

**THE EFFECT OF INFORMATION COMMUNICATION
TECHNOLOGY (ICT) ON EDUCATION MANAGEMENT. A
CASE OF THREE SELECTED SECONDARY SCHOOLS IN
CHILANGA DISTRICT**

BY

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This is to certify that the dissertation entitled "The Effect of Information Communication Technology (ICT) on Education Management: A Case of Three Selected Secondary Schools in Chilanga District" submitted by Fr. Jophin Jose (Student Number: 222136742) for the award of Master of Education has been examined and approved by the undersigned members of the Dissertation Committee.

Supervisor: Prof. Muzumara P

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DEDICATION

This dissertation is dedicated to my beloved family. Their unwavering support, encouragement, and love have been my constant source of strength and inspiration throughout this academic journey. Thank you for believing in me and for being my pillars of support.

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ABBREVIATIONS

ADEA	Association for Education Development in Africa
CDC	Curriculum Development Centre
CFT	Competence Standards for Teachers and Teacher Training
EMIS	Education Management Information System
EMIS	Educational Management Information Systems
GRZ	Government of the Republic of Zambia
ICT	Information and Communication and Technologies
IT	Information Technology
MIS	Management Information system
MoE	Ministry of Education
MoGE	Ministry of General Education
NESIS	National Education Statistical Information System
NREN	National Research and Education Network
OCRS	Online Candidate Registration System
ODL	Open Distance Learning
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goals
ZICTA	Zambia Information Communication and Technology Authority

ABSTRACT

This study examined the impact of ICT implementation on education management in selected secondary schools within Chilanga District, Lusaka Province. The research objectives were to investigate the effect of ICT on administrative processes, explore challenges faced by school managers during implementation, and propose measures to address these challenges. The study sampled 60 participants, including school managers, deputy headteachers, Heads of Departments (HODs), and teachers, representing 10% of the target population. The findings reveal that ICT implementation significantly enhances administrative efficiency through streamlined processes such as record-keeping and communication. School managers highlighted improvements in student registration, attendance monitoring, and decision-making facilitated by ICT tools. However, numerous challenges were identified during ICT implementation, including technical issues such as hardware and software malfunctions, inadequate training and skills among staff, resistance to change from traditional methods, insufficient resources (both financial and technological), and infrastructure problems like poor internet connectivity and electrical supply. These challenges collectively impede the effective use of ICT tools and hinder their full integration into school management practices. Based on the findings, it was concluded that while ICT integration offers substantial benefits in education management, addressing challenges is crucial for successful implementation. Clear ICT policies, enhanced training programs, dedicated technical support, increased funding, and collaborative partnerships are essential for overcoming these obstacles and maximizing the benefits of ICT in schools. The study recommended Enhancing ICT training programs for staff. Developing clear ICT policies at school and district levels. Establishing dedicated technical support teams. Increasing funding for ICT infrastructure and resources. Promoting collaborative partnerships with stakeholders. Conducting longitudinal and comparative studies to further explore ICT impacts.

Key Terms: *ICT implementation, education management, administrative processes, challenges, recommendations, secondary schools*

CHAPTER ONE: INTRODUCTION

1.1 Overview

In today's digital age, of Information Communication Technology (ICT) has emerged as a powerful tool that has revolutionized the education landscape. From enhancing teaching and learning processes to streamlining administrative tasks, ICT has become an integral part of educational institutions around the world. This chapter provides a comprehensive background on the evolution of ICT in education, highlighting the problem, purpose of the study, research objectives and research questions, significance of the study, limitations as well as delimitation of the study.

1.2 Background to the study

ICT has significantly transformed the field of education management, introducing new possibilities for enhancing teaching and learning processes. In recent years, schools and educational institutions worldwide have increasingly embraced ICT as a tool to improve administrative tasks, enhance educational resources, and facilitate communication and collaboration among stakeholders.

The dawn of ICT in education management in western countries can be traced back to the 1960s and 1970s when educational computing systems like Programmed Logic for Automated Teaching Operations (PLATO) were developed. These early systems laid the foundation for computer-assisted instruction (Cuban, 2016). This led to the introduction of basic ICT tools such as word processing software and electronic databases, which were initially employed for administrative purposes like record-keeping and data management. The introduction of personal computers in the 1980s and 1990s revolutionized education management. Schools began to adopt computers for administrative tasks, and educational software started to emerge, facilitating interactive learning (Becker, 2020). However, as technological advancements continued, educators recognized the potential of ICT in transforming teaching and learning. This realization led to the integration of ICT in classrooms through the introduction of computer-based learning materials and multimedia resources.

The widespread availability of the internet in the 2000s opened up new possibilities in education. E-learning platforms, Learning Management Systems (LMS), and digital resources became integral to education management, offering a blend of in-person and online instruction.

Throughout the years, various technologies have emerged that have revolutionized education management. One such technology is the internet, which has made information readily available to students and educators. The internet has also facilitated communication between teachers, students, and parents, enabling more efficient and effective collaboration. Additionally, the internet has provided access to online learning platforms and educational resources, expanding learning opportunities beyond the confines of the traditional classroom. According to Moore and Kearsley (2020), these advancements have transformed the role of educators from that of knowledge providers to facilitators of learning.

