infrastructure, financial support and adequate orientation on how to teach and learn through the online platform which has been observed to be a major inhibitor of effective online learning (Kaumba et al., 2021; Hapompwe et al., 2021; Magasu et al., 2022; Mwila et al., 2021).

Additionally, lack of technical support in form of effective ICT training, numerous technical challenges encountered during the teaching and learning among others posed significant threat to the success of online learning in Zambia. Schiller (2003) argues that; personal characteristics such as experience in terms of the use of computers for educational purposes and general attitude towards computers influence the adoption of the online teaching and learning pedagogy. Thus, inadequate in-service training on ICT integration in education have had a lot of serious negative impact on the integration of ICT in the teaching and learning process. This study evaluated the technical support which educators engaged in online learning received in

their course of duty in the selected universities, being one of the independent variables in the study.

In conclusion, a study conducted by Kotoua et al. (2015) in Ghana revealed that most of the students still preferred face to face classroom teaching to online learning because they had a negative perception about online education. This made the rate of online education very low according to the questionnaire results of the study conducted in the various Ghanaian universities. These results agreed with the findings of the study conducted by Magasu et al. (2022), where some lecturers and students in some faculties were not willing to implement blended learning and this made online learning at Nkrumah University not to be very successful. Consequently, this study explored innovative strategies which could enhance online learning in higher education institutions in Zambia.

1.12 Operational Definition of Terms

Educators: Lecturers who teach in the universities.

Teachers: Staff teaching in the secondary schools.

Students: Learners in the learning institutions.

Public universities: Universities which are fully or partially funded by the government.

Private universities: Universities which are owned and run by individuals or missionaries.

Online Learning: Teaching and learning that takes place virtually.

Perception: The way in which something is understood, regarded or interpreted.

Satisfaction: The fulfillment of one's wishes or expectations.

Blended Learning: Teaching and learning that involves both virtual and face to face approach.

Internet: A ‘network of computer networks’ which allows computers globally to communicate using telephone lines.

Internet Service Provider (ISP): A company that provides access to the internet and other related services such as Web site building and virtual hosting, to individuals and other companies.

1.13 Chapter Summary

This chapter highlighted the problems which this study addressed, which are; poor internet connectivity, high cost of internet bundle, inadequate internet infrastructure and lack of capacity building in the universities. The problems at the center of the study were discussed in detail, followed by the purpose of the study, general objective, specific objectives and research questions. The significance of the study was then discussed, followed by the limitations of the study. The researcher then highlighted the scope and delimitation of the study, and limitations of the study. The chapter concluded by highlighting operational definitions of terms that were frequently used in the rest of the report. In the chapter that followed, the researcher established a strong foundation for the study by reviewing relevant literature to amplify the gap in the body of knowledge.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This review of related literature represented the foundational theoretical literature as well as relevant scholarly research on online learning. Since the purpose of this study was to assess measures the Government of Zambia has put in place to ensure fast, accessible and affordable internet service in all higher learning institutions, to evaluate the support which university management offered to educators and learners involved in online learning in Zambia, to investigate what Internet Service Providers were doing to enhance internet connectivity in higher learning institutions, to explore innovative strategies which could enhance online learning in higher learning institutions, and to propose an ideal online learning policy framework that can enhance online learning in higher education institutions, it was important to review the literature pertaining to online learning in general and the challenges experienced by both learners and educators in the implementation process.

Literature review for this study was framed under the following variables: evolution of the online learning pedagogy, ICT policy in Zambia, computer expertise, resources, ICT support to learners and educators, educators and learners' perception of online learning, the role of Internet Service Providers in online learning, Government role in enhancing policy measures on online learning and challenges of online learning in Higher learning institutions. The chapter closed by summarizing challenges that affected effective implementation of online learning in Zambia and amongst the developing countries in general as discussed in the chapter.

2.1 Evolution of the Online Learning Pedagogy

A rapid rise in the use of online learning platforms especially in Africa has been observed in the last twenty years. Many colleges and universities have increasingly shifted from the

traditional face to face teaching approach to online teaching for some courses, while others have adopted the blended teaching approach where part of the course is taught through the online platform and the other part or component is taught through the traditional face to face approach. This is because technology has been seen as a facilitator of better learning and training worldwide and as a tool that reduces temporal and spatial problems associated with traditional teaching and learning approaches (Panigrahi et al., 2018).

For instance, Pedro and Kumar (2020) highlighted that 31.6% of the students in the United States of America were taking online courses by 2016. The United States of America is viewed as one of the leading countries in the integration of online platforms in teaching and learning. Kenzig, (2015) reveals that, approximately 5.5 million learners take at least one online course at every institution of higher education in the United States per year and over 70 million people take part in online learning opportunities for professional development, employment training, and personal growth each year, which shows a big evolution of the online learning pedagogy in the developed countries. This study will therefore give a general picture of how online learning is evolving in developing countries like Zambia.

On the other hand, in countries like Malaysia, online learning only emerged as a teaching and learning approach in higher education institutions after 2010. The first Malaysian higher education institution announced its pilot online courses in 2013 (Fadzil et al., 2015). By 2014, only six higher education institutions had embarked on online teaching. In west Africa, universities such as the University of Ghana, Kwame Nkrumah University of Science and Technology and Cape Coast University took advantage of the technological advancement tool of internet by offering courses online to target the working class over a decade ago, though research revealed that the rate of online education in the universities was still very low and that

most of the students still preferred face to face classroom teaching to the online teaching (Kotoua et al., 2015).

In the same way, widespread use of online teaching and learning mode in Zambia was generally triggered by the outbreak of COVID-19 in March 2020 after World Health Organization announced that the 2019 coronavirus disease (COVID-19) was a pandemic that had affected more than 114 countries worldwide (Mwale and Chita, 2020; Kathuria and Becker, 2021). This pronouncement led to the closure of on-campus teaching and learning in Zambian schools beginning from primary schools to colleges and universities. Schools closed for a prolonged period of time and this led to a number of schools, especially private secondary schools, colleges and universities to begin teaching remotely. Most of the institutions, if not all, did not have a long-standing history of online teaching but were forced by the circumstance to transition quickly to online teaching so as to remain relevant on the market.

The revelations by researchers such as Fadzil et al. (2015) and Kotoua et al. (2015) on the recent development of online learning in most African countries indicate the need for more studies to be conducted on how online learning can be enhanced in order to ensure efficient and effective performance of the teaching approach for the benefit of the learners and the learning institutions at large. The revelation by Pedro and Kumar (2020) that 31.6% of the students in the United States of America were taking online courses by 2016, when countries such as Zambia were at a point of transitioning to online learning calls for robust research in the area of online education so as to enhance online learning in higher education institutions.

In depth review of literature showed some challenges associated with the online learning pedagogy especially in Africa despite the pivotal role it played in the transition from the face to face teaching to online teaching during Covid-19 pandemic period. The findings of the study conducted by Paschal and Mkulu (2020) showed that, majority of the learners and educators

noted that online learning was not effective in African universities because of the inadequate computers, lack of funds for effective implementation of online learning, insufficient facilities, shortage of electricity, poor network, inadequate skills and lack of adequate ICT policies on education to support the implementation of online education.

A study conducted in South Africa on online learning in South African higher education institutions revealed low levels of computer and internet access at home (Queiros & de Villiers, 2016). The study recommended that institutions migrating to online learning in developing countries should take into consideration their students' situations and perceptions and develop an approach that would accommodate both the disadvantaged and technically sound learners without compromising on quality. Research findings by Mikre (2011) and Kisanga and Ireson (2015) revealed that lack of information and communications Technology policy that sets the milestone in place was the biggest challenge that faced online learning in developing countries. These research findings agree with the objective of this study which was to explore innovative strategies which could guide the development of an ideal online learning policy framework for enhancing online learning in higher learning institutions.

2.2 Information Communication Technology (ICT) Policy in Zambia

The ICT sector in Zambia is governed by the National Information and Communication Technology (ICT) policy that was launched in March 2007 by President Levy Patrick Mwanawasa which emphasized on the creation of an innovative, market responsive, highly competitive, coordinated, and well-regulated ICT industry (Hapompwe et al., 2021). The ICT policy highlights the potential of ICTs to improve the quality of education and training through online learning. Some of the objectives of the National e-Learning Strategic Plan are to make an ICT infrastructure available, fully integrated, and functional throughout Zambia

(Konayuma, 2012). Therefore, the findings of this current study are very crucial as they lay bare what is happening on the ground.

Konayuma (2012) highlighted a number of challenges that affected effective implementation of the online learning such as financial and technological resource constraints on the part of government, insufficient awareness of the benefits of integrating ICTs in the education sector; lack of a coordinated approach in the adoption and implementation of initiatives targeted at the deployment of ICTs within the educational system, and policymakers' agony to justify spending scarce and limited resources on ICTs when many government institutions were still lacking basic amenities and educational supplies.

This study, therefore, will contribute greatly to the current debate on online learning performance through its evaluation of the functionality of the ICT policy in the selected universities. Online learning has the potential to revolutionize the education sector and improve the country's literacy levels once it is enhanced as it has the capability to bring on board young people who cannot afford on campus learning due to high costs and the working class who cannot afford to relinquish their jobs in the quest to improve themselves academically in our current education system set up.

According to Mukosa & Mweemba (2019), online technologies offer learners control over content, learning experiences, pace of learning and time. This ultimately allows the learners to tailor their experiences to meet their learning objectives. This view is well supported by the Constructivist theory that assumes learning as a process in which individuals construct new knowledge based on their prior knowledge and experience at their own level (Mikre, 2011). Therefore, the ICT policy in Zambia needs to be revisited so that it can incorporate possible solutions to the current challenges affecting effective online learning in Zambia which were brought out in this study.

2.3 Computer Expertise

A study by Mwale-Mkandawire (2020) entitled *Coping Strategies to Learning Challenges Faced by Rural Distance Students at the University of Zambia*, stated that inadequate computers and computer skills were the major hindering challenges towards the integration of information communication technology in distance education. The study also revealed that higher education courses that operate via distance learning mode had a higher dropout rate than those taught on campus due to students' low levels of computer training and ability to navigate their way through the online learning content and technical difficulties such as access, slowness and downloading of software. These findings stress the importance of computers and computer skills for out of class or distance learning to be successful, of which online learning is a form of it. It was therefore very important for this variable to be investigated in this study.

In addition, a study conducted by Khaloufi and Laabidi (2017) revealed that educators who were very knowledgeable in the use of ICT gadgets demonstrated higher levels of integration of computer technology in their teaching than those with less computer skills, though it did not highlight how all educators in a teaching and learning institution can be imparted with computer skills to encourage the integration computer technology in their teaching. Thus, the study states that, educators who were sufficiently equipped with computer skills embraced the use of technology to teach more easily than those who were less skilled. This therefore means that the more computer skilled educators are at any learning institution, the more confident they would be to use computers in their work, and the more likely they would be to integrate online learning in teaching, which would be beneficial to the learners and the education system at large.

Furthermore, a study conducted in Taiwan showed a significant positive relationship between computer knowledge and online learning perception among the learners. The study showed that, higher computer literacy correlated with higher online learning perception (Li & Lee,

2016). This study provided a great insight on the aspect of online learning perception among learners in developed countries but did not capture the views of educators on the subject. This study will supplement the findings of this study by providing some insights on educators' perceptions of online learning in developing countries like Zambia. In the same vein, Sahin and Shelley (2008) argued that enjoyment from online instruction will be promoted if learners have the skills to use online tools and perceive that online education is a useful and flexible way of communicating, learning and sharing. Additionally, their satisfaction with the online instruction would lead to higher levels of engagement, learning, and success in the online education setting. This standpoint clearly shows that computer skills are very cardinal for online learning to be effective and successful in any learning institution and the contribution of this variable to effective online learning was investigated in greater detail.

2.4 Resources - Material and Financial

The resource variable was discussed in the context of the roles which the Government of Zambia, ISPs and higher learning institutions play in the provision of equipment such as computers, affordable cost of internet bundle, adequate internet infrastructure, financial support, capacity building and adequate orientation on how to teach and learn through the online platform which has been observed to be a major inhibitor of effective online learning.

Mukosa and Mweemba (2019) made it clear that the high cost of internet bundle, lack of devices for internet access and the poor quality of internet services in Zambia were the major challenges in implementing online learning. Other scholars such as Hapompwe et al. (2021) and Magasu et al. (2022) also highlighted limited infrastructure and scarcity of resources as some of the challenges affecting the success of online learning in developing countries such as Zambia.

Henaku (2020), in his study entitled “Covid-19: Online Learning Experience of College Students: The Case of Ghana” revealed that learners were concerned about the cost of the internet bundle as they said were expensive and online learning consumed a lot of bundles because they had to download the audios and videos which their educators were sending to them. The same study revealed that some learners sometimes missed online lectures because they did not have money to buy internet bundle as most of them used to buy bundles for themselves. As a result, online learning was seen to be financially draining since they spent most of their pocket money on internet bundle. This experience could have contributed to learners having a negative perception about online learning in general. It is for such online learning experiences that this study is of great importance as it will help to find ways of resolving such challenges in Zambia going forward so that a positive perception could be created amongst the learners and educators which would eventually lead to satisfaction of the online learning pedagogy. This study therefore provided viable solutions to the highlighted online learning challenges in Zambia through interventions which stakeholders recommended in the study.

2.5 ICT Support to Learners and Educators

ICT can be defined as a combination of technological tools and resources that are used to manipulate and communicate the information (Kaware & Sain, 2015). Technological tools in the context of the definition refers to the electronic and digital devices such as computers, internet and broadcasting technologies which are vital in online learning. In this 21st century, ICT plays a very important role in the process of integrating technology into educational activities.

Journell (2012) argues that, learning institutions that choose to move programs online must provide educators with adequate learning opportunities to explore the various nuances of online

teaching such as creating online classrooms, learning to implement synchronous and asynchronous communication, and assessing learner performance. It is for this reason that computer skills training for learners and educators is very vital; as it enables them to exploit the online learning pedagogy effectively. Computer skills are an unquestionable prerequisite for effective implementation of online learning at any given learning institution. Furthermore, Journell (2012) stated that students also needed to learn what to expect from online learning in terms of instructions on the habits needed for successful online learning experiences and examples of how to communicate with classmates and educators regularly.

Furthermore, Schiller (2003) argued that; personal characteristics such as the level of education, age, work experience, experience in terms of the use of computers for educational purposes and general attitude towards computers influenced the adoption of ICT in classroom teaching. Other barriers which have been found to be the major hindrance to the integration of ICT into teaching and learning included lack of confidence among the educators, lack of access to resources, lack of ample time for lesson preparation, lack of support in form of effective training, numerous technical challenges encountered during the teaching and learning, age of educators and teaching experiences among others. This means that a lot of institutional support to educators and learners is very cardinal both materially and professionally if online learning is to flourish in Zambia.

It has also been found that lack of functional policy framework on online learning, inadequate infrastructure, high cost of bundles and inadequate in-service training on ICT integration in education have had a lot of serious negative impact on the integration of ICT in the teaching and learning process (Prokopiadou, 2012). Thus, technological advancement in this 21st century has exerted a lot of pressure on educators to use various types of technology in carrying out their day to day work. This means that, for educators to remain effective in their line of duty, they need not to only strive to improve on their teaching approaches and instructional

skills but to also constantly adapt to new technologies, expand their knowledge base, refine their skills and competencies in order to successfully integrate instructional technologies efficiently and effectively (Pynoo et al., 2011).

It is clear from the research findings that the success of online learning in Zambia and indeed globally, is dependent on various factors such as training of educators, provision of adequate infrastructure, availability of technical support, competences of the educators, and educators and learners having the right perceptions; which can excellently be achieved with the support of the learning institutions (Hapompwe et al., 2021). It was for this reason that this study investigated how much ICT support universities offered to educators and learners, with the view to coming up with better strategies which would eventually enhance online learning in the education system.

2.6 Educators' Perception of the Online Learning

People's perceptions, depending on whether it is positive or negative, has the potential to make the program or project succeed or fail. A study conducted by Kotoua et al. (2015) in Ghana revealed that most of the students still preferred face to face classroom teaching to online learning because they had a negative perception about online education. This made the rate of online education very low according to the the study conducted in the various Ghanaian universities. This agrees with the findings of the study conducted by Magasu et al. (2022) on the implementation of blended learning in higher learning institutions in Zambia: A case of Kwame Nkrumah University, where some lecturers and students in some faculties were not willing to implement blended learning, and this made online learning at Nkrumah University not to be very successful. These studies highlighted significant findings in as far as learners' and educators' negative perception of online learning in higher education institutions is concerned but did not bring out the strategies that could help to improve on the negative

perception towards the online learning pedagogy. This study therefore, endeavors to close this gap by assessing innovative strategies which could help to enhance online learning in Zambia and beyond.

Jayaratne and Moore (2017) conducted a study on the perceptions of college students towards online classes at North Carolina State University and the results revealed that learners who took classes online had a positive perception towards online classes. The positive perception towards online learning by the learners was because online classes were taught so effectively that the learning expectations of the learners were met. This is a testament that perceptions and effective lesson delivery have a significant role in the success of online learning pedagogy.

Jayaratne and Moore (2017) further revealed that, when learners had an option to decide whether to take a class online or on campus, they made the decision mainly based on the time flexibility which the online classes offered. This agrees with the theory of the Distance Education Student Satisfaction model and literature which states that; students' enjoyment of the online instruction is promoted if they perceive that online education is a useful and flexible way of learning, communicating and sharing information (Sahin & Shelley, 2008; Kenzig, 2015). It is therefore true that perception plays a significant role in the educators and learners' satisfaction or dissatisfaction with online learning, which ultimately contributes to either success or failure of online learning. Hence, it was important that the subject of perception be addressed through this study so that effectiveness of online learning could be realized going forward.

2.7 The Role of Internet Service Providers (ISPs) on Online Learning

Zambia has over 15 active Internet Service Providers (ISP) and 3 active Mobile Network Operators (MNO) (Hanyama, 2018). The MNOs that operate in Zambia are MTN, Airtel and Zamtel, while ISPs include I-connect, Zamnet, Liquid Telecoms, Hai Technologies and

ZAMREN among others. The current telecommunication companies provide mobile internet as well as broadband, which has generally triggered people's demand for these services across the country. This is because the internet acts as a conveyor belt in the whole process of online learning. Without internet connectivity, online learning pedagogy would be a mere dream. This is evidenced by the findings of the study conducted by Mwila et al., (2021) where a particular learner from the rural part of Western Province of Zambia had to ride a bicycle for over 65 km to the nearest place that had at least stable internet connectivity for her to attend online lessons on each day. Not only did the learner face challenges with internet connectivity but also with lack of internet bundle as the cost proved to be too high and that subsequently made the learner to miss 75% of the online classes. These revelations show how important internet service providers are as stakeholders in the implementation process of online learning in Zambia and hence, the significance of this study; as it aimed at engaging these key stakeholders in order to come up with workable strategies and policy framework for enhancing online learning.

The use of mobile internet has grown significantly over the past decade, though for people living in rural areas, there still remains very limited or no access to the internet at all largely due to the lack of adequate telecommunication infrastructure needed for the internet connection (Mambwe, 2015). The 2015 ICT Survey Report by ZICTA (2015) revealed that the most preferred networks among those individuals that have subscribed to more than one network were Airtel and MTN, represented by 44 percent and 47 percent respectively. Factors such as friends and family being on the same network, quality of services and cost determined the choice of the network. This shows that the aspect of the cost of data plays a significant role in terms of internet accessibility and that the need to engage ISPs to find long lasting solutions on these challenges is of great importance.

The ZICTA (2015) survey report further highlighted the fact that mobile internet use in Zambia has increased as a result of factors such as: relative ease of access and connection; the increased

availability of internet enabled handsets on the market; relative affordability with the multiplicity of data packages available for every type of user; and the mobility factor of mobile internet gadgets which enables users to access internet services almost anywhere, or at least in places where fixed providers are currently not able to. The 2015 ICT survey also noted that the majority (71 percent) of households in Zambia with access to internet services use mobile broadband services, particularly a mobile phone. The survey revealed that only 2% of the households access the internet through fixed wireless broadband services. The table below shows the ISPs and MNOs operating in Zambia.

Table 1: Internet Service Provider and Mobile Network Operator Companies Operating in Zambia

S/N	Internet Service Providers	Mobile Network Providers
1	Liquid Telecoms	MTN Zambia
2	IConnect	Airtel
3	Coppernet Solutions	Zamtel
4	MTN Business	
5	Postlink	
6	Pronet Africa	
7	Quick Edge	
8	Real Time	
9	Microlink	
10	Zamnet	
11	Preworx	
12	Aplus	
13	Internet Technologies	
14	Zamtel	
15	BringCom	
Total	15	3

Source: Mambwe (2015)

Table 1 shows that there are a number of ISPs compared to MNO in Zambia, yet, MNOs have a wider coverage and customer base in terms of internet service provision currently. A study carried out by Chipeta and Ngoyi (2018) revealed that mobile phone subscription per 100 inhabitants was at 74.95% against the regional average of 96.2% as of 2017 in Zambia, while mobile internet subscription was at 25.51%, fixed wired broadband subscription at 0.2%, fixed telephone subscription at 0.63% and households with computers at 8%. These statistics agree with the latest research findings by Kaumba et al. (2021), Hapompwe et al. (2021), Magasu et al. (2022) and Mwila et al. (2021) who highlighted poor network connectivity, high cost of internet bundle and inadequate internet infrastructure among others as the major obstacles to effective online learning in higher education institutions in Zambia. This, therefore, calls for an urgent but methodical bold step to engage the ISPs, who are key stakeholders in internet connectivity, to find out how best the highlighted challenges could be resolved for the benefit of all online learners, educators and the education sector. Hence, the findings of study will be of great value to the body of knowledge and the government through the ICT policy makers.

2.8 Government Role in Enhancing Policy Measures on Online Learning

The Government of Zambia, in its 8th National Development Plan, spells out its vision in the education sector of ensuring that all learners have access to equitable and inclusive quality education and that the delivery of education using ICT platforms will also be promoted (Ministry of Finance and National Planning, 2022). This is in line with the argument by (Hanyama, 2018) that every government has a role to meet in the country in relation to policies at national level. He highlights some of the roles which the Government of Zambia plays in relation to ICT policy implementations such as; the promotion of ICT in the country through e-government, education, science and technology systems, public health, social plans, and economic plans.

Other roles highlighted include support for internet uses and applications in all government departments and agencies, to campaign on the implementation of information and training about benefits of the internet and its potential and to ensure the creation of National Agencies, for instance, in the case of Zambia, ZICTA; which are specialized in Information Society. Besides that, government has a role of integrating members of the public and private sector, the civil society organizations and the academia in creating a regional agency specialized in information society matters in order to coordinate and make compatible the policies and initiatives implemented by governments and to provide a legal framework to make the policy acceptable.

These government responsibilities show that the Government of Zambia has a significant role to play in ensuring that there is collaboration between the government and the private sector on how best the challenges of internet connectivity, high cost of internet bundle, ICT infrastructure development and capacity building could be resolved so that online learning in higher education institutions can thrive. There is a need to change the old adage that ‘where the road goes, development follows’ to ‘where the internet goes, development follows.

Fan (2005) argues that, internet access, which is a critical component of online learning, is determined by the available telecommunication infrastructure and affordability of internet services, which are invariably related to government policies. The internet has been seen as the fastest-growing industry in the last decade or so and has also been viewed as a very significant component in the social and economic development of every country. However, the underlying issues of poor internet connectivity, lack of ICT infrastructure and high cost of bundles has had a negative influence on the current growth rates. Consequently, there is a need to identify the regulatory factors affecting internet access in terms of availability and affordability, especially those factors which encourage the creation of a regulatory and policy environment which would be favorable to the development of internet infrastructure and access.

Furthermore, Polat (2012) reveals that, over the last few years, the internet and associated technologies have become an essential part of everyday life, affecting education, employment, and leisure, amongst other activities. This is evidenced in the fact that a lot of services even in Zambia such as payment of corporate tax to Zambia Revenue Authority, application to universities and colleges, booking of flights, hotel reservations, teaching and learning just to mention but a few are becoming available online. The narrative in almost every company and social sector in Zambia nowadays is digitalization of the services.

However, many people have not been able to extract a lot of benefit from these technologies because of the significant obstacles bordering on internet access, usage and affordability. West (2015) argues that there are several key barriers to internet access in the developing world and a number of factors that make it difficult for people to obtain access to the internet which include poverty; inadequate policies, high data and telecommunications charges; infrastructure barriers; digital literacy challenges as well as operational barriers.

West (2015) particularly, highlights major barriers to people's access to the internet, some of which include poverty and inadequate ICT policies. These challenges are very real in our communities, though the study did not propose policies that could help to overcome the highlighted barriers. It is in this vein that this study seeks to propose an online learning enhancement policy framework for the benefit of all learners and educators engaged in online learning in higher education institutions regardless of their social status. Therefore, the outcome of this study has a lasting impact on the development of online learning in Zambia and the growth of the ICT sector as it highlights possible solutions to the challenges affecting accessibility from the stakeholders' point of view.

2.9 Challenges of Online Learning in Higher Learning Institutions

The outbreak of the coronavirus pandemic in March 2020 brought several untold miseries in all the learning institutions globally. The school system as a social sector was not spared as millions of school children and young adults were sent out of school unceremoniously. With the persistent spreading of the COVID-19 disease across the world, online learning became the only solution for schools, colleges and universities to continue offering the education service (He & Wei, 2021). The use of the internet and other online technologies for teaching and learning became the sole choice.

While colleges and universities in countries that had a long history of using online learning such as the United States of America, China and Canada quickly switched on to the online learning paradigm from the classroom situation (Paschal & Mkulu, 2020), universities in countries which were not technologically advanced like Zambia struggled and experienced a number of challenges such as poor network connectivity, power outages, high cost of internet bundle, inadequate infrastructure, inadequate orientation of both educators and learners and lack of basic Information Technology (IT) skills among others in the implementation process (Kaumba et al., 2021; Hapompwe et al., 2021; Magasu et al., 2022; Mwila et al., 2021).

The experience was not different in other developing countries such as Nigeria and Rwanda. A study conducted by Samuel (2021) on the concept of e-learning amid Covid-19 pandemic in Nigeria: issues, benefits, challenges and way forward; highlighted challenges which learning institutions experienced after switching to online learning when Covid-19 broke out such as underfunding when it came to financing of the use of ICT in the education sector, high cost of data which led to very few among learners, parents and educators being able to afford the procurement of data to stay connected online, high cost of ICT facilities, poor technological

infrastructure and low level of contribution of learners in terms of interaction via online learning channels.

Additionally, Sani et al. (2021) outlined the major challenges that affected the Nigerian public tertiary institutions after the shift from classroom learning to online learning in view of the outbreak of the Covid-19 pandemic globally and the subsequent closure of learning institutions. Firstly, lack of documented online learning policy which could determine the procedures, facilities specifications, personnel training among others proved to be a major setback. Secondly, inadequate funding was noted to have a major negative impact on effective online learning in Nigeria. The education sector in Nigeria was poorly funded and this made it difficult for the government to successfully implement and sustain online learning as it is a capital-intensive project.

Low ICT literacy level was another major challenge identified by Sani et al. (2021). They argued that full implementation of online learning was hampered by learners and educators' lack of requisite ICT competences. This was the case because many of the learners in public tertiary institutions were coming from remote villages or areas where they were unexposed to various technologies, which was a major limiting factor. Besides that, inequality of access to the technology itself by educators and learners was observed to be a common phenomenon. This was caused by the high cost of a personal computer (PC) and Laptop in Nigeria considering the low-income level of an average worker in the country. As a result of that, only a few learners were privileged to have a PC/Laptop or phones which were unfortunately still not connected to the internet as this attracted extra costs which they could not afford.

Another bigger challenge encountered in Nigeria was Technophobia. Most of the learners had no computer education background, hence they were afraid of operating one. Some went to the extent of hiring experts at a cost to fill their university admission details, registration and other

documents meant for them to fill online. The sad part was that the very few who had access to the computer did not know how to use it and maximize its usage. Additionally, lack of internet connectivity compounded the problem. The cost of accessing the internet was on the high side in Nigeria. As a result, some learners found it a challenge to afford it despite the poor services. Moreover, most of the public tertiary institutions had few technical staff to maintain their systems. Thus, inadequate trained personnel were a challenge to the use of ICT for online learning in most Nigerian public tertiary institutions. Also, the high cost of software and licenses, and even the interpretation of some of the software since they were not produced locally put off some of the students who showed interest in online learning. Above all, irregular and frequent interrupted power supply was a perennial problem in Nigeria which was a major setback for technological development.

In Rwanda, the challenges which higher education institutions encountered in the implementation of online learning included lack of adequate ICT infrastructure, unprecedented drop out of learners, lack of teaching and learning materials, irregularities in learners' attendance, poorly developed content which learners had difficulties to understand, and limited interaction between trainers and trainees and among trainees (Mporananayo et al., 2020).

The findings in the Nigerian and Rwandan online learning implementation process shows that Zambia is not the only country that experienced challenges and is still experiencing some challenges in the implementation process of online learning in both public and private higher education institutions but other countries' learning institutions did too. Hence, there was a deliberate need to engage key stakeholders in the implementation process of online learning in Zambia such as ISPs, the Government of Zambia and Higher Education Institutions of learning so that a stakeholder-based approach or recommendation could be arrived at which would see some of the challenges, if not all, resolved for the good of the educational system in Zambia.

2.10 Research Gap

In depth literature review brought to the fore challenges that affected effective online learning in Zambia and in other developing countries such as erratic network connectivity, power outages, high cost of internet bundles, inadequate ICT infrastructure, inadequate orientation and lack of basic Information Technology (IT) skills among educators and learners (Kaumba et al., 2021; Hapompwe et al. 2021; Mwila et al., 2021). However, these studies, among others, did not reveal innovative strategies which could help to enhance online learning in higher education institutions.

Other studies conducted by researchers such as Magasu et al. (2022) recommended capacity building, widening of the network coverage and making of online learning services accessible to all students backed by policy formulation as the possible solution. Furthermore, Sakyi et al. (2019) recommended the creation of a deliberate policy that would encourage private companies to partner with government in the roll out of national ICT infrastructure across all corners of the ten provinces of Zambia so that there can be internet anywhere and for everyone, whereas Mundende et al. (2021) recommended among others the engagement of Mobile Network Operators (MNOs) to take care of all students who subscribe to different mobile service providers in terms of internet accessibility. Additionally, Daka et al. (2022) recommended a deliberate collaboration between government and the private sector to create holistic strategies that could help to overcome the barriers to internet connectivity and high cost of internet bundle which have been reported in many studies as major inhibitors to effective online learning in higher education institutions in Zambia.

Riding on these recommendations among others, this study explored the route of engaging key stakeholders in the implementation process of online learning such as Internet Service Providers (ISPs), Directors of Distance Education (DDE) in charge of online learning in the

selected universities, educators and ICT experts in the Ministry of Technology and Science in order to solicit for their ideas, views and proposals on how best the recommended solutions to the identified online learning challenges by various researchers could be actualized for the benefit of the learners and educators. The study gathered views from the ISPs on what was being done to enhance internet connectivity in higher learning institutions.

Additionally, the study solicited views from educators and DDEs in the selected universities to evaluate the support which university management offered to educators and learners involved in online learning in Zambia. Furthermore, the study engaged the Government of Zambia through the Ministry of Technology and Science to establish the measures put in place to ensure fast, accessible and affordable internet service in all higher learning institutions.

2.11 Chapter Summary

This chapter provided an extensive review of the relevant literature for purposes of understanding the challenges that affect effective online learning in Zambia. The chapter's main sections included; the evolution of the Online Learning pedagogy in Zambia, Information Communication Technology (ICT) Policy in Zambia , Computer Expertise, resources required for effective online learning to take place, ICT support provided to learners and educators, Educators' Perception of the Online Learning, the role of Internet Service Providers (ISPs) on Online Learning , Government's role in enhancing Policy Measures on Online Learning, the challenges that affected Online Learning in Higher Learning Institutions and Research Gap. It is clear from the review that although measures were being put in place to attend to the many challenges that affected effective online learning in Zambia, a lot still needed to be done by different stakeholders for quality online learning to be delivered. The methodology supporting the study will be discussed in the subsequent chapter.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Overview

This chapter presents the methodology of the study which was followed through-out the research. It covers reflexivity, the research paradigm, research approach, research design, population of the study, sample and sampling techniques, research instruments, validation of research instruments, ethical considerations, data collection procedure, and data analysis procedure.

3.1 Reflexivity

Reflexivity is the practice of self-awareness in research during the researcher's critical examination of their influence on knowledge construction and interpretation. It involves examining one's own judgment, practices, and belief systems during the data collection process.

As one of the educators and a person in charge of academic affairs at one of the international private schools in Zambia, the researcher reflected upon his experience of the online learning pedagogy after its implementation following the outbreak of Covid-19 pandemic in March 2020, that led to the closure of schools. With this involvement, the researcher had first-hand experience of how educators struggled to convert hard copy face to face lesson content into online learning materials, struggled to upload materials online, post assignments online, set up Zoom meetings, administer and mark assessments online due to limited computer skills. To the staff, online learning was more like punishment and administrators had to keep on encouraging them to focus on the objective of the program to help them improve on their perception of online learning.

Likewise, the same challenges were experienced by the learners. The researcher, being an administrator, used to receive numerous calls from learners seeking guidance on how to login into the online classrooms, how to access assignments and send them back to the educators for evaluation despite sending them a guide on how that was supposed to be done. It appeared that some parents were also not conversant with the use of online learning technologies for teaching and learning as they were not able to help their children.

Meanwhile, other learners did not even manage to participate in online learning at all as they complained of lack of gadgets to use, poor internet connectivity (where network could cut even in the middle of the lesson and at times audio was not good enough for the lesson to go on), high cost of internet bundle just to mention but a few. For learners who were coming from the remotest parts of the country, educators had to send materials via email and parents had to print out the learning materials once every week for their children when they got to the nearest town where there was internet connectivity. Thereafter, educators could explain the notes to the learners via voice calls on the phone.

Amidst all this, the Government of Zambia through the Ministry of Education did not provide guidance on the alternative ways or platform to reach out to the learners after the closure of schools due to Covid-19 pandemic as the case was in China (He & Wei, 2021). Each learning institution offered online learning as it wished, and according to its ability resource wise and computer expertise. These experiences motivated the researcher to carry out this study so that a new policy framework for enhancing online learning in Zambia could be developed for the benefit of the learners, learning institutions and the nation at large.

3.2 Research Paradigm

A pragmatist research paradigm guided the researcher's research position in this study. This paradigm values both objective and subjective knowledge in terms of methodologies and is

focused towards studying real problems in the world such as ineffective online learning in most of the developing countries, instead of the nature of knowledge (Fiorini et al., 2016). Pragmatism is a research philosophy that does not limit itself to any specific ontology or epistemology but supports both qualitative and quantitative standpoints (Hafsa, 2019). The pragmatism paradigm is concerned with finding out what works and providing solutions to societal problems, and to enable mankind cope more successfully with the physical and social environment.

Pragmatist researchers believe that researchers need not to concentrate on asking questions about the laws of nature and reality (ontology) and the theory of knowledge (epistemology) but focus on research from the feasible and workable solutions to complex human problems (Parvaiz et al., 2016). Thus, pragmatism gives room for researchers to apply various approaches to data collection and analysis rather than affiliating to either quantitative or qualitative approach.

Ontology is defined as a potentially empirical investigation into the kinds of entities, the forms of being or structures of existence in an area, while epistemology is concerned with the theory of knowledge regarding methods, possible ways of gaining knowledge of social reality and claims about what is assumed to exist and can be known (de Kock, 2015). In other words, ontology is a branch of philosophy that deals with the questioning of reality and what is real. It refers to the nature of reality, whereas epistemology is a division of philosophy concerned with what constitutes worthwhile knowledge (Adu & Okeke, 2022).

Furthermore, Maarouf (2019) explains the concepts of ontology and epistemology for pragmatism as being conceptualized in a manner that combines both quantitative and qualitative paradigms' point of view as two integrated, not conflicting philosophies. Maarouf, (2019) expounds the concept of 'reality cycle' as the ontological stance of pragmatism that is

based on the existence of one reality in a certain context at a certain point of time and multiple perceptions of this reality in the social actor's minds. In other words, the social actor's perception of reality controls the behavior which causes changes in the context and in consequence in reality. Thus, as reality changes, the pragmatic researcher also switches between the two positions of the one reality or the multiple perceptions of the reality.

In addition, the epistemological stance of pragmatism, which is referred to as the 'double faced knowledge' by Maarouf (2019), projects the view that any type of knowledge can be seen as observable or unobservable based on the instantaneous ontological position of the pragmatic researcher. Therefore, pragmatism has the ability not only to provide the philosophical justifications for the mixed research approach but also opens all possible options in front of researchers, which is an advantage it has over all other research philosophies. It is for this reason that this paradigm was very suitable for this study.

3.3 Research Approach

A research approach can be described as a plan or procedure for conducting a study, which includes the steps from the philosophical assumptions to the methods of data collection, analysis and interpretations (Adu & Okeke, 2022). A mixed method research approach was used for this study. This approach entails merging qualitative and quantitative research data in a single study (Creswell & David, 2018). It combines the strengths of both quantitative and qualitative research to achieve the set objectives of the study and to answer the research questions (Coates, 2021). This research approach was very helpful in realizing the objectives of the study with a strong precision.