According to Unwin (2020), in many African countries, the adoption of ICT in education management started in the late 1990s and early 2000s. Over the past few decades, African countries such as Kenya the government has been active in promoting the use of ICTs in education. In 2007, the government launched the Kenya Education ICT Master Plan, which aims to make ICTs an integral part of the education management system (Ministry of Education (Kenya), 2018). The plan has helped to increase access to ICTs in schools, and it has also helped to develop ICT-rich learning materials. The government of Botswana has been a strong advocate for the use of ICTs in education. In 2003, the government launched the e-School project, which aims to provide all schools in Botswana with access to computers and the internet. The project has been successful in increasing access to ICTs in schools, and it has also helped to improve the quality of education (Ministry of Education (Botswana), 2018). African countries have experienced significant advancements in ICT infrastructure, with the establishment of internet connectivity, mobile networks, and computer hardware. This has created new possibilities for integrating technology into various sectors, including education. Governments and NGOs initiated projects to introduce computers and connectivity to schools, often with a focus on improving access to educational resources.

Another significant technology that has shaped the background of ICT in education management in Africa is learning management systems (LMS). LMS platforms, such as Moodle and Blackboard, have revolutionized the way educational institutions manage and deliver courses. According to Akhavan and Sheikh (2019), the government of South Africa has also been a strong advocate for the use of ICTs in education. In 2001, the government launched the ICT in Education Strategy, which aims to make ICTs an integral part of the education system. The strategy has helped to increase access to ICTs in schools, and it has also helped to develop ICT-rich learning materials. LMSs provide a centralized platform for managing student enrollment, distributing course materials, facilitating assessments, and tracking student progress. Moreover, LMSs support collaborative learning through discussion forums and virtual classrooms.

In Zambia, the integration of ICT in education management has become essential for the effective and efficient running of schools. The country recognized the potential of ICT in education management early on. The government launched the Integrated Management Information System (IMIS) in the 2000s as an initiative to use technology in managing school administration and student information. This marked the beginning of the integration of ICT in Zambian schools. The implementation of IMIS enhanced administrative processes such as student registration, tracking attendance, and managing financial records. According to Ministry of Education (Zambia) (2018) the government of Zambia has also made a commitment to the use of ICTs in education. In 2018, the government launched the National ICT Policy for Education, which aims to provide all schools with access to ICTs, train teachers in the use of ICTs, and develop ICT-rich learning materials.

However, despite the early adoption of ICT in education management, Zambia faced several challenges in the implementation process. One major hurdle was the lack of adequate infrastructure, including computer labs, internet connectivity, and trained personnel. Limited funding and a lack of awareness among teachers and administrators about the benefits of ICT also hindered progress (Ministry of Education (Zambia), 2018). Moreover, the country's vast geographical landscape made it difficult to provide equal access to technology in rural areas.

The integration of ICT in education management has brought about several notable benefits. ICT has made education more accessible, bridging geographical barriers and providing equal opportunities for students, especially those in remote areas or with special needs (Hossain, 2015). ICT has increased the efficiency of administrative tasks. For instance, digitalizing student records and automating administrative processes have reduced paperwork, saved time, and minimized errors. These improvements have allowed stakeholders, such as teachers and administrators, to focus more on enhancing teaching and learning experiences. ICT has enabled personalized learning experiences by providing students with tailored content, adaptive assessments, and immediate feedback (Gulbahar & Tinmaz, 2021). This personalization has promoted individualized learning and addressed the diverse learning needs of students.

The background of ICT in education management reveals the transformative potential of technology in enhancing teaching and learning processes. Technologies such as the internet and learning management systems have revolutionized education by increasing access to information, promoting collaboration, and enabling personalized learning experiences. The integration of ICT in education management has also brought about notable benefits, including improved accessibility, increased administrative efficiency, and personalized learning. As the field of ICT continues to evolve, it is crucial for educational institutions to embrace these advancements to adapt to the changing educational landscape and provide students with the most effective learning opportunities. Thus, it is against this background that this study seeks to establish the effect of ICT in the education management in secondary schools in Chilanga District.

1.3 Statement of the problem

The integration of ICT in education management has brought about several notable benefits, such as improved communication and collaboration, increased efficiency and productivity, and enhanced student learning outcomes as evident in the launch of the National ICT Policy for Education in 2018. However, the full potential of ICTs in education management has not yet been realized in Zambia, particularly in Chilanga District. While this commitment holds promise for improving educational outcomes, it also brings forth several challenges and concerns that necessitate a comprehensive examination. According to the Ministry of education (2018), the availability and accessibility of ICT resources may not be uniform across all schools in Lusaka

province. There is a digital divide, where some schools are better equipped than others, potentially leading to disparities in educational management, opportunities as well as its effect on the management of education in schools. Further, the existing policies do not provide an in-depth understanding of how the integration of ICTs in secondary schools in Chilanga District affects school management, which includes administrative effectiveness and overall school governance. Thus, this necessitated the need to establish the effect of ICT in the education management in secondary schools in Chilanga District.

1.4 Purpose of the study

The main aim of the study was to investigate the effect of ICT on education management in selected secondary schools in Chilanga district of Lusaka Province.

1.5 Main objective

To investigate the effect of ICT on education management in selected secondary schools in Chilanga district of Lusaka Province.

1.6 Specific research objectives

- i. To establish the effect of ICT implementation on administrative processes within secondary schools in Chilanga District.
- ii. To explore the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.
- iii. To work out measures of addressing the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

1.7 Research questions

- i. How does the implementation ICT affect administrative processes in secondary schools in Chilanga District?
- ii. Are there challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District?

- iii. What are the measures of addressing the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District?

1.8 Significance of the Study

This research holds significance in shedding light on the lesser-explored aspect of the effect of ICT on school management within the context of Chilanga District's secondary schools. It will provide valuable insights for educational policymakers, school administrators, and stakeholders, offering a more comprehensive understanding of how ICT can optimize not only teaching and learning but also the overall management of educational institutions. Furthermore, it is hoped to contribute to a more holistic approach to ICT implementation in education. While this study focuses on Chilanga District in Zambia, its findings will also contribute to the global body of knowledge on ICT in education management. Educational researchers, policymakers, and practitioners in other regions can draw upon these findings to inform their own initiatives and strategies.