3.4 Research Design

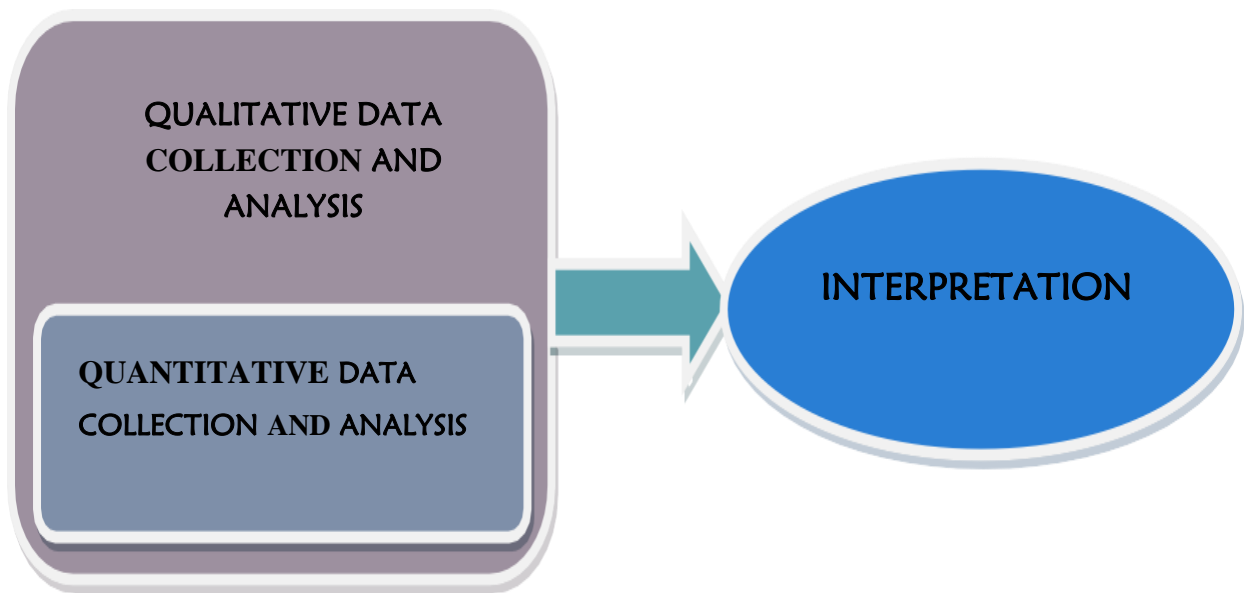
Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance with the research purpose (Yu & Khazanchi, 2017). It

constitutes the blueprint for the collection, measurement and analysis of data (Adu & Okeke, 2022). In other words, a research design involves plans for data collection, the instruments for gathering data, how data gathered will be processed and analyzed to give meaning to a research finding. In this study, a descriptive survey research design was used. This design enables the researcher to find out the present condition or situation in the area of study (Kombo and Tomp, 2011). The use of this research design helped the researcher to get facts about the challenges that hindered effective online learning in higher education institutions and the strategies which could be used to enhance online learning in Zambia.

In order to ensure that comprehensive data was collected that would effectively address the research questions, a complementary quantitative study was embedded within a primarily qualitative study because the dual approach allows for richer findings than just one comparative analysis (Stokes & Bergin, 2006). Scholars have argued that researchers could either use the fixed or emergent embedded design to mix the quantitative strand within the primacy of a qualitative approach during data collection, data exploration, data analysis and data visualization. Creswell et al. (2011) explains the concept of fixed embedded design as a method which is predetermined at the start of the research process. Under this design, researchers have a specific intent to mix qualitative and quantitative approaches right at the beginning of the study, while for an emergent embedded design, the methods emerge during the process of the research rather than being predetermined at the outset of the study.

This study however, used the fixed embedded design to collect and analyze data. Quantitative data was embedded into the qualitative data. The use of this research design helped the researcher to map out new online learning policy framework guidelines which would help to enhance online learning in Zambia. Below is the framework of the Fixed Embedded Design as used in this study.

Figure 2: The Fixed Embedded Design



Source: Creswell et al. (2011)

3.5 Population of the Study

There are 54 registered private universities and 9 recognized public universities operating in the ten provinces of Zambia with a total of 5,553 educators in both public and universities (Higher Education Authority, 2022). However, the target population of the study consisted of two public universities and two private universities with a total number of 1,242 educators, 10 Internet Service Provider engineers and 5 ICT Experts from the Ministry of Technology and Science. The researcher purposely selected the top two public universities and two well established private universities (UniRank, 2022).

The universities were represented by the pseudonyms PU 1 and PU 2 for public universities, PRU 3 and PRU 4 for private universities respectively. This was done to ensure that all the types of higher learning institutions under the Ministry of Education in Zambia were represented in the study and also because the selected universities taught learners using the online platforms. Additionally, literature review revealed that, both public and private universities experienced identical online learning challenges such as erratic network

connectivity, high cost of internet bundle, inadequate ICT infrastructure, inadequate orientation on the use of online platforms and lack of basic Information Technology (IT) skills (Kaumba et al., 2021; Hapompwe et al., 2021; Mwila et al., 2021). The study also targeted the Ministry of Technology and Science as part of the study population due to its mandate of overseeing the running of the ICT sector in Zambia

Table 2: Characteristics of the Study Population for Internet Service Providers

Institutions	ICT Experts/Engineers	Total
ZAMREN	10	10

Table 3: Characteristics of the Study Population for Universities

Institutions	Educators	Total
PU 1	879	879
PU 2	218	218
PRU 3	45	45
PRU 4	100	100
Total	1, 242	1, 242

3.6 Sample and Sampling Techniques

Maximum variation purposive sampling technique was used to pick the sample for the study. Purposive sampling is a form of non-probability sampling technique where decisions concerning the subjects to be included in the sample are made by the researcher based on several criteria that may include special knowledge on the research problem, or capacity to contribute positively to the study and willingness to participate in the research (Rai & Thapa, 2015). This technique also allows the researcher to find subjects or people who are willing to share their knowledge, experience and also to quickly and effectively narrow down the pool of potential participants in the study (Thomas, 2022). It was for such reasons that this technique was employed in this study.

The sample from the targeted universities comprised of 180 educators that were purposely selected from the four universities, that is, all 45 educators from PRU 4, 45 educators from PRU 3, 45 educators from PU 2 and 45 educators from the PU 1. Researchers recommend that 10-20% of the population can be picked as a sample in descriptive research (Awoniyi et al., 2011). Thus, 45 educators per university were picked and this brought the total study sample to 180 (n=180), which was 14.4% of the study population. Additionally, 4 Directors of Distance Education in charge of online learning in the four universities, the ICT Expert from the Ministry of Technology and Science; and one ICT Engineer from the Internet Service Provider in the selected universities (ZAMREN) were also purposely selected to be part of the study.

3.7 Research Instruments

Four research instruments were used to collect data for the study, that is; a questionnaire which was used to collect quantitative data from educators and three interview guides which were used to collect qualitative data, that is, one for the ICT engineers from the ISPs, one for the

ICT Director from the Ministry of Technology and Science and another one for the Directors of Distance Education in charge of online learning in the selected universities.

A 5-point Likert scale type of questionnaire ranging from Strongly Agree (5) to Strongly Disagree (1) was used to collect data from educators. The questionnaire had two sections; A and B. Section A contained demographic data under the headings: gender, age, online learning experience and type of university, while section B contained the Likert type items. Using the scale stated above, the participants were required to indicate their satisfaction with each of the online learning variables by putting a check mark (✓) in appropriate spaces provided. Awoniyi et al. (2011) recommend the use of a questionnaire because it's self – reporting, more efficient, practical and allows for the use of a large sample as the case was for the educators' sample, although questionnaires also have disadvantages such as misinterpretation of questions and low return of questionnaires by the respondents.

A semi structured interview guide was used to interview Directors of Distance Education in charge of online learning in the selected universities, ICT experts from ISPs and the ICT Director from the Ministry of Technology and Science because interviews are recommended for a small sample and helps to obtain in-depth data which was very useful for the study (Adu & Okeke, 2022).

3.8 Validity and Reliability of Research Instruments

Any research instrument must always be validated before use to ensure that it measures what it is supposed to measure. Awoniyi et al. (2011) defined validity as the extent to which an instrument measures what it is supposed to measure. Validity is assessed in forms of face validity, content validity, criterion validity and construct validity (Arafat et al., 2016). On the other hand, Adejumobi and Ojikutu (2013) defined reliability as the extent of the agreement between repeated measurements. In other words, reliability assesses how likely it is for

repeated trials of an experiment or other process involving measuring processes to provide the same findings.

The questionnaire which was used in this study was given to professional researchers at the University of Zambia, including the principle and co-supervisor, in order to determine the construct validity of the study. This was done in line with Amin (2005) who assertion that content and construct validity are determined by expert judgment. The questionnaire's face validity was evaluated according to how well-suited the experts believed it was for measuring the variables under consideration. Ambiguous, repetitive and double-barrelled items were eliminated from the questionnaire to improve the overall questionnaire.

After the questionnaire was approved by the professionals, a pilot test was carried out using forty-five educators selected following a purposive sampling technique from among the top ranked universities not selected as a sample. A pilot test is normally used to determine the instruments' dependability. According to Field (2006) a Cronbach's alpha value of greater than or equal to 0.7 is acceptable. The value suggests that the tool is trustworthy and somewhat a good measurement. For this study, the reliability coefficient of the questionnaire was computed using Cronbach Alpha formula to measure the internal consistency of the questionnaire items and was found to be 0.8, which meant that the research instrument was reliable.

During the pilot study, semi-structured interviews involving three participants on the three respective interview guides were conducted to validate the constructs and to create new items where need arose. The results of the pilot study gave the researcher assurance that the study concentrated on crucial issues that had significant impact on the outcome of the study.

3.9 Credibility and Trustworthiness

Credibility and Trustworthiness are critical aspects of qualitative research. Thus, ensuring that the data gathered is representative is a concern shared by all researchers (Hittleman & Simon, 2006). To ascertain the study's reliability, several information-gathering techniques, including semi-structured talks, field notes, and document reviews were used. In qualitative research, credibility is the process of building trustworthiness through data analysis and findings to determine the factual and correctness of the data collected (Denzin and Lincoln, 2011; Patton, 2002). Together with employing member checking to review the data, its interpretation, and conclusions, the researcher established a connection with the participants to increase the credibility of the study.

All discussions were recorded and transcribed to confirm their accuracy. The viewpoints of the participants were illustrated using excerpts from the transcribed data. To fully understand the results, information from interviews, field notes, and papers were combined. Utilizing a variety of data sources is encouraged in order to enhance its trustworthiness (Denzin & Lincoln, 2011). Mutch (2005) argues that, credibility ensures that participant statements are accurate and understood correctly in order to establish the study's credibility. The researcher employed a variety of data collection methods, procedures, and data sources to achieve this. The information was gathered from a variety of participants that included Directors of Distance Education in the selected universities, ICT Engineers from ISPs and Ministry of Technology and Science officials through interviews. The researcher was helped by the corroboration of the various data sources in order to verify the participants' opinions, gain detailed explanations, and achieve information saturation.

The participants in this study were also given free rein to participate and were asked to be completely honest during the interview procedure, which eventually made the interviews

longer than anticipated in some instances. The lengthier stay was necessary to establish a connection with participants on the ground and gather in-depth information for the research. Longer stays in the field are encouraged by Denzin and Lincoln (2000) to increase the credibility of a study as the researcher gets to know the participants and develops a relationship with them to gather in-depth and important data. In addition, the researcher did not only rely on semi structured interviews but also used observations, follow-up questions on participants, cross checking with other sources to ensure credibility and trustworthiness of the gathered data as encouraged by Mulenga-Hagane & Mwanza (2018).

Reviewing and analysing data from several sources such that a study's conclusions are based on the convergence of that data is known as triangulation. Triangulation is a term used frequently in qualitative research to describe the idea that by comparing results from two or more distinct research methodologies, a researcher can determine whether a particular feature of a phenomenon has been accurately measured (Moran-Ellis et al., 2006). The use of triangulation method in this study significantly increased the integrity of conclusions generated from the data gathered.

3.10 Ethical Considerations

Ethical approval to conduct this study was obtained from The University of Zambia Humanities and Social Sciences Research Ethics Committee (HHSREC) before data collection. Prior to each interview, participants were given a consent form which explained what the research was all about and the rights of the participants in the interview. In this study, the confidentiality of participants and data to be collected was considered. At every university considered for the study, the researcher religiously began by introducing himself and thereafter, he explained what the research was all about before administering the questionnaires to the respondents. This was

done to ensure that the researcher obtained informed consent from all the respondents who were to take part in the study and also to ensure that all respondents participated voluntarily.

Further, the study did not require participants' names to be recorded anywhere. For the interviews, participants were given pseudonyms just to ensure that privacy and confidentiality was adhered to. In other words, anonymity of both participants and data was strictly observed. Participants were informed that the interview would be held once and would take about 30 minutes or less at any place they were comfortable. At the end of the exercise, the researcher thanked respondents for their participation in the study and all the data collected remained in the custody of the researcher.

3.11 Data Collection Procedure

A letter of introduction was obtained from the Department of Education Administration and Policy Studies, School of Education, at the University of Zambia, after the Ethics Committee approval of the research. This letter was used to seek permission from the Ministry of Education through the University Deans in the respective schools to carry out the research among the educators and the Directors of Distance Education in charge of online learning, the ICT Director from the Ministry of Technology and Science and ICT experts from the ISPs.

The questionnaires were administered to the respondents by the researcher himself in each university and were collected on the same day of administration from some respondents to ensure accuracy and high returns while in other cases, respondents requested for more time to attend to the questionnaires as they were busy at the time of distribution. Interviews were also conducted by the researcher with the Directors of Distance Education in charge of online learning, the ICT Director from the Ministry of Technology and Science and ICT experts from the ISPs.

3.12 Data Analysis Procedure

Marshall and Rossman (1999) described data analysis as the process of bringing order, structure and meaning to the mass of information collected during data collection in a particular research. The aim of data analysis is to ensure that useful information is extracted from the data collected which helps the researchers to derive conclusions regarding their subject of study.

Before the actualisation of data analysis, the data was edited for purposes of scrutinizing and identifying anomalies and subsequently rectified them. Quantitative data was analysed using a prominent Computer Software called Statistical Package for Social Sciences (SPSS) version 26. Further, descriptive statistics were generated in form of frequency tables, means and standard deviations. Thematic Analysis was used to analyse qualitative data. Thematic Analysis is a method used to identify, analyse and report patterns within data (Braun & Clarke, 2006). The researcher used Thematic Analysis because it provides a highly flexible approach that can be modified for the needs of many studies, providing a rich and detailed, yet complex account of data (Braun & Clarke, 2006).

Thus, data analysis involved breaking down information into meaningful pieces, integrating them, looking for patterns, identifying the important and knowledgeable ones, and deciding what to present. To acquire a quick overview of the results, information analysis and clarification was done concurrently with data collecting from the start of the fieldwork. This allowed the researcher to evaluate the accuracy of the information acquired. But after all the fieldwork was completed, a thorough analysis was conducted.

The data from the interviews was coded by the researcher. The researcher then read and reread all the information gathered to become familiar with it. Before coding the data, the researcher additionally listened to each tape recording. The researcher began coding the data in accordance with the study questions after reading through all the transcribed scripts. The

researcher used the QDA Miner Lite software to code the data because there was so much labour required. The researcher then organized the data in accordance with the study's objectives, analysed the responses, and looked for similarities and discrepancies.

The presentation of key themes was the final step in the analysis process. These themes were derived from data and judgments made in relation to the study objectives, evaluated literature, and theoretical framework. Finally, findings were replicated and resulted in the formulation of conclusions and recommendations for the study.

Table 4: Quantitative Data Interpretation

Score	Responses	Mean interval	Verbal interpretation
5	Strongly agree	4.51-5.00	Very satisfied
4	Agree	3.51-4.50	Satisfied
3	Neutral	2.51-3.50	Moderately satisfied
2	Disagree	1.51-2.50	Rarely satisfied
1	Strongly disagree	1.00-1.50	Never satisfied

Source: Author's Construction (2025)

3.13 Summary of the Chapter

This chapter described the research methodology selected for the study and the rationale for the choices made has been presented. A descriptive survey research design was used to collect data. The chapter explained why each item was used such as the research design, population, sample size, sampling procedure, research instruments, data collection procedure, data analysis and ethical consideration. The next chapter presents the findings of the study.

CHAPTER FOUR

STUDY FINDINGS

4.0 Overview

The previous chapter concentrated on outlining the study's research methods. It gave the reasons for choosing the research methods, which made use of a number of data collection and analysis techniques. The choice of a study paradigm, the research design, and other fundamental methodological elements were also essential topics covered in the previous chapter. This chapter presents the findings on Enhancement of Online Learning Strategies in Public and Private Higher Education Institutions in Zambia. Descriptive statistics such as frequency tables, means and standard deviations were generated using SPSS version 26. The threshold of 3.51 and above represented educators' satisfaction with the online learning service while any figure below represented dissatisfaction (See Table 1).

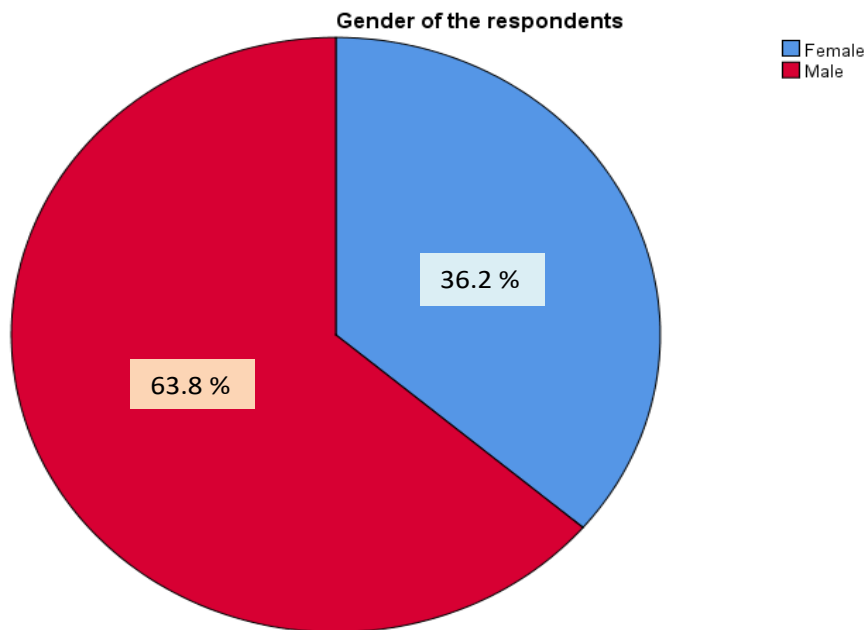
Participants' experiences with online learning in higher education institutions were analyzed thematically. The researcher presented the experiences of the participants and pseudo names were used for the purpose of anonymity of the people and institutions that were involved in the study. This chapter was presented according to the following research questions:

1. What is the Government of Zambia doing to ensure fast, accessible and affordable internet service in all higher learning institutions?
2. What kind of support is provided by university management to educators and learners engaged in online?
3. What strategies are the Internet Service Providers putting in place to enhance internet connectivity in higher learning institutions?
4. What strategies should be put in place by the Government of Zambia, higher education institutions and internet service providers to enhance online learning?

5. How should an ideal online learning policy framework be that can enhance online learning in higher education institutions?

The findings of the study have been presented systematically and the demographics of the educators who took part in the study were as follows:

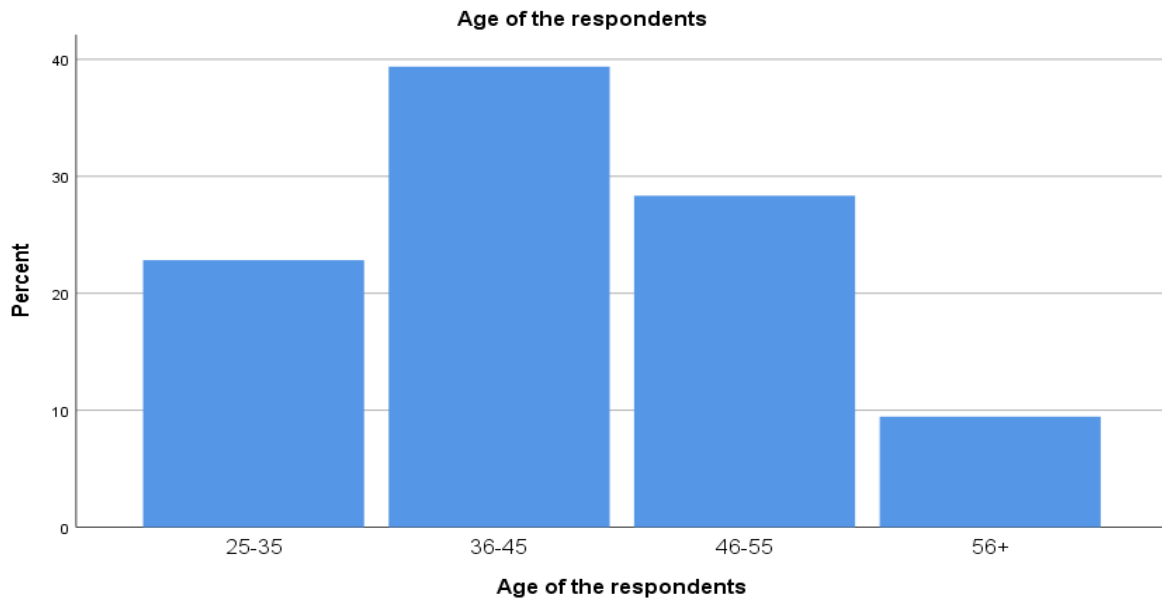
Figure 3: Gender of the Respondents



Source: Field Data, 2025

The demographic data on gender showed that majority of the participants were males, accounting for 63.8% of the total respondents, while females accounted for 36.2%. This could perhaps mean that majority of educators in the universities are male

Figure 4: Age of the Respondents



Source: Field Data, 2025

With regards to the age of the respondents, majority of the participants in the study were in the age bracket of 36 to 45 years, which translated into 39.4% of the total respondents, with the least number of participants falling in the age bracket of 56 years and above at 9.4%.

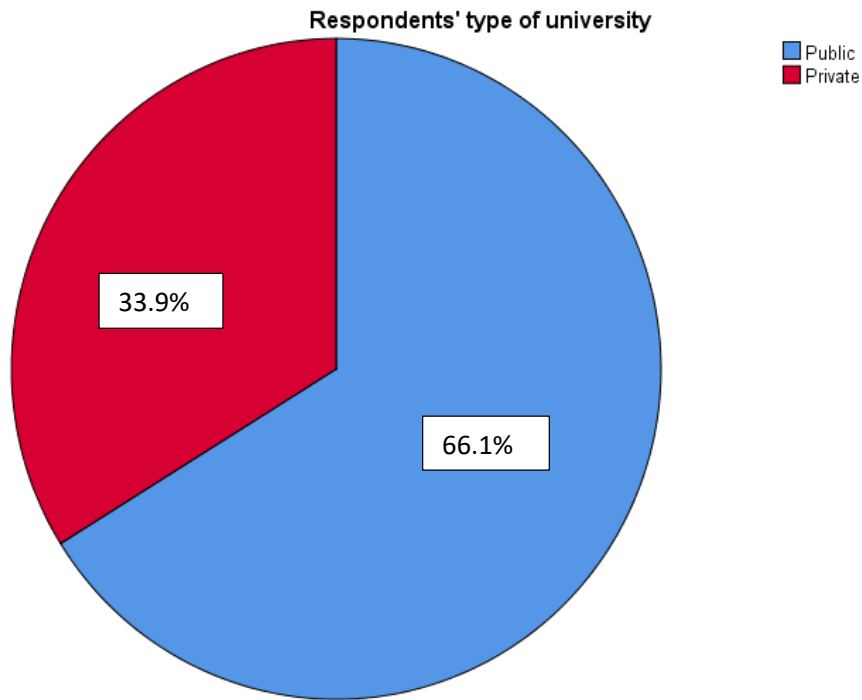
Table 5: Respondents' Years of Online Teaching Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1	12	9.4	9.5	9.5
	2-3	71	55.9	56.3	65.9
	4+	43	34.1	34.2	98.4
	Total	126	99.2	100.0	
Missing	System	1	.8		
Total		127	100.0		

Source: Field Data, 2025

Analysis of the respondents' demographic data also showed that most of the participants had 2 to 3 years of online teaching experience, accounting for 55.9%, one of the participants did not respond to this particular variable.

Figure 5: Respondents' type of university



Source: Field Data, 2025

It was also observed that 66.1% of the educators who completed the questionnaires were from public universities, while 33.9% were from private universities. Educators from the private universities were not so eager to complete the questionnaires distributed to them compared to the educators from public universities.

4.1 Government Support to Provision of Fast, Accessible and Affordable Internet

The first research question in the study sought to find out what the Government of Zambia was doing to ensure fast, accessible and affordable internet service in all higher learning institutions. The researcher was interested in finding out what the Government of Zambia was doing to

respond to the challenges of ineffective online learning in higher education institutions as highlighted in literature review. It seemed prudent for the researcher to solicit for government's voice on the challenges that online learning pedagogy was facing because of its central role in promoting education in Zambia as a policy maker and as a player in the education sector. Participant's responses showed numerous steps that were being taken to respond to the dire situation by the government.

4.1.1 ICT Projects

The study was informed of the measures which the government has put in place to attract private sector players in the ICT sector in Zambia such as introduction of tax incentives. One of the informants from the Ministry of Technology and Science revealed that:

Between 2023 and 2024; telecommunication has expanded with an addition of 5000km of optic fibre as a result of government intervention; bringing the total to 25000 km of optic fibre laid since Zambia got independence in 1964. Government has also given tax incentives in the ICT sector to increase private sector investment in digital infrastructure. One of the benefits of this measure is the introduction of 5G technology in Zambia, which will ensure fast internet connectivity. In addition to that, communication towers with 2G network will be upgraded to 4G network to increase the speed of internet across the country (Official A, 2024).

Furthermore, the researcher was informed that government, through Ministry of Technology and Science was working with Members of Parliament (MP) to identify places which needed urgent connection to phone and internet services across the country so that people could stop

walking long distances in search for internet connectivity as can be seen from the excerpt below:

\$54 million worth of investment has been attracted in the ICT sector between 2023 and 2024 as a result of government waiving taxes on importation of ICT equipment. ICT sector has been opened up to private sector investment. Star link, a private satellite internet service company, has brought in 11 thousand kits to connect the country to fast, reliable and affordable internet service (Official A, 2024).

Thus, private sector participation in the ICT industry as highlighted in the excerpts is expected to benefit the ICT sector stakeholders as it will enhance digital literacy and skills development.

4.1.2 ICT Infrastructure Development

ICT infrastructure refers to all the technologies that interfere and manage the information and communication processes of people. It encompasses the hardware, software, telecommunications and IT services. With regards to government support to higher learning institutions in terms of internet connectivity and infrastructure development, the study was informed that, there is a general ICT policy that guides on provision of ICT across all sectors in the country, that includes the education sector. The Official who was interviewed in relation to this study pointed out that;

ZAMREN has been mandated and funded by government to provide cheaper and quality internet connectivity to higher learning institutions in Zambia. Government partners with higher learning institutions to enhance online learning, for instance, Ministry of Technology and Science partnered with Copperbelt University (CBU) to put a Video Conferencing Facility (VCF) that ensures online

teaching and learning in Realtime at the main campus in Kitwe and 11 other branches that include Solwezi CBU branch. Partnership is not limited to public universities only but open to all higher learning institutions (Official A, 2024)

Additionally, the research found that; affordability of internet bundle was regulated by the ICT regulator; ZICTA, to ensure that the cost is not beyond the market value, though the regulator was also careful with its controls so that it does not push a price that would make Internet Service Providers (ISPs) fail to function. He concluded on this aspect by stating that the current cost of internet bundle was cost reflective as it was being monitored by the regulator; ZICTA.

The study was also informed of the future plans by the government for the ICT sector in Zambia. The research found that; Government of Zambia had signed an MOU with Google Cloud, a subsidiary of Google to drive the country's digital transformation journey. The study was informed that;

A center of excellence in digital transformation, innovation, skills development and knowledge sharing will be constructed in Zambia and Zambia will be connected to UMOJA fibre optic project which will run from Kenya through South Africa to Australia; which will ensure fast and affordable internet service to the country. Government and the private sector are constructing 520 communication towers countrywide with a target of reaching 96% phone and internet coverage by the end of 2025 (Official A, 2024).

Figure 6 shows a summary of the measures which the Government of Zambia is taking to enhance internet connectivity in Zambia among others.

Summary of the measures taken by the Government of Zambia to enhance internet connectivity

5000km Optic Fibre expansion
Construction of the ICT Centre of Excellence
Connection of Zambia to satellite Internet via Star Link
construction of 520 communication towers countrywide
Upgrading of towers with 2G Network to 4G Network
Mandate and fund ZAMREN to provide cheaper and quality internet connectivity
Introduction of 5G Technology
Giving Tax incentives in the ICT sector

Figure 6: Summary of the Measures taken by Government of Zambia to Enhance Online Learning

Source: Field Data, 2024

4.2 University Management's Support towards Online Learning Educators

The second research question in the study sought to evaluate the support which university management offered to educators and learners involved in online learning in Zambia. The experiences shared by the participants showed numerous challenges and positive developments arising from teaching learners via the online learning platforms. In this section, the researcher highlights the broad experiences of the participants on the subject of online learning.

4.2.1 Educators' Experiences

The study revealed that; Public University 1 (PU1) offered both pure online learning under the E-Campus supported by Astria E-Learning Solution and blended learning under the distance learning programme. Thus, some programmes were taught fully, and learners were examined through the online platform, while students under the blended learning programme were partly taught through the online platform and partly in the physical classrooms during the residential school. The study was informed that; PU1 provides a Video Conferencing Facility installed

by the government for teaching of online classes in real time. Additionally, the participant revealed that:

The university also trains educators in online teaching through the Directorate of ICT but no learners have been trained on online learning platform usage by the university. The assumption is that learners are hands-on and do not need to be taught on how to use the online platforms for learning (Director 1, 2024).

Furthermore, the research revealed educators' experiences in teaching online since the introduction of the pedagogy after the outbreak of Covid-19 pandemic in March, 2020. The participant stated the following when prodded to say more about this:

Educators use their own ICT equipment to teach online because the desk top computers provided by the university are obsolete, with old software. Educators also use their own internet bundle for teaching online since lessons are mostly offered in the evening. The university does not provide laptops or tablets or data bundles allowances for educators or learners. Those who cannot afford data bundles have to teach from the university where there is free internet connectivity and its assumed that learners can afford to buy their own ICT equipment. The university only provided internet bundle for educators during the Covid -19 period (Director 1, 2024).

The study was further informed that, ZAMREN provided internet to the university and to students across the country through Eduroam. The research revealed that, students only needed a password or code given to them by the university to access the internet at any education institution connected to ZAMREN for free.

Similarly, sentiments expressed by the participant from Public University 2 (PU2) corroborated with sentiments expressed by the participant from PU1. The participant stressed that:

The university offer 100 percent online learning programmes under E-Campus and blended learning for distance students. The Institute of Distance Education (IDE) provides training to educators regularly to ensure that educators are able to deliver excellent service to the learners. IDE also has a help desk that attends to the needs of the students and educators on a daily basis (Director 2, 2024).

The study also revealed that educators were not satisfied with online learning facilities put in place for learners with hearing and other disability challenges, but were somewhat satisfied with the ICT experts' support in ensuring that quality online learning took place even without face to face interactions with learners as evidenced by the mean score of 2.28 and 2.87 respectively.

Table 6: ICT Support

	N	Minimum	Maximum	Mean	Std. Deviation
The university has an online learning facility that meets the needs of the learners with hearing, as well as other disability challenges	127	1	5	2.28	1.188
Online courses are adjusted to cater for learners with hearing and other special education needs	126	1	5	2.06	1.144
ICT experts help to ensure that high quality learning take place without interactions with learners face to face	127	1	5	2.87	1.150
Valid N (listwise)	126		Average	2.40	1.160

Source: Field Data, 2025

However, the overall mean of 2.40 showed that educators were not satisfied with the ICT support provided by the ICT experts in the selected universities, though the standard deviation

of 1.160 showed that educators' perception towards ICT support during online learning was heterogeneous.

4.2.2 Resources

The study was informed that, PU2, through IDE provided to a limited extent, ICT equipment such as laptops to educators and gave monthly allowance to educators involved in online learning for internet connectivity when they were not on campus, a scenario which did not exist in PU1. Furthermore, the participant from PU2 intimated that; PU2 used to provide tablets and internet dongles to learners when it was still working with Astria Learning solutions at the point of registration during the Covid-19 period for students to use for online learning and accessing learning materials. However, the study was informed that, PU2 was now using Moodle for teaching online, which was cheaper compared to other online learning platforms and was not providing any ICT gadgets to learners as the case was during the Covid – 19 period.

Additionally, the research revealed that the Government of Zambia need to consider investing in establishing its own space satellite if the country is to enjoy quality and affordable internet connectivity across the country. The participant stressed that:

Zambia needs to get an own satellite in the cyber space as this will make internet cheaper and accessible even in rural areas (Director 2, 2024).

The study was further informed that, all educators at PRU3 are given laptops; while learners have access to tablets. The research revealed that; during Covid-19 period, all students used to be given tablets for free but at the moment, the university only facilitated the buying of tablets at an affordable price, which were given to each learner and the learner was expected to pay for it in instalments within the course of the semester.

Table 7 shows heterogeneity of the educators' responses with respect to the resources they received from their respective universities for online teaching as evidenced by the standard deviations which are mostly above 1.000. In other words, while some educators were satisfied with the resources they received for teaching online, others were dissatisfied. Table 6 showed that educators were satisfied with time management during online teaching, the organization of the online learning assessments, the organization of the online learning materials, and the equipment and facilities they had to enable them conduct online classes.

Table 7: Resources

	N	Minimum	Maximum	Mean	Std. Deviation
I have sufficient equipment and facilities (computer, internet, software) to conduct online classes	127	1	5	3.57	1.225
The university provides ICT equipment and facilities to conduct online learning	127	1	5	3.02	1.151
I have no challenges with the organisation of online learning materials, assessments and time management	127	2	5	3.72	.959
I have no challenges with the organisation of online learning assessments	127	1	5	3.79	1.005
I have no challenges with time management when I am teaching online	127	1	5	3.99	.913
I have limited tools for student's assessment under the online learning platform	127	1	5	3.39	1.134
The university provides or facilitates internet connectivity to all educators conducting online learning	127	1	5	3.16	1.348
The university has back up power supply to support online learning service in case of electricity supply blackout by the utility company.	127	1	5	2.63	1.308
The university has online learning resources at all the university centres across the country	126	1	5	2.71	1.146
The university has free internet service at all the university centres	127	1	5	3.13	1.182
Valid N (listwise)	126		Average =	3.31	1.137

Source: Field Data, 2025

Generally, the study showed that educators were moderately satisfied with the resources at their disposal for teaching online in their respective universities as revealed by the overall mean of 3.31 in table 7. However, since the mean score was below the threshold of 3.51, it meant that educators were not satisfied with the resources that were provided by the respective universities for effective teaching via the online platform, even though the overall standard deviation of 1.137 indicated that some educators had divergent views.

4.2.3 Online Learning Management Systems

The study revealed that Private University 3 (PRU3) utilized an online learning platform developed by the university that housed google meet, WhatsApp and also another learning platform powered by Claned; which has links for WhatsApp, google meet among other services. The participant pointed out that:

Each learner is assigned an email address which he/she uses to register with Claned for purposes of accessing online learning services and materials. Every semester there is a training workshop for educators concerning teaching online. Learners have virtual clinics on the use of the online platforms for learning effectively every two weeks, where IT staff attend to the questions and concerns from the students within the time frame given. For educators, there is a desk menu where they are helped whenever they have challenges so that technology does not hinder teaching for both old and new educators (Director 3, 2024).

In addition to the forgoing, the participant added that:

The university provides free internet service across the campus but has no control over internet connectivity outside the campus. The university has fully equipped ICT facilities with Google Cloud based storage for

storing all the online learning materials. However, government and internet service providers need to come on board and ensure quality and affordable internet is connected to private universities as well because education cuts across the types of educational institutions that offer it (Director 3, 2024).

Table 8 below shows data for educators’ responses on computer expertise they acquired from the online teaching workshops they attended. The responses showed that educators were satisfied with the training they received from the respective universities to teach online, the computer knowledge and IT skills they possessed as they taught online. Additionally, educators were satisfied with the level of interactions with the students during online learning, the facilities which were available for learners to ask questions clearly during online lectures, the online assignment feedback from the students and online assessment of learners’ competencies.

Table 8: Computer Expertise

	N	Minimum	Maximum	Mean	Std. Deviation
I had experience to teach online before the COVID-19 pandemic	127	1	5	3.29	1.549
I was trained by the university to teach online	126	1	5	3.98	1.106
I have sufficient computer knowledge and IT skills to manage online classes	126	1	5	4.43	.774
I am able to open cameras to maximise live interactions with students during online lessons	127	1	5	4.13	1.062
I am able to conduct theoretical and practical lessons without real interactions with the learners	127	1	5	3.39	1.273
Learners have the facility to ask questions clearly during online lectures	127	1	5	4.18	.971
Learners do their assignments and I provide feedback on their assignments online	126	1	5	4.02	.988
I am able to assess my learners fairly and determine their competency effectively online	127	1	5	3.88	.931

Valid N (listwise)	125	Average =	3.91
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Source: Field Data, 2025

However, educators were moderately satisfied with the online teaching experience possessed and the conduct of theoretical and practical lessons without real interactions with the learners as evidenced by the mean scores of 3.98, 4.43, 4.13, 4.18, 4.02, 3.88 and 3.29, 3.39 respectively. The overall mean of 3.91 showed that educators were generally satisfied with the computer expertise they possessed as they taught via the online platform but more innovative strategies were still needed to enhance the teaching of practical subjects via the online platforms.

In Table 9, educators' perceptions of the online learning pedagogy were displayed. The data presented showed that educators agreed that conducting online classes required more effort in comparison to face to face instruction as evidenced by the mean score of 3.59, though the heterogeneity of their responses was evident as indicated by the 1.217 standard deviation. Educators also agreed that traditional classes were more effective than online classes as shown by the 3.65 mean, even though the standard deviation of 1.269 showed divergence of educators' views on that variable. However, the overall mean of 3.19 showed that educators had a negative perception of the online learning pedagogy generally, though the responses were diverse as evidenced by the overall standard deviation of 1.147.