1.9 Limitations of the study

While the study held promise for contributing to the understanding of ICT's impact on education management, it was essential to acknowledge its inherent limitations. The limitations of this study included the following: Resource limitations, such as time and budget constraints, impacted the depth and breadth of data collection and analysis. The study did not cover all aspects of ICT integration in education management or examine a larger number of schools due to these resource constraints. External factors beyond the control of the researchers, such as unforeseen events or changes in government policies, influenced the study's outcomes and interpretations. The study was susceptible to respondent bias, as data collection relied on interviews, surveys, and self-reported information from teachers, administrators, and other stakeholders. Respondents may have provided socially desirable responses, leading to potential biases in the data.

1.10 Delimitation of the study

The research primarily focused on the impact of ICT on school management, specifically in the context of the three selected secondary schools in Chilanga District. It did not delve deeply into

broader educational policy implications or explore the perspectives of students and parents, which could have provided a more comprehensive understanding of the topic. The study was confined to Chilanga District in Zambia, and therefore, its findings might not be applicable to schools in other districts or regions with differing characteristics or ICT infrastructure.

1.11 Theoretical framework

A theoretical framework is a conceptual model or a set of principles that guides the design and interpretation of a research study. It provides a researcher with a lens through which to view the phenomenon under investigation and helps to organize and structure ideas, hypotheses, and variables. According to Villegas-Bernabe, Serrano, and Prochoroff (2016), a theoretical framework bridges the gap between theory and practice by aligning the research question with existing theories and frameworks. It allows researchers to critically examine the research problem and select appropriate methods for data collection and analysis based on established theories or theoretical constructs. By utilizing a theoretical framework, researchers can ground their study within the existing body of knowledge and advance understanding in their field of study.

In the context of the study on the Effect of ICT in education management in secondary schools in Chilanga District, two theories that were applied to aid the study are: Diffusion of Innovations Theory and Organizational Change Theory.

1.11.1 Diffusion of Innovations Theory

Diffusion of Innovations Theory is an influential framework that helps explain how new ideas, products, or technologies are adopted and spread within a society or social system. Developed by Everett M. Rogers in 1962, this theory has been widely applied and studied in various fields, including marketing, communication, public health, education and technology. The theory provides valuable insights into the factors and processes that influence the adoption and diffusion of innovations.

According to Rogers, diffusion refers to the process by which an innovation is communicated through certain channels over time and among members of a social system. The theory suggests that the diffusion process follows a specific pattern, where individuals pass through different stages, including awareness, interest, evaluation, trial, and adoption. Rogers also identified five

main categories of adopters based on their willingness to adopt new innovations: innovators, early adopters, early majority, late majority, and laggards (Pumpuang, 2017).

One of the key factors affecting the diffusion of innovations is the perceived relative advantage of the innovation. Innovations that offer a clear advantage over existing alternatives in terms of benefits, efficiency, or cost are more likely to be adopted and spread quickly. Additionally, observability plays a crucial role, as individuals are more likely to adopt innovations that are easily observable and communicable within their social network or community.

Another key element influencing the diffusion process is compatibility. Innovations that are perceived to be compatible with existing values, experiences, and needs of the adopting individuals or social system tend to be more readily accepted and diffused. For instance, a study conducted by Green, Brock, & Kaufman (2014) found that compatibility with values and beliefs influenced the adoption and diffusion of innovations related to sustainable energy practices. Moreover, the presence of opinion leaders and influencers within a social system greatly impacts the diffusion process. Opinion leaders are individuals who are respected, admired, or hold a high level of expertise in a particular domain and have the ability to influence others' opinions and behaviors. These opinion leaders can play a pivotal role in promoting and accelerating the adoption of innovations within their network or community (Valente, 2021). Furthermore, the diffusion of innovations is heavily influenced by the social networks and communication channels through which information about the innovation is spread. The theory suggests that individuals are more likely to adopt innovations when they receive information and recommendations from trusted sources within their network or through reliable communication channels.

The Diffusion of Innovations Theory was applied to understand how the adoption and integration of ICT in education management are spreading within the selected schools in Chilanga District. This theory helps in examining the process through which innovations, in this case, ICT, are communicated, adopted, and diffused among members of a social system, which, in this context, includes teachers, administrators, and other stakeholders within the schools. By utilizing this theory, the study identified factors that influence the rate of ICT adoption, the stages of adoption,

and the characteristics of adopters, which are essential in understanding the dynamics of ICT integration in education management.

1.11.2 Organizational Change Theory

Organizational change is a pervasive and necessary phenomenon in today's fast-paced business landscape. Organizations must constantly adapt and evolve to remain competitive, satisfy market demands, and meet changing customer expectations. Understanding the dynamics of organizational change is critical for effective implementation and successful outcomes.

Organizational change can be triggered by various factors, both internal and external. Lewin (2020) suggests that organizations face two opposing forces in maintaining the status quo or implementing change. External drivers, such as market shifts, technological advancements, or regulatory changes, can compel organizations to adapt. Internal drivers, including leadership vision, employee productivity, or inefficient processes, often spark the need for reorganization. These drivers provide impetus for organizational change, emphasizing the importance of recognizing and responding to external and internal stimuli.

One of the major challenges in organizational change lies in overcoming resistance from employees and stakeholders. According to William (2018), people typically go through three stages during periods of transition: ending, neutral zone, and new beginnings. Understanding and addressing each stage is essential to alleviate resistance and facilitate change. Employees may resist change due to fear of the unknown, lack of trust in management, or perceived loss of control. Proper communication, engagement, and establishing trust are crucial in navigating the resistance and facilitating a successful transition. Several models have been developed to guide organizations through periods of change. One prevalent model is Kurt's three-step change model (2021), which involves unfreezing the status quo, implementing the change, and refreezing to solidify the new state. Another popular model is John Kotter's eight-stage process (2016), which includes steps such as establishing a sense of urgency, creating a guiding coalition, and continuously anchoring change in the culture. These models provide a systematic approach to managing change, helping organizations understand the essential steps involved and increase the chances of success.

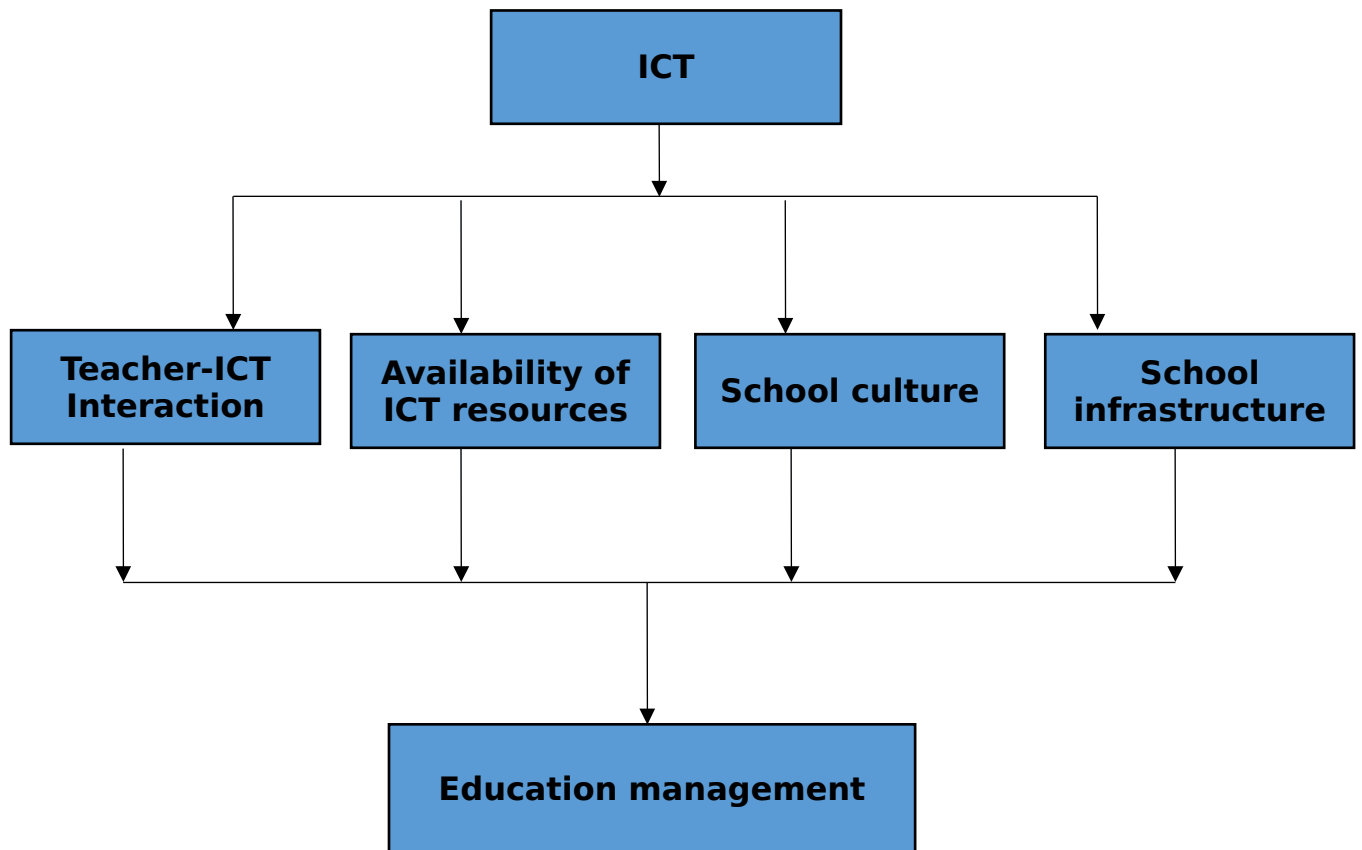
Effective leadership is crucial in driving and managing organizational change. Leaders must exhibit strong vision, communicate effectively, and inspire their workforce throughout the change process. According to the Fullan's Change Leadership Theory (2017), leaders need to create a positive learning culture, build trust, and foster collaboration to enable effective change. By exhibiting authentic leadership and engaging employees, leaders can help mitigate resistance, drive commitment, and ensure smoother change implementation. Measuring the success of organizational change is essential to assess its impact and identify areas for improvement. Metrics such as employee satisfaction, productivity, financial performance, or customer satisfaction can be used to evaluate the effectiveness of change initiatives. Researchers McKinley and Mone (2018) recommend the use of multiple measures to capture the complexity and multidimensionality of change outcomes. Additionally, ongoing evaluation allows organizations to gather feedback, make necessary adjustments, and continuously improve their change management efforts.

Organizational Change Theory, particularly as it related to educational institutions, was applied to analyze how the introduction of ICT was affecting school management practices and organizational structures. This theory helped in examining how educational organizations adapted to and managed changes brought about by the integration of ICT. It aided in understanding the challenges and opportunities associated with organizational change, including resistance to change, leadership strategies, and the impact on administrative processes. By applying this theory, the study gained insights into how school management practices were evolving in response to ICT integration and identified strategies for effective change management within educational institutions.

These theories aided the study by providing frameworks for analyzing and interpreting the complex dynamics of ICT adoption and its impact on education management within the selected secondary schools in Chilanga District. They offered structured approaches to understanding the diffusion process and organizational responses to change, ultimately enhancing the depth and rigor of the research.