Table 9: Educators' Perception of the Online Learning Pedagogy

	N	Minimum	Maximum	Mean	Std. Deviation
Conducting online classes require more effort in comparison to face to face instructions	127	1	5	3.59	1.217
Traditional classes are more effective than online classes	127	1	5	3.65	1.269
Lack of physical instructions between learners and their instructors results in low performance	127	1	5	3.24	1.207
Learners with online learning courses outperform learners with face to face courses	127	1	5	2.13	.951

Learners with face to face learning courses outperform learners with online learning courses	127	1	5	3.39	1.298
I am satisfied with the learner - educator interactions during online lectures	127	1	5	3.20	1.008
Online learning is able to meet individual learner learning needs	127	1	5	3.15	1.077
Valid N (listwise)	127		Average	3.19	1.147

Source: Field Data, 2025

The views of the participants who were interviewed on the university management support provided to educators and learners engaged in online learning in higher education institutions seemed to suggest that more still needed to be done to enhance online learning in higher education institutions in Zambia. The sentiments expressed showed that the experiences of online learning in both public and private universities were somewhat cross-cutting. Therefore, for educational excellence to succeed, a practical and long-term online learning enhancement policy framework need to be put in place.

4.3 Internet Service Providers (ISP)’ Support to Enhanced Internet Connectivity in Zambia

In this segment, the researcher focuses on the third research question of the study which sought to document measures Internet Service Providers were putting in place to enhance internet connectivity in higher learning institutions and indeed across the country for the benefit of all learners.

4.3.1 Internet Connectivity to Higher Education Institutions

The study was informed that; ZAMREN, an ISP company, was mandated by government to connect higher education institutions to fast, affordable and reliable internet service. One of the informants revealed that:

ZAMREN is a brain child of the University of Zambia (UNZA) and Copperbelt University (CBU) whose main objective is to connect fast

and affordable internet service to higher learning institutions like UNZA, CBU, Mulungushi University, Kwame Nkrumah University among others on a nonprofit basis (Informant B, 2023).

In addition to the foregoing, the study revealed that; ZAMREN was working with higher learning institutions to support online learning (Digital Learning). The informant stated the following when asked to say more about the collaboration:

UNZA, for example, access more than 600 megabits per second from ZAMREN in terms of internet connectivity. ZAMREN also provides learning management systems like Moodle where videos, audios and text content can be uploaded for learners to access and can also be used for administration of online examinations effectively. Apart from that, ZAMREN provides Zoom licenses to learning institutions connected to it for free and also has an open source application called Big Blue Button which works like Zoom (Informant B, 2023).

4.3.2 Internet Access

The interaction with a participant in the study on the provision of ICT infrastructure revealed that; Internet access to educators and learners had been spread across the ten provinces of Zambia by ZAMREN through the institutions that subscribed to its internet service. The study was informed that:

ZAMREN has deployed Education Roaming (Eduroam) service across the 10 provinces of Zambia; connecting all public universities, colleges, STEM schools and private educational institutions that are willing to partner with it in quest for access to fast and affordable internet service. Eduroam service is free and students can access it for

free. In addition to that, ZAMREN has partnered with Zambia Information and Communications Technology Authority (ZICTA), Zambia Electricity Supply Corporation (ZESCO), Liquid Telecoms, Fibercon Ltd and Smart Net Zambia to provide fast and affordable internet to all learning institutions countrywide as mandated by the Government of Zambia (Informant B, 2023).

Additionally, the study revealed that; internet service providers were concerned with the high cost of the internet service in the country. The research was informed that, the motivation of the ISP was not to make profit but to provide quality internet service to the people. The informant who interacted with the researcher stated that:

To reduce the challenge of students using expensive internet bundles while in school; ZAMREN connects students' halls of residence at 50%-50% cost sharing with respective institutions. DALICE and Mulungushi University already connected students' halls of residence to ZAMREN internet under the 50%-50% arrangement model and students are accessing fast and cheap internet service. The idea is to eliminate the use of internet bundles because internet connection with bundles is not stable and its expensive (Informant B, 2023).

In conclusion, the participant advised the government to consider reducing tax on ICT equipment as it led to high internet cost in the country and also shared the company's future plan of providing a bigger internet capacity in Zambia at a lower cost so that there is no buffering.

4.4 Strategies for Enhancing Online Learning in Higher Education Institutions in Zambia

The fourth research question intended to collect data on the strategies that could be put in place to enhance online learning in higher education institutions in Zambia. Consequently, the researcher gathered views of educators from the selected universities on the strategies that need to be put in place to enhance online learning in higher education institutions in Zambia. An open-ended question was inserted in the questionnaires that were distributed to purposively selected educators to capture their views. Educators from both private and public universities who were not satisfied with the performance of the online learning pedagogy were given a chance to share their views on what needs to be done to enhance online learning performance.

4.4.1 Educators' Views

Majority of the educators who were not satisfied with the performance of online learning in higher learning institutions shared various strategies which could be implemented to enhance online learning. Their views are presented according to the themes generated from the findings as follows:

4.4.1.1 Inadequate Resources

The study revealed that, most of the educators involved in online teaching taught with limited resources. One of the participants pointed out that:

Educators should be provided with gadgets for teaching such as touch screen computers, touch pens, graphic designers for creating content and facilitation of the interactive live assessments for effective online learning to take place (Educator 1, 2024).

In a similar vein, another participant from a public university, stated that; practical work was very cardinal from the perspective of engineering courses. The respondent stressed that, for

online learning to be effective, there was need to develop software that would enable practical work to be conducted online because engineering courses were hands-on. Furthermore, another participant from a private university, pleaded that learners should be given easy access to the internet because those who were coming from resource poor families had no access or struggled to have access to the internet and laptops, which ultimately disadvantaged them in terms of performance when compared to friends who were coming from affluent homes where all the necessary ICT resources were available. On the other hand, one participant suggested that:

Universities need to couple online learning with subscriptions to reputable journals in all educational fields so that learners can have access to quality study materials (Educator 3, 2024).

Submissions by the educators suggested that online learning pedagogy was destined to have a greater influence in the education system of the country if timely interventions continued to be made where gaps were identified.

4.4.2 ICT Skills Training

Correspondingly, a participant from a private university recommended that universities need to buy licensed software to help monitor learners during online assessments or examinations in order to avoid cheating or copying of solutions from other sources. Additionally, a participant from a public university was of the view that government and universities need to put in place tight policies that would enhance online learning and pointed out that:

There is need to improve on internet connectivity especially in rural areas for the benefit of learners. Apart from that, all learners need to be trained on how to use the online platforms for learning because

learners from rural areas are mostly disadvantaged due to lack of basic ICT skills and tools like laptops or tablets for learning. Universities should also allow students to report for physical lessons on campus for a prescribed period of time to allow teacher – student interactions and also for concretizing skills learnt via online, especially for practical courses (Educator 2, 2024).

Thus, improvement of internet connectivity in higher learning institutions, ICT skills development among learners and also the provision of in-service training to educators on a quarterly basis can contribute greatly towards enhancement of online learning.

4.4.3 Collaboration with other Learning Institutions

The study was informed of the need for universities to work with other learning institutions across the country that are well established so that learning activities which can be conducted within the locality of the learners can be done without attracting costs. One of the participants pointed out that:

Universities need to establish collaborations with research centers and public or private laboratories across the country where learners pursuing science and practical courses can go and do their practical work without necessarily going to the university campus (Educator 3, 2024).

Such innovative approaches need to be encouraged as it will have a ripple effect even on other young people not enrolled in higher education institutions in terms of motivation to pursue higher education in the long run. This is because the young people around would be motivated after seeing university students learning and doing practical work in their local institutions.

Above all, collaborations of this nature will enhance online learning and also increase access to higher education in Zambia at a minimal cost.

4.4.4 Capacity Building

Capacity building is the process of improving the skills, knowledge and resources of individuals or institutions. It helps people and institutions to adapt and thrive in a changing world. The study was informed of the dire need to teach or equip learners with ICT skills required for them to effectively participate in online learning and also for online learning resources accessibility. In light of the foregoing, one of the participants stressed that:

Universities need to couple online learning with subscriptions to reputable journals in all educational fields so that learners can have access to quality study materials. Besides that, there is need to increase the number of students that can be taught in an online learning session through subscription to licensed software. For example, some free platforms can only admit below 200 learners at a go, with limited timeframe for each session, for instance, 40 minutes for Zoom, leading to other learners missing lessons and sessions being cut needlessly. On the other hand, learning institutions must provide regular online teaching refresher courses for educators as most of them were trained to teach face to face content delivery. Above all, learning institutions need to introduce online teaching methodologies in the training curriculum for educators if educators' performance in online learning is to be enhanced (Educator 4, 2024).

Table 10 shows a summary of the recommended strategies for enhancing online learning in higher education institutions in Zambia by the Directors of Distance Education and educators in the selected universities as categorized under the highlighted themes.

Table 10: Summary of Recommended Strategies for Enhancing Online Learning

ICT Resources Provision	ICT Skills Training	Stakeholders' Support
<ul style="list-style-type: none"> • Educators teaching online should be given access to internet service even at home. • Invest more in ICT equipment e.g laptops, touch pads, dongles e.t.c. for educators engaged in online learning. • Invest more in online learning software e.g zoom for enhanced teaching and learning in higher learning institutions. • Zambia needs to get an own satellite in the cyber space as this will make internet access cheaper and accessible even in rural areas • Universities need to facilitate learners' acquisition of ICT gadgets at an affordable price as this will enhance teaching and learning via the online platforms. 	<ul style="list-style-type: none"> • Educators need regular training on teaching online and assessing learners through the online platforms. • Educators need to be trained on how to handle ChatGPT software so as to detect plagiarism. • Enhance the teaching of practical courses via the online platform. • Learners need to be trained regularly on the use of the online platform for learning so as to enhance their performance. 	<ul style="list-style-type: none"> • Government and internet service providers need to support private universities as well by ensuring quality and affordable internet is connected to private universities. • Improve power supply to all higher learning institutions through solar systems installation. • Improve internet connectivity in the learning institutions to effectively support online learning. Government needs to reduce tax on ICT equipment as it leads to high internet cost in the country and also affects easy access to affordable ICT equipment like laptops, tablets, etc for both learners and educators. • Government should use part of the Constituency Development Fund to buy ICT gadgets for learners who cannot afford, especially those in rural areas.

Source: Field Data, 2024

The submissions from the Directors of Distance Education and educators from the selected universities showed that a lot can still be done to enhance online learning in higher learning institutions in Zambia. Thus, in the segment that follow, the researcher sought to find out policies that guided implementation of online learning in higher learning institutions.

4.5 Online Learning Policy Framework Utilized in Higher Education Institutions in Zambia

In this section, the researcher focused on examining policies that governed online learning in the selected higher education institutions in Zambia. Directors of Distance Education in the selected universities were interviewed by the researcher and they revealed the policies that guided online teaching and learning in the respective universities.

4.5.1 Existing Online Learning Policies in the Selected Universities

The study established that some universities were conducting online learning without an established online learning policy to guide its implementation. A participant from PU1 asserted that:

The university only has the Open Distance Learning Policy which was developed before the advent of online learning. No policy has been developed yet on online learning but the university is going into that direction (Director 1, 2024).

Correspondingly, a participant from PRU3 had similar sentiments to those of the participant from PU1 and categorically stated that the university only had a distance learning policy. This meant that the university had not developed an online learning policy to guide the implementation of online learning in a coordinated manner. On the other hand, the participant from PU2 commented that:

Online learning is governed by three policies which are; Open Distance E-learning policy, ICT policy for the university and the Higher Education Open and Distance E-learning guidelines that cover all manner of online learning in the higher education institution (Director 2, 2024).

The submissions from the Directors showed that, while other higher learning institutions were way ahead in terms of implementing online learning in a coordinated manner through well-established policies and framework guidelines, some learning institutions implemented the pedagogy without any proper policies and guidelines. The findings of this study are therefore very significant as they inform policy makers and higher learning education quality assurance officers of the gap that exists in the implementation of online learning in the universities. The identified gaps need to be closed urgently by coming up with an online learning policy framework that can enhance online learning in higher education institutions before the quality of education being offered in the country is compromised.

4.6 Ideal Online Learning Policy Framework that could Enhance Online Learning in Higher Education Institutions in Zambia

Lack of satisfaction with the performance of online learning was a common phenomenon among educators who were involved in the study. While restating the importance of online learning in complimenting distance learning in higher education institutions in Zambia, which has become a popular education platform for professional employees who wish to upgrade their academic qualifications; educators highlighted a number of policy issues that need to be put in place if the quality of online learning is to improve. One of the educators stressed that;

Regulation of online learning in the universities has to be improved so that in the end, institutions of higher learning are compelled to meet

the standards both in running online studies and providing equipment needed to facilitate teaching and learning via the online platform (Educator 4, 2024).

Submissions by the educators confirmed the input given by some of the Directors of Distance Education that online learning was not regulated in most of the higher learning institutions in Zambia. It appeared that, each university had its own rules and regulations that governed the implementation of the online education platforms. In a similar vein, another educator pointed out that;

ICT courses in colleges and universities must be made compulsory in order to equip graduates with relevant skills that would make teaching via online platforms viable and effective (Educator 5, 2024).

In addition, one of the educators was of the view that there should be a deliberate policy that would compel all higher learning institutions to provide ICT resources to both educators and learners so that technology should not be a barrier to effective teaching and learning. To validate this, the educator pointed out that:

All registered learners, especially those from rural areas must be provided with ICT gadgets for learning online like smart phones, tablets or laptops so that they can successfully learn online. Education is a right for every human being, not a privilege (Educator 6, 2024).

Furthermore, all the educators who took part in the study espoused the importance of accessibility to affordable and reliable internet connectivity if online learning is to be enhanced.

In light of the foregoing, one of the educators added that:

All satellite university centers must be connected to free Wi-Fi internet which can be accessed via a code so that learners who cannot afford

internet bundle can go and learn from the nearby centers (Educator 7, 2024).

It was clear from the submissions of the Directors of Distance Education and Educators that a new policy framework for enhancing online learning was an absolute necessity. This study was therefore carried out at the right time as the findings would help to come up with an ideal online learning policy framework for enhancing online learning in higher education institutions in Zambia.

4.7 Summary

This chapter presented the results of the study on enhancement of online learning strategies in public and private higher education institutions in Zambia. The results have been presented in line with the research objectives and themes that emerged from the study. The next chapter provides a discussion of the findings of the study.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.0 Overview

This chapter discusses the findings of the study titled; Enhancement of Online Learning Strategies in Public and Private Higher Education Institutions in Zambia. The study was designed to provide empirical evidence that would inform the decisions of policy makers, the Ministry of Education and higher education institutions' administrators on the ideal online learning policy framework that could address the challenges which online learning in Zambia was currently facing. The discussion was done according to research objectives and themes which emerged from the data collected. The objectives of the study were as follows:

1. To assess measures the Government of Zambia has put in place to ensure fast, accessible and affordable internet service in all higher learning institutions.
2. To evaluate the support which university management offered to educators and learners involved in online learning in Zambia.
3. To investigate what Internet Service Providers were doing to enhance internet connectivity in higher learning institutions.
4. To explore innovative strategies which could be put in place by the Government of Zambia, higher education institutions and internet service providers to enhance online learning in higher education institutions.
5. To propose an ideal online learning policy framework that can enhance online learning in higher education institutions

5.1 Government Support to Provision of Fast, Accessible and Affordable Internet

The current study has revealed significant progress in addressing online learning challenges through different stakeholders. A detailed interview with an official from the Ministry of

Technology and Science revealed a number of measures which the Government of Zambia was putting in place to ensure fast, accessible and affordable internet service is spread to every part of Zambia for the benefit of all learners and educators regardless of their social status and for the benefit of all types of higher learning institutions. Some of the steps taken by the government included; Introduction of 5G Technology in the Zambian ICT sector, connection of Zambia to satellite internet via Star Link, mandating and funding of ZAMREN to provide cheaper and quality internet connectivity across the country.

The findings of this study give a glimmer of hope for enhanced online learning in Zambia as it counters the documented evidence in the studies carried out on the subject of online learning that have consistently highlighted inadequate resources as a major hinderance to effective online learning (Hapompwe et al., 2021; Magasu et al., 2022). Additionally, Mukosa and Mweemba (2019) made it clear that the high cost of internet bundles, lack of devices for internet access and also the poor quality of internet services in Zambia were the major challenges in implementing online learning.

On the other hand, the study further revealed other measures taken by the government such as laying of 5000km optic fibre across the country in order to expand internet connectivity access, construction of the ICT Centre of Excellence in Zambia to act as nerve center of ICT, construction of 520 communication towers countrywide to increase internet coverage area, upgrading of towers with 2G network to 4G network so as to increase internet speed, and introduction of Tax incentives in the ICT sector to attract other players in the ICT sector with financial resources to support government effort to revolutionize the ICT industry. These measures taken by the government were definitely sparking some hope of an enhanced online learning system in Zambia as they were in tandem with the recommendations made in a study carried out by Daka et al. (2022) where a deliberate collaboration between government and the

private sector was viewed as the best way to create holistic strategies that could help to overcome the barriers to internet connectivity and high cost of internet bundle.

Contrary to a previous study by Konayuma (2012) which highlighted financial and technological resource constraints on the part of government and policymakers' agony to justify spending scarce and limited resources on ICTs when many government institutions were still lacking basic amenities and educational supplies, the aforementioned findings of this study were definitely ground breaking as they showed a complete turnaround in terms of government effort to ensure a coordinated approach in the adoption and implementation of initiatives targeted at the deployment of ICT solutions in the education sector.

Besides that, government's decision to deploy innovative strategies such as upgrading of internet network towers from 2G to 4G network, deployment of 5G technology in the country and introduction of tax incentives in the ICT sector to attract more players is commendable because it catalyzes the attainment of government's ICT sector vision of ensuring that all learners have access to equitable and inclusive quality education through the delivery of education using ICT platforms as highlighted in the 8th National Development Plan (Ministry of Finance and National Planning, 2022). Above all, mandating and financing of ZAMREN to be the torch bearer in the ICT sector in terms of connecting higher learning institutions to affordable and higher quality internet irrespective of the geographical location via the Eduroam facility is definitely a decisive turning point.

5.2 University Management's Support to Online Learning Educators

The findings of this study regarding educators' computer expertise were that; universities trained educators in online teaching through the Directorate of ICT at varied intensities but not all universities trained learners on the usage of online learning platforms. Some universities

made assumptions that all learners were capable of manipulating computers without being taught, which was a flawed assumption.

This perspective was in line with the views of the educators that revealed that; much as they were satisfied with the training they received from the respective universities to teach online, they were not satisfied with the online teaching experience they encountered and the conduct of theoretical and practical lessons without real interactions with the learners (See Table 10). This was because some learners who were part of the online lessons did not know anything at all when it came to the use the ICT gadgets. Some were even failing to switch on their microphones when they were asked to take part in the lessons.

According to Journell (2012), higher learning institutions that choose to move programs online must provide educators with adequate learning opportunities to explore the various nuances of online teaching such as creating online classrooms, learning to implement synchronous and asynchronous communication, and assessing learner performance. This revelation justifies educators' dissatisfaction with the online teaching experiences they encountered because learners they were teaching had not received adequate training opportunities to enhance their skills and could hardly participate in the teaching and learning process.

Additionally, Journell (2012) states that, students also need to learn what to expect from online learning in terms of instructions on the habits needed for successful online learning experiences and examples of how to communicate with classmates and educators regularly. Thus, the revelations in the current study that some universities were not training learners on how to use the online platforms for learning and educators in some selected universities were only trained once in a while on the usage of the digital platforms to teach meant that, online teaching was not being implemented to the expected standard in some universities.

The importance of equipping educators and learners involved in online learning with computer skills is revealed in a study conducted in Taiwan by Li and Lee (2016), that showed a significant positive relationship between computer knowledge and online learning perception among the learners. The study revealed that, higher computer literacy correlated with higher online learning perception. In the same vein, Sahin and Shelley (2008) argued that as long as learners have the skills to use online tools and perceive that online education is a useful and flexible way of learning, communicating and sharing, their enjoyment from online instruction will be promoted.

Thus, the findings of Li and Lee (2016) and Sahin and Shelley (2008) clearly unveils the reasons why online learning has not received very positive perceptions from both educators and learners in Zambia. Lack of adequate training in computer skills among educators and learners as evidenced by the current study findings has made educators and learners to perceive online learning as a burden, instead of viewing it as one of the interesting and flexible teaching and learning pedagogies. Therefore, all higher learning institutions in Zambia need to scale up computer skills training among learners and educators if online learning is to be enhanced.

Besides that, interviews with Directors of Distance Education in the selected universities brought to the fore the real situation that was prevailing in the universities in terms of accessibility to resources that would enhance online learning. While private universities could give laptops to all educators engaged in online teaching and tablets to all learners who were engaged in online learning, public universities were neither giving ICT gadgets nor internet data bundles to both educators and learners. Only administrators in public universities received laptops and monthly internet data bundles in some instances. The common understanding in the public universities was that educators who could not afford data bundles were to teach from the universities where there was free internet connectivity.

It was also noted that most of the educators from the public universities had obsolete desk top computers with old software. These findings were unfortunately, not in tandem with the ideology of the constructivist learning theory as discussed by Bada and Olusegun (2015) which emphasises on the importance of learner centred learning and use of multiple modes of presenting information such as video, audio and text during online learning. Lack of latest version of desk top computers or laptops with latest software makes the ideology of the constructivist learning theory untenable. In essence, higher learning institutions that offer online learning need to anchor their teaching philosophy in the constructivist learning theory by providing the requisite resources required such as updated computers and affordable quality internet access to both educators and learners in order to make online learning the 21st century digital education platform of choice.

Another assumption made in public universities was that, all learners who enrolled in online learning could afford to buy ICT gadgets like laptops and tablets; and could also afford to buy data bundles for themselves, which was not realistic. The findings of the study conducted by Mwila et al. (2021) reveal a scenario where a particular learner from the rural part of Western province of Zambia missed 75% of the online classes due to lack of internet bundles as the cost proved to be too high. Thus, the reality in the communities with regards to internet accessibility among learners is quite harsh compared to the assumptions made by the public higher learning institutions. This situation needs to be addressed as soon as possible through the development and adoption of a deliberate policy framework on online learning enhancement for benefits of the educators and learners from diverse backgrounds as per the object of this study.

5.2.1 ICT Support

The findings of this study further suggest that educators were generally not satisfied with the ICT support provided by the ICT experts in the selected universities as revealed by the overall mean score of 2.40 on this particular variable in the previous chapter. This was especially

evident with neglect of the learners with hearing and other special education needs whose interests were not taken care of in the online learning pedagogy. It is therefore, the position of this study that policy makers take into consideration the aspect of inclusive digital learning as they come up with new policies that would enhance online learning in higher education institutions in Zambia.

ICT support could have been good in other higher learning institutions as revealed by the standard deviation of 1.160 in the previous chapter but more still needed to be done to inspire educators to embrace the pedagogy. Moreover, Pynoo et al. (2011) argues that, educators are not supposed to only strive to improve on their teaching approaches and instructional skills but to also constantly adapt to new technologies, expand their knowledge base, refine their skills and competencies in order to successfully integrate instructional technologies efficiently and effectively.

Therefore, higher education institutions in conjunction with the Government of Zambia need to invest in mechanisms that will see learners with special education needs brought on board in terms of online learning and also establish help desks or call centers within universities to attend to learners whenever need arises so that technology should not stand in the way of teaching and learning.

5.2.2 Educators' Perception of the Online Learning Pedagogy

From the quantitative analysis conducted on educators' perception of online learning, 76.4% of the educators were of the view that online learning was not performing to the expected standard as shown in Table 11. This could be explained by the challenges that were highlighted by the Directors of Distance Education in the selected universities.

Table 11: Educators' Views on the Performance of Online Learning

Is online learning performing to the expected standard?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	97	76.4	77.0	77.0
	Yes	29	22.8	23.0	100.0
	Total	126	99.2	100.0	
Missing	System	1	.8		
Total		127	100.0		

In summary, the results of the survey carried out among educators in the selected universities showed that educators were generally satisfied with the university management' support provided to educators engaged in online learning in higher education institutions in Zambia with regards to equipping them with computer expertise they needed to teach online but were not satisfied with the resources they received, the ICT Support they got from their respective universities and had a negative perception of the online learning pedagogy.

The findings of this study are in line with the results of the research conducted by Kotoua et al. (2015) in Ghana, where students' perceptions of the online learning was found to be negative primarily due to inadequate resources and lack of ICT support from the key stakeholders. Additionally, research conducted by Jayaratne and Moore (2017) on the perceptions of college students towards online classes at North Carolina State University, USA, revealed that learners who took classes online had a positive perception towards online classes because online classes were taught so effectively that the learning expectations of the learners were met. Therefore,

higher learning institutions in Zambia need to invest more in ICT resources and technical support if educators and learners are to develop a positive perception of the online learning pedagogy.

5.3 Internet Service Providers (ISP)' Support to Enhanced Internet Connectivity

It was also noted through the current research findings that, while government was taking a leading role in facilitating effective implementation of online learning in Zambia through various interventions, ISPs were equally playing a significant supportive role on this digitalization journey.

5.3.1 Provision of Free Learning Management Systems

This study revealed a number of strategies implemented by ZAMREN, a company mandated by government to provide internet connectivity in higher learning institutions. Some of the key measures implemented by ZAMREN included; provision of learning management system such as Moodle, Zoom licenses, open source application called Big Blue Button which works like Zoom and Eduroam service in all the ten provinces of Zambia for free.

Other strategies undertaken by ZAMREN encompassed fostering partnerships with other service institutions like ZICTA, Zambia Electricity Supply Corporation (ZESCO), Liquid Telecoms, Fibrecon Ltd and Smart Net Zambia to enhance internet connectivity, and connection of students' halls of residence at 50 - 50% cost sharing model with respective institutions in order for students to access fast and cheap internet service. It was gratifying to note that top ranked public universities such as The University of Zambia, Copperbelt University, Mulungushi University and colleges like David Livingstone College of Education (DALICE) among others were already benefiting from the quality and affordable internet services provided by ZAMREN. Private universities would also benefit greatly in terms of

quality and affordability of internet if they were to connect their learning facilities to ZAMREN.

Furthermore, the Eduroam service and the 50 -50 % cost sharing internet connectivity model in students' halls of residence were commendable innovative strategies for eliminating the use of internet bundles because internet connection with bundles was observed to be unstable and expensive (See 4.2.2). The study also revealed that affordability of internet bundle was regulated by the ICT regulator, ZICTA; to ensure that the cost was not beyond the market value, but the regulator was also careful with its controls so that it did not push a price that would make Internet Service Providers (ISPs) fail to function (See 4.1.2). This meant that the current cost of internet bundles was reflective of the market value and was approved by the ICT regulator, ZICTA, despite the price being viewed as being expensive (Mukosa & Mweemba, 2019). Hence, the use of the highlighted innovative strategies was a sure way of resolving the challenge of the high cost of internet bundles in the country.

5.3.2 ICT Software Support

The provision of free software support to higher learning institutions in Zambia regardless of whether it was a public or private higher learning institution was a step in the right direction in terms of online learning enhancement (See 4.2.1). A study conducted in Nigeria by Sani et al. (2021) revealed that the high cost of software and licenses put off some of the learners who showed interest in online learning. Hence, higher learning institutions in Zambia must take advantage of this innovative strategy by government and source their internet connectivity from ZAMREN, a company mandated and funded by government to provide cheaper and quality internet connectivity to all higher learning institutions for the benefit of educators and learners.

The action taken by the government in tackling the challenge of ineffective online learning in higher education institutions aligns perfectly with the pragmatic research paradigm that

underpinned this study. Thus, the paradigm's focus to find what works, the provision of solutions to societal problems, and the desire to make mankind happier by enabling them to cope more successfully with the physical and social environment makes it the best paradigm for this study.

While key steps are being taken by the government to address some of the challenges affecting effective implementation of online learning in Zambia such as funding of ZAMREN to provide affordable internet connectivity in higher learning institutions, a lot still need to be done for online learning to be delivered at the desired standard. The revelations in the current study show that not much investment has been made to support online learning in higher education institutions in Zambia, especially in the area of ICT resources mobilization and support to both educators and learners.

5.4 Strategies for Enhancing Online Learning

This study informs stakeholders in online learning that there is need to listen and understand the practical implications of the challenges being experienced by both educators and learners engaged in online learning. This would make online learning pedagogy efficient, effective and appealing to both educators and learners.

5.4.1 Online Policy

Some of the strategies recommended for enhancing online learning included; improved regulation of online learning in the universities so that in the end, institutions of higher learning can be compelled to meet the standards both in running online studies and providing financial resources needed to facilitate teaching and learning via the online platform.

Besides that, the study recommended for the compulsory introduction of ICT courses in colleges and universities in order to equip graduates with relevant skills that would make

teaching via online platforms viable and effective. Such recommendations make strong policy contributions for an enhanced online learning. Mikre (2011) and Kisanga and Ireson (2015) stated that lack of information and communication technology policy that sets the milestones in place is the biggest challenge that faces online learning in developing countries. This study hopes to bring this challenge to an end by recommending a strong online learning policy framework that would effectively guide online implementation process.

5.4.2 Resources

According to the findings of this study, provision of ICT gadgets for learning online such as smart phones, tablets or laptops to all registered learners, especially those from rural areas is very important. This is because such a decision would enable all learners to successfully learn online because education is a right for every human being, not a privilege. Besides that, mandatory employment of fully qualified ICT personnel to train learners who are not conversant with technology and connection of free Wi-Fi internet which can be accessed via a code to all higher learning institutions would contribute greatly towards online learning enhancement. These findings confirm revelations in the studies conducted by Hapompwe et al. (2021) and Magasu et al. (2022) that scarcity of resources is one of the challenges affecting the success of online learning in developing countries like Zambia.

5.4.3 ICT Training

Some educators engaged in the study recommended for provision of regular online teaching refresher courses for educators as most of them were trained to teach face to face content delivery at the time of their training and the introduction of online teaching methods in the training curriculum for enhanced educator performance. These recommendations connect well with the findings of the study conducted by Khaloufi and Laabidi (2017), where it was noted that; educators who were very knowledgeable in the use of ICT gadgets demonstrated higher levels of integration of computer technology in their teaching than those with less computer

skills. This signifies the importance of ICT training as a catalyst for online learning enhancement. Figure 6 below displays the strategies that could help to enhance online learning in Zambia.

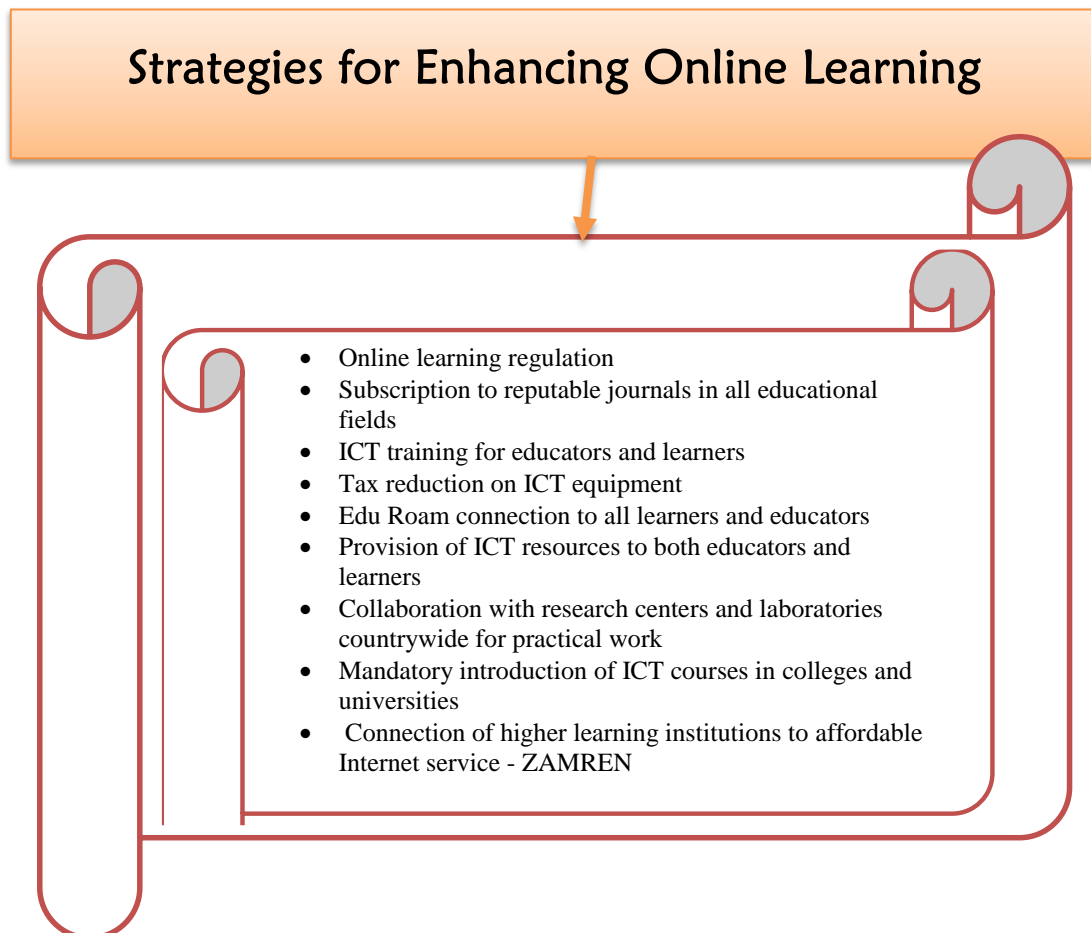


Figure 7: Strategies for Enhancing Online Learning

Source: (Field Data, 2024)

It has been demonstrated in this study that, while previous studies on this topic focused mainly on the challenges which students that were learning via online platforms encountered and the challenges which educators that taught online experienced, the findings of the current study reveal measures that have been put in place to address those challenges by different stakeholders and the strategies that could enhance online learning in higher education institutions in Zambia.

5.5 Ideal Policy Framework for Enhancing Online Learning

The last objective of this study sought to propose an ideal online learning policy framework that would enhance online learning in higher education institutions in Zambia. The thrust of this last objective was in line with the research paradigm that guided the researcher's research position in this study. This is because pragmatist research philosophy is focused towards studying real problems in the world such as ineffective online learning in higher learning institutions in Zambia (Fiorini et al., 2016). Thus, the concern for the pragmatic paradigm is to find what works and provides solutions to societal problems, and to make mankind happier by enabling them to cope more successfully with the physical and social environment, which was the objective of this study.

By developing a workable online learning policy framework that incorporates key fundamentals of online learning, Zambia can improve online learning delivery in higher education institutions, thereby expanding access to quality education across geographical and social strata. The positive impact of an enhanced online learning system is depicted in the study conducted by Kenzig (2015) which reveals that, approximately 5.5 million learners take at least one online course at every institution of higher education in the United States per year and over 70 million people take part in online learning opportunities for professional development, employment training, and personal growth each year, a development which can also take place in Zambia if an ideal online learning policy framework can be put in place. A well-structured online learning policy framework would greatly benefit higher learning institutions, educators and learners in Zambia. The proposed online learning policy framework, which is based on the data collected from the study; highlights roles that must be played by the government such as tax reduction on ICT equipment for higher learning institutions in order to reduce costs related to importation, development of an online learning regulatory framework to guide the implementation of online learning in all higher learning institutions and ICT infrastructure

development for online learning to be enhanced. The proposed ideal online learning policy framework is illustrated in Figure 8.

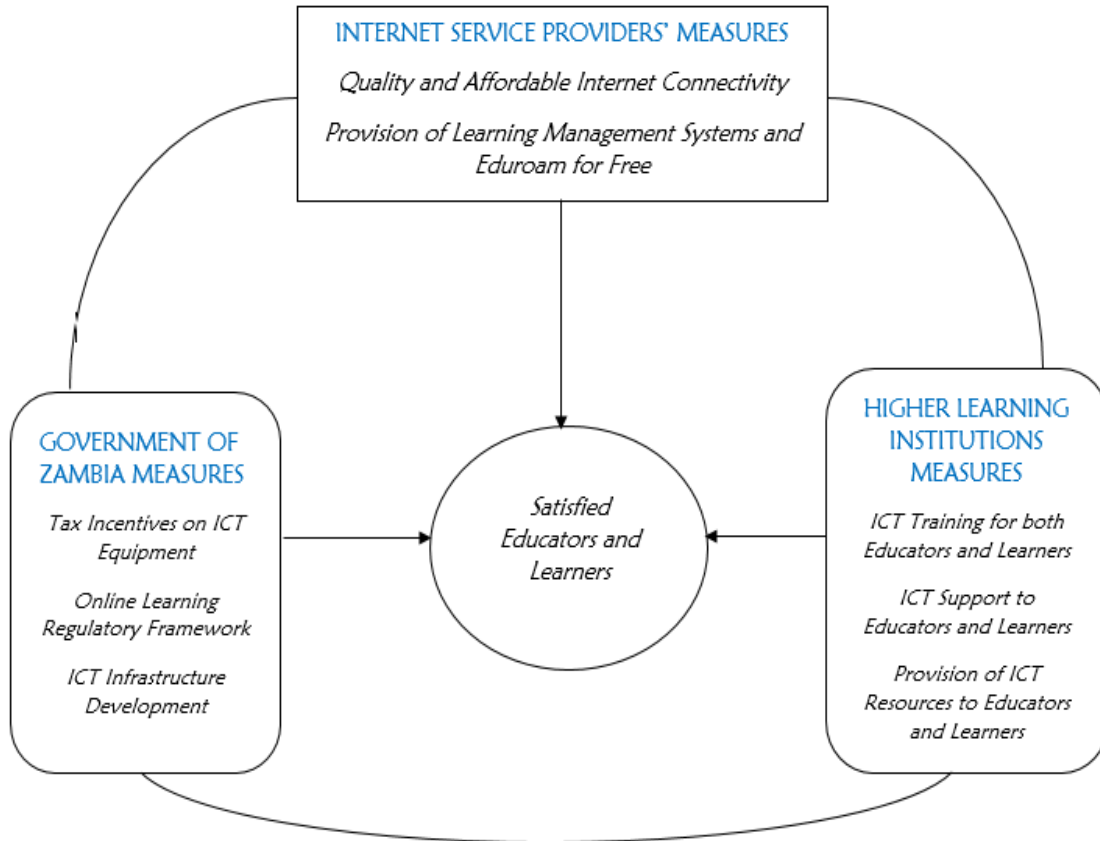


Figure 8: Online Learning Enhancement Policy Framework

Source: Field Data, 2025

This framework displays the roles which ISPs need to play to support online learning like, provision of quality and affordable internet connectivity to all higher learning institutions and installation of learning management systems and Eduroam for free.