1.12 Conceptual framework

In the field of research, a conceptual framework refers to a structure that guides the investigation or exploration of a specific topic or phenomenon. It is essentially a mental framework or blueprint that helps to organize and structure the research process by providing a clear understanding of the concepts, variables, relationships, and theories involved in the study. In the study on the effect of ICT on education management, the following conceptual framework outlines the essential variables and explains how they relate to the research:



Source: <https://bard.google.com/> (2023)

The independent variable, ICT, can be defined as the use of electronic devices, software, and networks to create, store, exchange, and manipulate information. ICT can be used in education for a variety of purposes, such as teaching and learning, assessment, communication, and management.

The mediating variables are the factors that influence the relationship between ICT and education management. Teacher-ICT interaction is important for ensuring that teachers are able to use ICT effectively in their teaching. The availability of ICT resources is also essential, as teachers and students need access to computers, laptops, tablets, and other devices in order to use ICT. School infrastructure, such as internet connectivity and electricity, is also important for the effective use of ICT. Finally, school culture refers to the attitudes and beliefs of the school community towards ICT. If the school culture is supportive of ICT, then it is more likely that ICT will be used effectively in education management.

The dependent variable, education management, refers to the processes and activities involved in running a school. These include planning, organizing, staffing, leading, and evaluating the school. ICT can be used to improve education management in a variety of ways, such as:

Improving communication and collaboration between teachers, students, and parents.
Automating administrative tasks. Providing data-driven insights into student performance.
Developing personalized learning plans for students. Facilitating distance learning. The conceptual framework outlined above is just a starting point. It is important to note that the actual relationship between ICT and education management is complex and influenced by a variety of factors. More research is needed to fully understand this relationship.

1.13 Definition of key operational terms

Administrative Efficiency: Administrative efficiency refers to the effectiveness and optimization of administrative processes within secondary schools, including activities such as enrollment, record-keeping, communication, and other school management tasks.

Financial Management: Financial management involves the planning, budgeting, accounting, and allocation of financial resources within secondary schools. It encompasses activities aimed at achieving financial efficiency and transparency in school management.

ICT Integration: This refers to the process of incorporating Information Communication Technology (ICT) tools, resources, and practices into various aspects of

education management, including teaching, learning, administrative tasks, and decision-making processes within secondary schools.

Organizational Governance: Organizational governance relates to the decision-making structures, processes, and practices within educational institutions. It encompasses how schools make decisions, involve stakeholders, and govern their operations.

Policy Environment: The policy environment includes national and regional policies, regulations, and guidelines related to ICT in education. It affects the overall framework within which ICT integration and education management take place in selected secondary schools.

School Characteristics: School characteristics encompass factors such as school size, location, and socio-economic context. These characteristics influence the context in which ICT integration and education management occur within secondary schools.

Teacher Preparedness: Teacher preparedness refers to the readiness, skills, knowledge, and attitudes of educators to effectively use ICT tools and technologies in their teaching practices and educational management tasks.

Teacher-ICT Interaction: Teacher-ICT interaction represents the extent to which teachers engage with and utilize ICT tools in their teaching and educational management roles. It reflects the degree of synergy between teachers and ICT resources.

1.14 Chapter summary

The chapter provided a strong foundation for the research by framing the research problem, establishing its significance, and outlining the objectives and questions that will guide the investigation. It offered a clear overview of the study's context and set the stage for a comprehensive examination of the impact of ICT in education management.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter of this study delves into the literature review, a critical component of understanding the complex relationship between ICT and education management. This chapter examines and synthesizes existing scholarly works, research studies, and pertinent sources related to the effect of ICT in education management, particularly within the context of selected secondary schools in Chilanga District, Lusaka Province. The literature review serves as a bridge between the introductory chapter and the empirical investigation that follows. It offers a comprehensive overview of the current state of knowledge in the field, shedding light on the findings, and methodologies that are relevant to the study's research questions and objectives. This chapter is essential in providing a solid foundation for the subsequent empirical research, allowing for a deeper understanding of the challenges, opportunities, and complexities surrounding the integration of ICT in education management.

2.2 Empirical literature

Empirical literature on the integration of ICT in school management is essential in understanding the impact of technology on educational institutions. The integration of ICT in school management refers to the use of technology to streamline administrative functions, promote efficient communication, and enhance decision-making processes within educational institutions (Mishra et al., 2021). Several empirical studies have examined the effects of ICT integration in school management, providing valuable insights into its impact on various aspects of schooling.

The integration of ICT in education management has been shown to enhance administrative processes, such as data management, scheduling, and recordkeeping (Shahzad et al., 2020). The utilization of digital platforms has proven effective in streamlining administrative tasks, reducing manual errors, and improving overall efficiency. One key benefit of ICT integration in school management highlighted in empirical literature is the improvement of administrative functions. A study of the impact of ICT on school management in South Africa (2020) found that ICT has had a positive impact on school management, leading to improved efficiency and effectiveness. The study also found that ICT has helped to improve communication and collaboration between teachers, students, and parents. ICT tools such as management information systems, online databases, and digital platforms facilitate efficient data storage and dissemination, automating

administrative tasks and reducing paperwork. Empirical studies have shown that this automation leads to increased productivity, better resource allocation, and reduced administrative costs.

ICT plays a crucial role in providing educators and administrators with the necessary training and professional development opportunities (Orlando et al., 2018). Online learning platforms and collaborative tools enable educators to upgrade their skills, learn new teaching techniques, and exchange knowledge with their peers, ultimately leading to improved education management practices. A study of the use of ICT in school management in India (2022) found that ICT has been used to improve a variety of administrative tasks, such as student records management, attendance tracking, and financial management. The study also found that ICT has been used to provide teachers with professional development opportunities. A study conducted by Rahman, Siddique, and Islam (2018) in the context of Bangladesh revealed that ICT integration in education management led to enhanced financial transparency through digital accounting systems, reducing the likelihood of financial mismanagement.

The integration of ICT in education management facilitates data collection and analysis, thereby supporting evidence-based decision making (Mishra et al., 2021). Through learning analytics, administrators can assess student performance, identify areas of improvement, and make informed decisions regarding curriculum, teaching methodologies, and resource allocation. ICT integration in education management enables schools to collect and store data more efficiently. Digital platforms and databases allow for the easy and secure storage of various types of data, including student records, attendance, and assessment results. A study by Selim (2017) found that ICT-supported data management systems improved data accuracy and accessibility, reducing errors in administrative processes.

ICT tools provide the capability to analyze data in real-time. This is particularly valuable for monitoring student performance and identifying areas where additional support is needed. A study by Kayani, Abbas, and Hussain (2018) in the context of higher education in Pakistan highlighted the use of ICT for real-time data analysis to inform decision-making and enhance teaching strategies. Empirical studies have shown that ICT integration supports data-driven instructional planning. Teachers can use data to tailor their teaching methods to individual student needs. Chigona and Chigona (2020) found that ICT tools helped educators in South

Africa identify areas where students needed additional assistance and adapt their teaching strategies accordingly.

ICT facilitates the analysis of resource allocation, including budgeting and financial management. Rahman, Siddique, and Islam (2018) noted in their study in Bangladesh that ICT-supported financial data analysis contributed to efficient resource allocation and reduced financial mismanagement in schools. ICT tools enhance communication and collaboration between stakeholders in education management, such as teachers, students, parents, and administrators (Chigona et al., 2019). Online platforms, email, and messaging apps enable seamless interaction, fostering effective communication, and information sharing. ICT-generated data can inform evidence-based policy formulation. Data on student performance, attendance, and other educational metrics can guide educational policymakers in making informed decisions. Yelland and Neal (2020) in Australia emphasized the importance of data in assessing the impact of ICT on education quality.

2.3 Challenges of ICT in education management

Empirical findings from various studies have identified several challenges associated with the integration of ICT in education management. One significant challenge is the lack of access to adequate ICT infrastructure, such as computers, internet connectivity, and software. Studies have consistently highlighted disparities in ICT infrastructure and access among educational institutions. Some schools, particularly in remote or economically disadvantaged areas, face challenges in acquiring and maintaining the necessary hardware and connectivity (Kayani, Abbas, & Hussain, 2018). Several studies have found that schools in developing countries often lack the necessary IT infrastructure, making it difficult to implement ICT effectively in education management. This limitation hampers the potential benefits of ICT in improving administrative tasks and student outcomes.

Another empirical finding is the lack of technological skills and training among educators and administrators. Afolab & Aina (2013) investigated the challenges of ICT integration in education management in Nigeria. The findings revealed that the lack of technological skills and training among educators and administrators is a major challenge. The study also found that the lack of adequate ICT infrastructure, resistance to change, and inadequate ICT policy framework are

other challenges. Research indicates that many teachers and school administrators have limited knowledge of ICT tools and how to integrate them effectively into education management practices. This lack of proficiency impedes the successful implementation of ICT initiatives.

Studies have shown that resistance to change can become a significant barrier to the integration of ICT in education management. Al-Samarraie & Alasmay (2015) examined the challenges of integrating ICT in education in Saudi Arabia. The findings revealed that resistance to change is a major challenge. The study also found that the lack of ICT infrastructure, lack of teacher training, and lack of funding are other challenges. Educators and administrators often resist incorporating new ICT tools due to a fear of the unknown and the traditional perception of teaching and learning. This resistance impedes the exploration of innovative practices that could enhance education management.

Empirical findings highlight the need for a robust ICT policy framework to guide the integration of technology in education management. A lack of clear policies and guidelines can lead to inconsistencies in the use of ICT tools and hinder systematic implementation strategies. Establishing an effective policy framework is crucial to address challenges and ensure the proper utilization of ICT resources. The use of ICT tools in education management raises concerns about privacy and security. Adu-Gyamfi & Owiredu (2017) found that educational institutions often struggle with securing sensitive data, including student information and assessment records. The findings revealed that privacy and security concerns are a major challenge. The study also found that the lack of ICT infrastructure, lack of teacher training, and lack of funding are other challenges. There is also a need for comprehensive privacy policies to guide the collection, storage, and usage of data in the digital era.

Empirical evidence suggests that the cost of implementing and maintaining ICT infrastructure can be a significant challenge for educational institutions, particularly in resource-constrained settings. Chigona & Chigona (2014) explored the challenges of integrating ICT in education in Zimbabwe. The findings revealed that the lack of an adequate ICT policy framework is a major challenge. The study also found that the lack of ICT infrastructure, lack of teacher training, and lack of funding are other challenges. The expenses related to purchasing hardware, software

licenses, and internet connectivity may pose financial burdens, hindering the widespread adoption of ICT tools for education management.

2.4 Global view on ICT in education management in schools

ICT has revolutionized various sectors, including education management. In Western schools, ICT adoption has accelerated, offering numerous benefits to students, teachers, and administrators. ICT facilitates seamless communication and collaboration among students, teachers, and administrators in Western schools. A study by the Organisation for Economic Co-operation and Development (OECD) in 2019 found that ICT is increasingly being used in education management in western countries. The study found that ICT is being used to improve communication and collaboration among teachers and administrators, to track student progress, and to manage school finances.