Furthermore, the framework incorporates key roles which higher learning institutions and the government of Zambia need to play in order to enhance online learning such as ICT training for both educators and learners, offering ICT training support to both learners and educators so as to enhance their digital learning competencies, provision of ICT resources like laptops and tablets to both educators and learners, provision of tax incentives on ICT equipment,

development of an online learning regulation framework and ICT infrastructure development. The submissions from the study participants as revealed in chapter four clearly showed the deficits of the online pedagogy in the six key areas as follows:

5.5.1 Tax Incentives on ICT Equipment

One of the participants from PU2 whose views were shared in chapter four of this study revealed the need for government to reduce tax on ICT equipment as it led to high internet cost in the country. The argument presented was that, the cost of internet service in Zambia was very high and was beyond the reach of common citizens and learners at large. This sentiment was also shared in the study carried out by Kaumba et al. (2021), Hapompwe et al. (2021) and Mwila et al. (2021) where the challenge of high cost of internet bundle and inadequate ICT infrastructure were highlighted.

Participants' revelations signify the importance of tax incentives in the ICT sector in quest for enhanced online learning. Hence, the Government of Zambia need to get involved in the ICT sector business heavily and provide tax reliefs that will trigger affordability of the ICT equipment like laptops and tablets among others for the benefit of learners and educators.

5.5.2 Online Learning Regulatory Framework

A regulatory framework is a set of rules, regulations, and laws that govern a particular sector. It establishes standards and guidelines on how individuals, organizations and institutions must comply. In this study, educators voiced out on the need for online learning to be regulated if high standards of delivery are to be maintained in all higher learning institutions with respect to online learning.

Therefore, Ministry of Education need to exercise its mandate through the Education Standards Officers (ESO) to regulate the provision of online learning in all higher learning institutions in

Zambia. According to Paschal and Mkulu (2020), effectiveness of online education in higher learning institutions in Africa is hindered by lack of adequate ICT policies on education to support the implementation of online education. Hence, regulation of the online learning pedagogy is key if enhancement is to take place in Zambia.

5.5.3 ICT Infrastructure Development

ICT infrastructure development involves the creation of systems to collect, store and communicate data. In this regard, installation of ICT hardware, that includes computers, network components and data storage devices is very vital. While government has made tremendous progress in the expansion of optic fibre network, construction of the ICT centre of excellence, construction of communication towers countrywide and upgrading of towers with 2G network to 4G network, there is still need for urgent investment with regards to provision of computers, affordable internet network installation and data storage in all higher learning institutions.

The major challenge that affects the growth of ICT in developing countries like Zambia is affordability. Most of the learning institutions are not able to teach online effectively because they cannot afford the required ICT infrastructure. Kaumba et al. (2021) revealed that, the teaching of the ICT component particularly in Creative and Technology Studies in rural schools of Mwinilunga district faced many challenges such as lack of ICT equipment and lack of supportive infrastructure. Thus, the cost of ICT use must align with the abilities of the users. Therefore, government, being a major stakeholder in the provision of education to the citizens, must provide mechanisms for development of ICT infrastructure in all higher learning institutions at an affordable cost so that online learning can be enhanced. One of the ways government can help to achieve this milestone is through the introduction of zero tax on ICT equipment bought by all higher learning institutions in Zambia.

5.5.4 Quality and Affordable Internet Connectivity

The subject of internet connectivity has been at the center of many studies in the ICT sector of late and the current study was no exception. This is because poor internet connectivity affects effective implementation of online learning and the morale of both educators and learners. A study conducted at Levy Mwanawasa Medical University on the assessment of online learning among students of higher learning institutions in the midst of COVID 19 lock down showed that; out of the 96.9% of the students who participated in the survey and attended online learning classes, majority of the students opined that face to face learning approach was the most preferred because of the poor online learning experiences which was largely caused by poor internet network and lack of data bundles (Mwansa et al., 2021). It is evident that the current online learning implementation approach need to be reformed in order to make the teaching approach attractive.

The current study has revealed significant steps being taken by the government and ISP to connect public higher learning institutions to quality and affordable internet service but this must be extended even to private universities under the flagship of the Government of Zambia if online learning is to be enhanced. The proposed framework will therefore play a significant role in guiding decision makers and the Ministry of Education on the key areas of focus on the online learning enhancement journey.

5.5.5 Provision of Learning Management Systems and Eduroam for Free

A learning management system is a software platform that helps to create, manage and deliver educational or training programs, for instance, Zoom; while eduroam is an international Wi-Fi internet access roaming service for users in research and higher education which provides simple, easy and secure connectivity from thousands of hotspots.

This study showed that, ZAMREN provides learning management systems like Moodle, Zoom, Big Blue Button and Eduroam service for free in order to enhance access to fast and affordable internet service to learning institutions connected to it. This development is progressive as previous studies cited high cost of software and internet bundle as one of the hindrances to effective online learning in Zambia (Kaumba et al., 2021; Hapompwe et al. 2021; Mwila et al., 2021). This framework therefore, proposes that ISPs must provide learning management systems and eduroam service for free to all higher learning institutions connected to them so that online learning can be enhanced for the benefit of learners and educators. ISPs need to contribute to the growth of the online learning pedagogy in Zambia as key stakeholders and as part of their corporate social responsibility.

5.5.6 ICT Training

The goal of ICT training is to ensure that educators and learners have relevant skills to enable them navigate the intricacies of online learning. However, results of this study revealed some inconsistencies in this area. While other universities trained both educators and learners on the use of the online learning platform for teaching and learning respectively, some universities neglected the learners when it came to ICT training.

It is in this vein that the framework proposes ICT training of all educators and learners engaged in online learning so as to enhance their computer expertise. Khaloufi and Laabidi (2017) stated that educators who are very knowledgeable in the use of ICT gadgets demonstrate higher levels of integration of computer technology in their teaching than those with less computer skills. Higher learning institutions must therefore take ICT training as a serious component of online learning.

5.5.7 ICT Support

ICT support is the term used to describe the assistance and services offered to people in connection to their usage of ICTs. The study revealed that, most of the higher learning institutions provide ICT support to both learners and educators when need arise so that technology should not be a hindrance to effective online teaching and learning, which is commendable. In addition to the foregoing, Journell (2012) stated that students need to learn what to expect from online learning in terms of instructions on the habits needed for successful online learning experiences and examples of how to communicate with classmates and educators regularly. Not only that, ICT support gives participants confidence to join online learning on the part of learners and the confidence to teach online on the part of educators.

Furthermore, Li and Lee (2016) argues that, as long as learners have the skills to use online tools and perceive that online education is a useful and flexible way of learning, communicating and sharing, their enjoyment from online instruction will be promoted. These viewpoints signify the importance of ICT support in online learning and also justify the need for universities to strengthen ICT support for educators and learners.

5.5.8 Provision of ICT Resources to Educators and Learners

ICT resources generally refer to all hardware devices such as desk top computers, laptops, mobile phones, tablets, among others that allow users to access, create and share information. The study concluded that educators and learners engaged in online learning were not provided with the necessary ICT resources in most of the higher learning institutions to support online teaching and learning.

Besides that, statistical analysis of educators' perception of the online learning pedagogy with respect to resources showed that, educators were not satisfied with the resources that were provided by the respective universities for effective teaching via the online platform (See Table

11). These findings were not unique, but were in line with the results of the studies conducted by other scholars. For example, Mukosa & Mweemba (2019) made it clear that the high cost of internet bundle, lack of devices for internet access and also the poor quality of internet services in Zambia were the major challenges in implementing online learning.

It is therefore the position of this study that, all higher learning institutions that offer online learning must be compelled to provide necessary online learning resources, alongside other online learning variables to both educators and learners as highlighted in the proposed online learning policy framework guideline if online learning is to be enhanced.

5.6 Chapter Summary

This study reveals that there are challenges that indeed hinder effective implementation of online learning in Zambia. The effectiveness of learning depends on the quality of instruction and assessment. In higher learning institutions, it is imperative that learners are trained and assessed at appropriate levels in the cognitive, psychomotor and affective domains. Activity based learning and assessment are widely understood to foster understanding and retention of knowledge and skills. Online learning offers flexibility as lessons can be in real time or recorded and taken from any location. It is however, difficult to access higher order cognitive, psychomotor and affective skills formatively without significant investments in computing hardware and software, training of learners and educators in the use of the online platforms, securing timely support from ICT experts and ensuring quality internet connectivity.

Thus, establishing strategies that could help to enhance online learning in higher education institutions in Zambia is very critical, as the strategies could guide quality assurance officers and policy makers to come up with policies that would strengthen teaching and learning via the online platforms.

The findings of this study, therefore, contribute to the realization that online learning has challenges which are being addressed by relevant stakeholders to some extent and that the pedagogy has the potential to be a catalyst for learner-centered approach to teaching, inclusive education, collaborative learning, reduced cost of education, interactiveness, global reach and searchability of beneficial information by both the learners and educators once proper policy framework guidelines are put in place as proposed. The next chapter will indicate the conclusions of the study and policy implications that arose from the study.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Overview

This chapter highlights conclusions drawn from the findings of the study. The chapter also brings to the fore some recommendations directed towards the policy makers in the education system, quality assurance officers for higher education institutions in Zambia and higher education institutions managers, that would help to ensure that online learning is enhanced for the benefit of the educators and learners at large.

6.1 Conclusion

The study has shown significant steps taken by the Government of Zambia to enhance online learning such as introduction of 5G technology, connection of Zambia to satellite internet via Star Link, mandating and funding ZAMREN to provide cheaper and quality internet connectivity, carrying out 5000km optic fibre expansion project, construction of the ICT Centre of Excellence in Lusaka, construction of 520 communication towers countrywide, upgrading of towers with 2G network to 4G network and introduction of Tax incentives in the ICT sector.

Additionally, the study showed efforts made by Internet Service providers such as ZAMREN to enhance online learning in higher education institutions in Zambia through provision of learning management system like Moodle, zoom licenses and Eduroam service for free. The study also revealed that ZAMREN connects students' halls of residence at 50% - 50% cost sharing with respective learning institutions in order to eliminate the use of internet bundles because internet connection with bundles is not stable and is expensive.

Further, the study showed that educators were generally satisfied with the computer expertise they possessed, but were not satisfied with the resources that were provided by the respective universities for effective teaching via the online platform, the ICT support provided by the ICT experts in the selected universities and had a negative perception of the online learning pedagogy generally.

The study brought to the fore some of the strategies that could be used to enhance online learning in Zambia such as facilitation of learners' acquisition of ICT gadgets at an affordable price by respective universities, pushing more investment in online learning software such as zoom, introduction of mandatory ICT courses in colleges and universities in order to equip graduates with relevant skills that would make teaching via online platforms viable and effective; and introduction of tax incentives on all ICT equipment bought by higher learning institutions in order to make them more affordable among others.

The study also showed that some higher learning institutions conducted online learning without a clear policy guideline. Majority of the learning institutions relied on distance learning policy developed many years ago for guidance. Thus, development of an innovative online learning policy framework is not an option but an activity which must be undertaken if online learning is to be enhanced in Zambia. Therefore, there is need to address some constraining factors on online learning as revealed in this study in order for this pedagogy to be enhanced and achieve the intended objective.

6.2 Recommendations

Given the research findings and participants' recommendations, there are policy implications arising from this study. Therefore, the researcher makes the following recommendations:

6.2.1 Policy Framework Guidelines

In light of the findings of this study, there is need to consider the following:

- 6.2.1.1 All online learning registered learners at any given higher education institution, especially those from rural areas must be provided with ICT gadgets for learning online like smart phones, tablets or laptops so that they can successfully learn online. Education is a right for every human being, not a privilege. Government, being a major stakeholder in the provision of quality education to all citizens, needs to step up and meet this requirement as the case is with the provision of education loans to need students in higher learning institutions. The Constituency Development Fund (CDF), under the education component, could be a viable source of funding for such undertakings by the government as it is localized and needy students enrolled in higher learning institutions could easily be identified at that level.
- 6.2.1.2 Higher Learning Institutions need to introduce mandatory ICT training courses for both learners and educators in the training curriculum in order to empower them with the necessary computer skills. This will help educators to deliver online lessons efficiently and effectively, while learners will have the confidence to undertake online lessons whenever they will desire to. Inservice educators can be sponsored to undertake short courses in online teaching methodologies for enhanced performance.
- 6.2.1.3 Government through MOE must encourage all higher learning institutions to connect their institutions to ZAMREN, an ISP mandated and funded by the Government of Zambia to provide cheaper and quality internet connectivity to all higher learning institutions in Zambia. This will help to reduce the cost related to online learning for higher learning institutions, educators and learners at large.
- 6.2.1.4 Government need to introduce tax incentives on ICT equipment bought by higher learning institutions such as computers, tablets and other accessories for education purposes. This will make these gadgets easily accessible and affordable for the benefit of all learners and educators engaged in online learning.

6.2.1.5 The Government of Zambia through MOE need to develop regulation framework of online learning so that institutions of higher learning are compelled to meet the standards.

6.2.1.6 Higher Learning Institutions need to provide incentives for educators engaged in teaching online, for instance, a laptop, monthly internet connectivity allowance etc. as a motivation factor.

6.3 Recommendations for Further Studies

The researcher recommends that further studies be conducted to investigate mechanisms put in place to ensure quality assurance of the online learning approach. Additionally, the researcher recommends that another similar study be conducted that would cover a wide range of higher learning institutions like colleges to ascertain the penetration levels of online learning in higher learning institutions and its effectiveness in delivering results. Furthermore, the researcher recommends that; other researchers make use of the findings from this study to come up with viable online learning platforms that would suit the current educational demands and variability. Above all, a follow-up study examining the long-term effects of implementing the recommended strategies and the online learning policy framework would be valuable in assessing their real-world effectiveness. This could also include measuring student outcomes in terms of academic performance, engagement, and satisfaction with online learning.

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APPENDICES

Appendix 1: Questionnaire for Educators

Dear respondent,

I'm a Doctor of Philosophy student with the University of Zambia, Lusaka, Zambia. I'm carrying out research on the following topic: **Innovative Strategies for Enhancing Online Learning in Higher Education Institutions in Zambia: A Pragmatic Approach**. Help to ensure that this study is a success by responding honestly to the content of the questionnaire. All information provided will be treated as confidential and will be used for educational purposes only.

SECTION A: DEMOGRAPHICS

Tick where applicable

Gender: Female () Male ()

Age: 25 – 35 () 36 – 45 () 46 – 55 () 56+ ()

Online Teaching Experience: 0 - 1 () 2 – 3 () 4+ ()

Type of University: Public () Private ()

SECTION B: LIKERT TYPE ITEMS

Please put a check mark (√) in the spaces provided regarding your satisfaction levels with the online learning pedagogy in terms of the listed variables using the scale below:

5 Strongly Agree 4 Agree 3 Neutral 2 Disagree 1 Strongly Disagree

ITEM	5	4	3	2	1
Computer Expertise					

1. I had experience to teach online before the COVID – 19 pandemic					
2. I have been trained by the university or with the help of the university to teach online					
3. I have sufficient computer knowledge and IT skills to manage online classes					
4. I am able to open cameras to maximise live interactions with students during online lessons					
5. I am able to conduct theoretical and practical lessons without real interactions with the learners					
6. Learners have the facility to ask questions clearly during online lectures					
7. Learners do their assignments and I provide feedback on their assignments online					
8. I am able to assess my learners fairly and determine their competency effectively online					
Resources					
9. I have sufficient equipment and facilities (computer, internet, software) to conduct online classes					
10. The university provides ICT equipment and facilities to conduct online learning					

11. I have no challenges with the organisation of online learning materials, assessments and time management					
12. I have no challenges with the organisation of online learning assessments					
13. I have no challenges with time management when I am teaching online					
14. I have limited tools for student assessments under the online learning platform					
15. The university provides or facilitates internet connectivity to all educators conducting online learning					
16. The university has back up power supply to support online learning service in case of electricity supply black out by the utility company					
17. The university has online learning resources at all the university centres					
18. The university has free internet service at all the university centres					
ICT Support					

19. The university has an online learning facility that meets the needs of the learners with hearing, as well as other disability challenges					
20. Online courses are adjusted to cater for learners with hearing and other special education needs					
21. ICT experts help to ensure that high quality learning take place without interactions with learners face to face					
Educators' Perception of the Online Learning Pedagogy					
22. Conducting online classes require more effort in comparison to face to face instructions					
23. Traditional classes are more effective than online classes					
24. Lack of physical instructions between learners and their instructors results in low performance					
25. Learners with online learning courses outperform students with face to face courses					
26. Learners with face to face learning courses outperform learners with online learning courses					
27. I am satisfied with the learner - educator interactions during online lectures					

<p>28. Online learning is able to meet individual learner learning needs</p>					
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29. Is online learning performing to the expected standard? No () Yes ()

30. **If not**, what do you think should be done to enhance online learning service in higher education institutions?

Appendix 2: Interview Guide for Directors of Distance Education

Questions

1. What is the nature of online classes that are offered by the university?
2. Is there an online learning framework for the university?
3. To what extent is the Government policy on ICT being implemented with regards to online learning in the university?
4. To what extent does the university provide ICT skills training to learners and educators?
5. Does the university provide technical support to online learning learners and educators?
6. Does the university provide ICT equipment such as computers or smartphones or tablets to educators or learners involved in online learning?
7. Does the University connect all the learners to an affordable internet facility?
8. How satisfactory is the ICT infrastructure in the university?
9. How can online learning be enhanced in higher learning institutions in Zambia?

Appendix 3: Interview Guide for ICT Engineers from ISPs

Questions

1. Is there a government policy or an agreement that governs the provision of the internet to learning institutions and learners to facilitate online education in Zambia?
2. Are there any established partnerships with higher learning institutions such as the University of Zambia, Copperbelt University, University of Lusaka and Cavendish University Zambia in terms of internet connectivity?
3. Do you provide free services or discounted rates for students?
4. How can learners in higher learning institutions be helped to access fast internet connectivity and cheaper internet bundle for online learning purposes?
5. What role do you play in ensuring that effective online learning takes place in Zambia?
6. How wide is your internet coverage in the country?
7. Is this coverage able to adequately support effective online learning across the country?
8. What can be done by the Government of Zambia, ISPs and MNOs to enhance online learning in Zambia?
9. What are your future plans in terms of internet service provision in the education sector in Zambia?

Appendix 4: Interview Guide for the ICT Experts from the Ministry of Science and Technology

Questions

1. Is there a government policy that governs the provision of the internet to learning institutions and learners to facilitate online education in Zambia?
2. Are there any established partnerships between the Government of Zambia and ISPs or MNOs in terms of internet connectivity to higher learning institutions in Zambia?
3. What role does the Government of Zambia play in ensuring that effective online learning takes place in Zambia?
4. What needs to be done by the Government of Zambia, ISPs and MNOs for learners to access cheaper internet bundle and fast internet service in every part of the country?
5. Is there an online learning framework and policy of the strategies that could help to enhance online learning in Zambia?
6. What future plans does the Government of Zambia have in terms of quality online learning service provision in higher education institutions?

Appendix 5: Cronbach's Alpha Reliability Statistics

RELIABILITY

/VARIABLES=Question1 Question2 Question3 Question4 Question5 Question6 Question7
Question8

Question9 Question10 Question11 Question12 Question13 Question14 Question15 Question16
Question17

Question18 Question19 Question20 Question21 Question22 Question23 Question24 Question25
Question26

Question27 Question28 Question29

/SCALE('ALL VARIABLES') ALL

/MODEL=ALPHA.