The U.S. Department of Education has conducted extensive research on the use of ICT in education management. Reports such as the "National Education Technology Plan" highlight the benefits of ICT in improving school management, enhancing teacher professional development, and increasing student engagement. The plan emphasizes personalized learning, data-driven decision making, and efficient administrative processes as key goals. Digital platforms, such as learning management systems, allow teachers to share course materials, deadlines, and feedback with students, ensuring effective communication and enhancing students' access to educational resources (Lin, 2017). Furthermore, ICT tools like video conferencing enable teamwork and class discussions regardless of geographical constraints, promoting inclusive education.

Education management systems powered by ICT streamline administrative tasks in Western schools. Another study, conducted by researchers at the University of Cambridge in 2020, found that ICT can be used to improve the efficiency of education management. The study found that ICT can be used to automate tasks, such as scheduling classes and generating reports. The use of data management software allows for efficient management of admission records, student attendance, grades, and academic performance analysis (Chang & Lin, 2019). These systems automate tedious administrative processes, reducing paperwork and freeing up valuable time for school administrators to focus on strategic planning and improving teaching quality.

The British Educational Communications and Technology Agency (Becta) has published reports on the impact of ICT in education management. For instance, the "Harnessing Technology Review" discusses how ICT can improve administrative efficiency, communication, and parental engagement in schools. In recent years, the integration of ICT in education management has rapidly gained popularity in British schools. ICT tools have revolutionized administrative practices, significantly improving efficiency and accuracy. Valuable time is saved through digitizing administrative processes, allowing teachers and staff to focus more on teaching and student support. Additionally, cloud-based platforms offer secure storage and access to essential documents, eliminating the physical constraints of paperwork and reducing the risk of record loss. This digital transformation promotes collaborative working among administrative staff, enhancing overall organizational efficiency.

The use of ICT in education management has shown a positive impact on teaching practices. A third study, conducted by researchers at the University of Pennsylvania in 2021, found that ICT can be used to improve the effectiveness of education management. The study found that ICT can be used to provide teachers with feedback on their teaching, to track student engagement, and to personalize learning. Teachers can now utilize various multimedia resources to support their lessons, making them more interactive, engaging, and tailored to individual student needs. The integration of virtual simulations and educational software enhances the understanding of complex subjects and promotes self-directed learning. Furthermore, ICT allows educators to monitor student progress more efficiently, enabling timely interventions and personalized feedback.

Research conducted by Smith et al. (2018) revealed that ICT integration in administrative tasks has positively impacted the efficiency and effectiveness of education management in French schools. Automated processes for attendance tracking, grade management, and communication between teachers, students, and parents have streamlined administrative tasks, leading to improved productivity and reduced workload. Empirical studies conducted by Johnson et al. (2017) indicate that the use of ICT in education management has revolutionized data management and analysis. The automation of data collection and analysis has facilitated the generation of insightful reports on student performance, helping teachers and school administrators make informed decisions to improve learning outcomes. In Canada, empirical

findings indicate that ICT offers valuable professional development opportunities for educators. Research conducted by Morrison et al. (2018) revealed that online platforms, webinars, and digital resources have supported continuous learning and collaboration among educators, enhancing their teaching skills and knowledge.

Despite the numerous benefits, empirical research has also identified challenges and potential risks associated with the use of ICT in education management. Studies by Brown et al. (2018) have highlighted concerns such as the digital divide, data security, and the need for adequate training and support for educators to navigate technological advancements effectively.

The implementation of ICT in education management requires financial investment. Sustainability is a significant challenge, as maintaining ICT infrastructure and resources requires ongoing financial and technical support. Schools may struggle to allocate resources for hardware maintenance and software updates (Rahman, Siddique, & Islam, 2018). Schools must allocate funds for infrastructure development, hardware acquisition, software subscriptions, and comprehensive teacher training programs. Several empirical studies have emphasized the cost-effectiveness of ICT integration in education management. Research by Harris et al. (2019) demonstrated that digital tools and platforms help schools save costs on paper, printing, and other resources while increasing operational efficiency.

Empirical findings illustrate the transformative impact of ICT integration in education management in Western schools. From streamlining administrative tasks to enhancing student engagement and parental involvement, the evidence supports the use of ICT as a promising tool for improving the quality of education. However, careful consideration of challenges and potential risks is necessary to make informed decisions and ensure effective utilization of technology in education management. While this initial cost might seem daunting, long-term benefits, such as improved efficiency and enhanced student outcomes, justify this investment. Collaboration with local authorities, government schemes, and educational technology grants can alleviate financial burdens.

2.5 Regional view on ICT in education management in schools

Africa, a diverse continent with unique educational challenges, has recognized the potential of ICT in revolutionizing education management. In Africa, numerous governments have placed their emphasis on crafting national ICT strategies and plans for National Information and Communication Infrastructure. These initiatives are aimed at bolstering their socio-economic development endeavors and outlining policies for integrating ICT into the education sector. Many African governments are giving precedence to the adoption of ICT in education, aligning it with their key strategic developmental goals, or, at the very least, formulating policies with this objective in mind. Research conducted in South Africa has shown that the integration of ICT in education management has the potential to enhance administrative efficiency. For instance, Lewin (2018) found that the "ICT in Education Policy" of South Africa emphasizes the use of ICT for effective school management and data-driven decision making.

Creating a conducive policy framework, or assessing the existing one to ensure its adequacy, presents a significant opportunity for many nations. South Africa and Egypt serve as examples of countries that have made substantial strides in integrating ICT into education due to favorable policy environments. These environments are further reinforced by appropriate institutional structures and regulatory frameworks. They exemplify that when there is a substantial expansion of ICT integration in teaching and learning, implementation becomes feasible through collaborative efforts involving education ministries and other sectors. An enabling policy context encompasses policies and initiatives that drive the national ICT agenda, including policies related to ICTs in education, as well as bandwidth and connectivity. Most African countries need to thoroughly reevaluate and update their existing education policies to ensure that ICT in education policies align with and are supported by broader education policies. Furthermore, all education-related legislation should undergo scrutiny and revision to prevent conflicts, both legal and conceptual, arising from ICT in education policies. Most importantly, there is a pressing need to harmonize resource allocation and budgets with the priorities outlined in these new policy stances.