Reliability

Notes

Output Created		18-APR-2025 12:04:13
Comments		
Input	Data	C:\Users\CHIWOYA\OneDrive\Desktop\Phd Thesis SPSS Analysis Data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	127
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.

Cases Used		Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=Question1 Question2 Question3 Question4 Question5 Question6 Question7 Question8 Question9 Question10 Question11 Question12 Question13 Question14 Question15 Question16 Question17 Question18 Question19 Question20 Question21 Question22 Question23 Question24 Question25 Question26 Question27 Question28 Question29 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.10

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	122	96.1

Excluded ^a	5	3.9
Total	127	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.805	29

Appendix 6: Quantitative Analysis Output

Notes		
Output Created		10-NOV-2024 11:47:53
Comments		
Input	Data	C:\Users\CHIWOYA\OneDrive\Desktop\Phd Thesis SPSS Analysis Data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	127
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=Gender Age YearsofOnlineTeachingExperienceTypeofUniversity /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.01

Frequencies

Notes		
Output Created		10-NOV-2024 11:49:00
Comments		
Input	Data	C:\Users\CHIWOYA\OneDrive\Desktop\Phd Thesis SPSS Analysis Data.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	127

Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Gender Age YearsofOnlineTeachingExperien ceTypeofUniversity /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.02

Statistics

		Gender of the respondents	Age of the respondents	Respondents' years of online teaching experiences	Respondents' type of university
N	Valid	127	127	126	127
	Missing	0	0	1	0

Frequency Table

Gender of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	46	36.2	36.2	36.2
	Male	81	63.8	63.8	100.0
	Total	127	100.0	100.0	

Age of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-35	29	22.8	22.8	22.8
	36-45	50	39.4	39.4	62.2
	46-55	36	28.3	28.3	90.6
	56+	12	9.4	9.4	100.0
	Total	127	100.0	100.0	

Respondents' years of online teaching experiences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1	12	9.4	9.5	9.5
	2-3	71	55.9	56.3	65.9
	4+	41	32.3	32.5	98.4
	4	2	1.6	1.6	100.0
	Total	126	99.2	100.0	
Missing	System	1	.8		
Total		127	100.0		

Respondents' type of university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public	84	66.1	66.1	66.1
	Private	43	33.9	33.9	100.0
	Total	127	100.0	100.0	

```
DESCRIPTIVES VARIABLES=Question1 Question2 Question3 Question4 Question5
Question6 Question7
Question8
/STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Notes

Output Created	10-NOV-2024 11:55:31	
Comments		
Input	Data	C:\Users\CHIWOYA\OneDrive\Desktop\Phd Thesis SPSS Analysis Data.sav
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	Split File	<none>
	N of Rows in Working Data File	127

Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=Question1 Question2 Question3 Question4 Question5 Question6 Question7 Question8 /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
I had experience to teach online before the COVID-19 pandemic	127	1	5	3.29	1.549
I was trained by the university to teach online	126	1	5	3.98	1.106
I have sufficient computer knowledge and IT skills to manage online classes	126	1	5	4.43	.774
I am able to open cameras to maximise live interactions with students during online lessons	127	1	5	4.13	1.062
I am able to conduct theoretical and practical lessons without real interactions with the learners	127	1	5	3.39	1.273
Learners have the facility to ask questions clearly during online lectures	127	1	5	4.18	.971
Learners do their assignments and I provide feedback on their assignments online	126	1	5	4.02	.988
I am able to assess my learners fairly and determine their competency effectively online	127	1	5	3.88	.931
Valid N (listwise)	125				

```

DESCRIPTIVES VARIABLES=Question9 Question10 Question11 Question12
Question13 Question14 Question15
    Question16 Question17 Question18
    /STATISTICS=MEAN STDDEV MIN MAX.

```

Descriptives

Notes		
Output Created		10-NOV-2024 11:58:10
Comments		
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	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=Question9 Question10 Question11 Question12 Question13 Question14 Question15 Question16 Question17 Question18 /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
I have sufficient equipment and facilities (computer, internet, software) to conduct online classes	127	1	5	3.57	1.225

The university provides ICT equipment and facilities to conduct online learning	127	1	5	3.02	1.151
I have no challenges with the organisationof online learning materials, assessments and time management	127	2	5	3.72	.959
I have no challenges with the organisation of online learning assessments	127	1	5	3.79	1.005
I have no challenges with time management when iam teaching online	127	1	5	3.99	.913
I have limited tools for students assessment under the online learning platform	127	1	5	3.39	1.134
The university provides or facilitates internet connectivity to all eductors conducting online learning	127	1	5	3.16	1.348
The university has back up power supply to support online learning service in case of electricity supply blackout by the utility company.	127	1	5	2.63	1.308
The university has online learning resources at all the university centres across the country	126	1	5	2.71	1.146
The university has free internet service at all the university centres	127	1	5	3.13	1.182
Valid N (listwise)	126				

FREQUENCIES VARIABLES=Gender Age
YearsofOnlineTeachingExperienceTypeofUniversity
/ORDER=ANALYSIS.

DESCRIPTIVES VARIABLES=Question19 Question20 Question21
/STATISTICS=MEAN STDDEV MIN MAX.

Descriptives

Notes

Output Created		10-NOV-2024 12:01:05
Comments		
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	Split File	<none>
	N of Rows in Working Data File	127
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax	DESCRIPTIVES VARIABLES=Question19 Question20 Question21 /STATISTICS=MEAN STDDEV MIN MAX.	
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The university has an online learning facility that meets the needs of the learners with hearing, as well as other disability challenges	127	1	5	2.28	1.188
Online courses are adjusted to cater for learners with hearing and other special education needs	126	1	5	2.06	1.144
ICT experts help to ensure that high quality learning take place without interactions with learners face to face	127	1	5	2.87	1.150
Valid N (listwise)	126				

DESCRIPTIVES VARIABLES=Question22 Question23 Question24 Question25
 Question26 Question27 Question28
 /STATISTICS=MEAN STDDEV MIN MAX.

Descriptives

Notes		
Output Created		10-NOV-2024 12:04:07
Comments		
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=Question22 Question23 Question24 Question25 Question26 Question27 Question28 /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Conducting online classes require more effort in comparison to face to face instructions	127	1	5	3.59	1.217
Traditional classes are more effective than online classes	127	1	5	3.65	1.269

Lack of physical instructions between learners and their instructors results in low performance	127	1	5	3.24	1.207
Learners with online learning courses outperform learners with face to face courses	127	1	5	2.13	.951
Learners with face to face learning courses outperform learners with online learning courses	127	1	5	3.39	1.298
I am satisfied with the learner - educator interactions during online lectures	127	1	5	3.20	1.008
Online learning is able to meet individual learner learning needs	127	1	5	3.15	1.077
Valid N (listwise)	127				

Warning # 849 in column 23. Text: en_ZM

The LOCALE subcommand of the SET command has an invalid parameter. It could not be mapped to a valid backend locale.

GET

FILE='C:\Users\CHIWOYA\OneDrive\Desktop\Phd Thesis SPSS Analysis Data.sav'.

DATASET NAME DataSet1 WINDOW=FRONT.

FREQUENCIES VARIABLES=Gender

/PIECHART FREQ

/ORDER=ANALYSIS.

Frequencies

Notes

Output Created	21-APR-2025 23:16:30
Comments	

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	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	127
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Gender /PIECHART FREQ /ORDER=ANALYSIS.
Resources	Processor Time	00:00:01.58
	Elapsed Time	00:00:01.09

[DataSet1] C:\Users\CHIWOYA\OneDrive\Desktop\Phd Thesis SPSS Analysis Data.sav

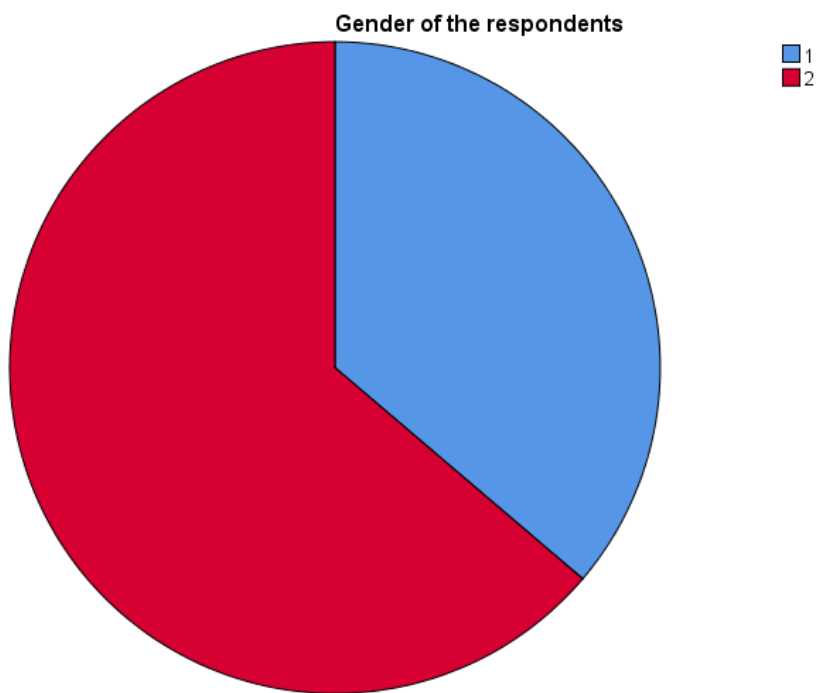
Statistics

Gender of the respondents

N	Valid	127
	Missing	0

Gender of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	46	36.2	36.2	36.2
	2	81	63.8	63.8	100.0
	Total	127	100.0	100.0	



FREQUENCIES VARIABLES=Age

/BARChart FREQ

/ORDER=ANALYSIS.

Frequencies

Notes

Output Created

21-APR-2025 23:18:35

Comments		
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	Active Dataset	DataSet1
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	Split File	<none>
	N of Rows in Working Data File	127
	Missing Value Handling	Definition of Missing
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Age /BARCHART FREQ /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.74
	Elapsed Time	00:00:00.19

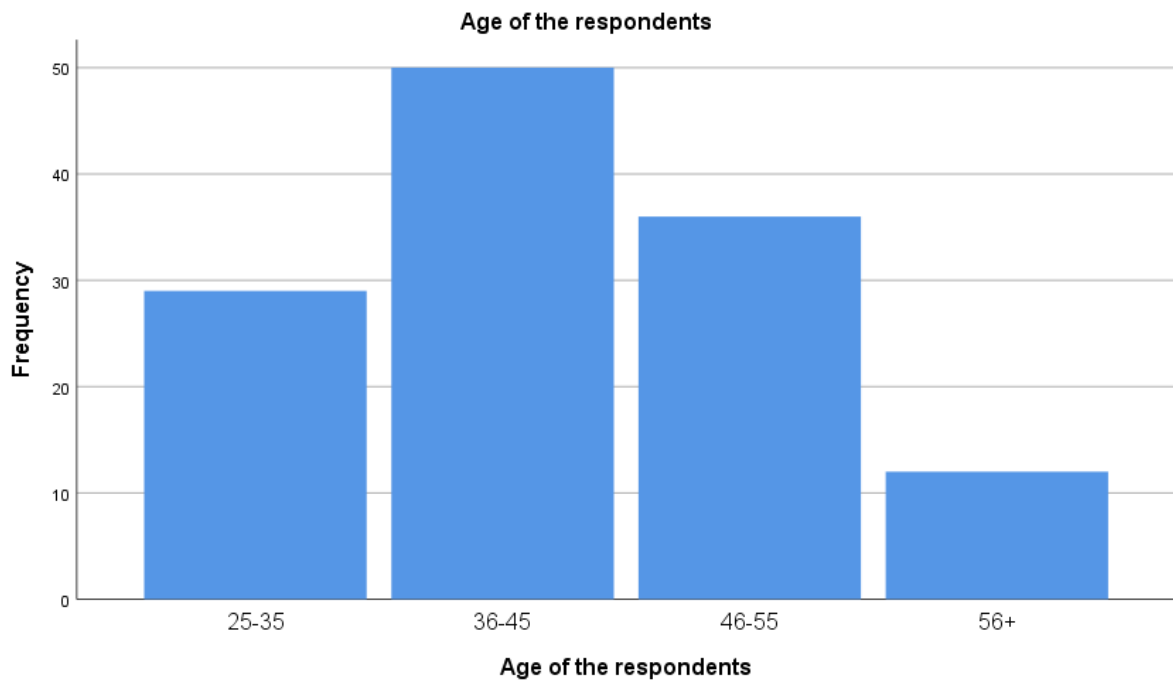
Statistics

Age of the respondents

N	Valid	127
	Missing	0

Age of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-35	29	22.8	22.8	22.8
	36-45	50	39.4	39.4	62.2
	46-55	36	28.3	28.3	90.6
	56+	12	9.4	9.4	100.0
	Total	127	100.0	100.0	



FREQUENCIES VARIABLES=TypeofUniversity

/PIECHART FREQ

/ORDER=ANALYSIS.

Frequencies

Notes

Output Created		21-APR-2025 23:20:03
Comments		
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	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	127
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax	<pre> FREQUENCIES VARIABLES=TypeofUniversity /PIECHART FREQ /ORDER=ANALYSIS. </pre>	
Resources	Processor Time	00:00:00.20
	Elapsed Time	00:00:00.10

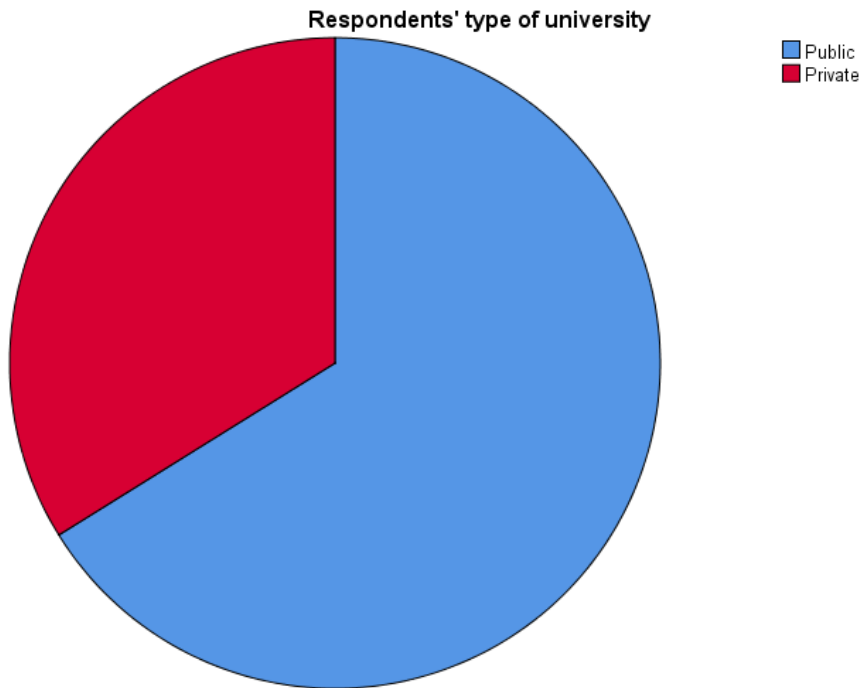
Statistics

Respondents' type of university

N	Valid	127
	Missing	0

Respondents' type of university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public	84	66.1	66.1	66.1
	Private	43	33.9	33.9	100.0
	Total	127	100.0	100.0	



Appendix 7: Plan for Research Work

ACTIVITY	YEAR 1- 2022											
	1	2	3	4	5	6	7	8	9	10	11	12
Course Work, Proposal Writing, Proposal Presentation	X	X	X	X	X	X	X	X	X	X	X	X

ACTIVITY	YEAR 2- 2023											
	1	2	3	4	5	6	7	8	9	10	11	12
Ethical Clearance	X	X	X	X	X	X						
Data Collection							X	X	X	X		
Data Analysis & Paper Writing											X	X

ACTIVITY	YEAR 3- 2024											
	1	2	3	4	5	6	7	8	9	10	11	12
Data Analysis, Thesis Writing and Thesis Defense	X	X	X	X	X							

Appendix 8: Ethical Clearance



THE UNIVERSITY OF ZAMBIA DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777 Fax: (+260)-211-290 258/253 952 | E-mail: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464

17th July, 2023,

Mr, Alvin Chiwoya,
University of Zambia,
School of Education,
Lusaka.

REF NUMBER: 2023 - JULY- 035

Dear, Mr. Chiwoya,

**RE: “INNOVATIVE STRATEGIES FOR ENHANCING ONLINE LEARNING IN HIGHER
EDUCATION INSTITUTIONS IN ZAMBIA: A CASE OF PRIVATE
AND PUBLIC UNIVERSITIES**

Reference is made to your submission of the protocol captioned above. The HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. HSSREC:- 2023- JULY- 035
Approval and Expiry Date	Approval Date: 19 th July, 2023	Expiry Date: 18 th July, 2024
Protocol Version and Date	Version - Nil.	18 th July, 2024
Information Sheet, Consent Forms and Dates	<input type="checkbox"/> English.	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil
Other Study Documents	Questionnaire.	
Number of Participants Approved for Study		

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

CONDITIONS OF APPROVAL

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.
- All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to HSSREC within 5 working days.
- All recruitment materials must be approved by HSSREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled “late submissions” and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.
- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.

- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.
- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.
- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.
- A reprint of this letter shall be done at a fee.
- All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,



Dr. J. I. Ziwa

DR. J. I. Ziwa

**ACTING CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND
SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE - IRB**

CC: Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Assistant Registrar (Research), Directorate of Research and Graduate Studies

Appendix 9: Budget for the Research

Budget for Data Collection from Kitwe, Lusaka and Monze Districts, Analysis and Report Writing

Item	Units	Cost (ZMK)	No.days	Total (ZMK)
Internet and talk time				1000.0
Fuel (545 km*27.59*1.1*2/5)	2	6,616		13, 232
Recording instrument	1	1,500		1500.0
Accommodation and Food	1	1000	3	3000.0
Stationery, Printing and bidding of the Thesis Documents				3000.0
Ethical Clearance Fee	1	1, 500		1, 500
Total				20, 232

Appendix 10: Permission Letter for Data Collection



THE UNIVERSITY OF ZAMBIA
SCHOOL OF EDUCATION

Telephone: 291381
Telegram: UNZA, LUSAKA
Telex: UNZALU ZA 44370

PO Box 32379
Lusaka, Zambia
Fax: +260-1-292702

=====
Date 18/08/2023.....

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE: FIELD WORK FOR MASTERS/ PhD STUDENTS

The bearer of this letter Mr./Ms. ALVIN CHIWOYA..... Computer number 22000483..... is a **duly** registered student at the University of Zambia, School of Education.

He/She is taking a ~~Masters~~/PhD programme in EDUCATION ADMINISTRATION.

The programme has a fieldwork component which he/she has to complete.

We shall greatly appreciate if the necessary assistance is rendered to him/her/.

Yours faithfully



Bibian Kalinde (Dr)
ASSISTANT DEAN POSTGRADUATE STUDIES, SCHOOL OF EDUCATION

cc: Dean-Education
Director-DRGS