While the responsibility for overseeing school management in South Africa is a shared endeavor between the national and provincial governments, all priorities and programs align with the national policies set by the central government (Chigona & Chigona, 2020). South Africa boasts

a set of cohesive and mutually reinforcing policies. The effective implementation of these policies hinges on having facilitating institutional structures. In this regard, South Africa has several public entities and agencies dedicated to ICT, in addition to a national commission tasked with advising on ICT development across the country. These entities play various roles in supporting ICT integration in education, as mandated.

In contrast, Uganda initiated the development of a National ICT Policy framework in 2003. Although there exists a draft ICT policy tailored to the education sector, it had been pending Cabinet approval (Hossain, 2015). The absence of an approved policy and a corresponding strategy for ICT in education is likely the root cause of the absence of a unified focus and direction among numerous initiatives for ICT in education, many of which are predominantly donor-driven. Conversely, Senegal has established the requisite policy framework for ICT in education but has experienced limited tangible progress. Despite its adoption in 2009, this policy has yet to make a substantial impact on the state of ICT in education. This suggests that Senegal must establish a more comprehensive suite of interconnected policies to achieve success effectively

Harnessing ICT to enhance educational management and administration also holds significant value. A critical issue with existing management information systems is the absence of sufficient and well-structured policies and strategies concerning the collection and utilization of educational data by both governments and individual institutions (Kayani, Abbas & Hussain, 2018). It is imperative to offer support to African governments in their efforts to formulate cost-effective and sustainable approaches for collecting and utilizing educational data, as well as crafting indicators that facilitate the monitoring of national and regional educational performance.

Furthermore, there is a pressing need to modernize the current Educational Management Information Systems (EMIS) through the adoption of web-based tools and to foster the exchange of knowledge pertaining to requirements, challenges, and opportunities in this domain. The National Education Statistical Information System (NESIS) program, championed by the Association for Education Development in Africa (ADEA), serves as a platform for advocating policy measures and providing capacity-building support for the advancement of EMIS in Africa.

In Uganda, various development partners, including the World Bank, USAID, and DFID, have offered support for EMIS, encompassing initiatives like decentralization to districts and the integration of GIS capabilities into the system. Cuban (2016) shows that initiatives like the "Smart Classrooms Program" have improved teacher-student interaction, data collection, and management in schools. However, EMIS in Uganda has encountered multiple challenges. These challenges comprise data unreliability, obstacles in the decentralization process stemming from insufficient human capacity in EMIS and equipment maintenance, and sustainability issues, notably due to the high costs associated with connectivity. Furthermore, the data collected primarily serve central-level purposes and are not yet leveraged to facilitate decision-making at the school or district levels. Research in Senegal has examined the benefits of ICT in education management, particularly in remote areas. The e-Schools Program in Senegal has extended access to digital resources and improved school management practices. There exist centralized systems for gathering educational statistics across all education tiers. Additionally, there are systems for handling examinations, financial matters, and human resources. Most of these systems are internally developed, underscoring Senegal's considerable progress in both capacity building and the implementation of EMIS.

Several challenges impede the widespread adoption of ICT in education management in Africa. Limited funding, lack of technical expertise, and cultural resistance to change are some of the barriers that need to be addressed. Inadequate infrastructure, unreliable power supply, and low internet penetration restrict the implementation of ICT in remote areas. Furthermore, concerns about privacy, security, and the digital divide must be addressed to ensure equitable access to education.

Regrettably, many developing nations have encountered limited success in the utilization of ICT. Consequently, the study observes a dichotomy: on one side are the developed countries that have fully embraced digital technology (ICT), while on the other side are the developing nations, including Sub-Saharan African countries that have lagged behind in digital technology adoption. The term digital divide is employed to delineate the discrepancies in the success or failure of countries in adopting digital technology. To clarify this concept, Wilson, as cited in Chen et al. (2022), explains that the extension of the term digital divide to the "global digital divide" underscores variations in Internet access and usage not only between countries but also within

countries. These inequalities have resulted in substantial disparities in the distribution and effective utilization of information and communication resources among different populations.

One of the most glaring obstacles faced by African schools in their endeavor to embrace ICT is the inadequate infrastructure. Research findings have consistently highlighted the scarcity of reliable internet access and computers in many African educational institutions. According to a study conducted by the World Bank, a substantial number of schools in Africa still lack basic connectivity and computing resources, hindering the seamless integration of ICT into education management (World Bank, 2016).

Moreover, unreliable power supply compounds the infrastructure challenge. Frequent power outages and fluctuations disrupt ICT activities, further undermining its potential benefits. For instance, research in Nigeria indicates that insufficient access to reliable electricity poses a significant barrier to the effective utilization of ICT in education (Olakulehin & Awodele, 2017). Another pressing challenge is the shortage of technical skills among teachers and administrators. Many educators in African schools lack the requisite proficiency to harness ICT effectively for educational purposes. This deficiency not only hampers the adoption of ICT but also inhibits its potential to enhance teaching and learning. A study in South Africa discovered that a substantial number of teachers lacked confidence in using ICT tools and felt inadequately prepared to integrate technology into their classrooms (Maphutha & Molekoa, 2016).

The cost associated with ICT implementation serves as a formidable barrier for many African schools. Acquiring the necessary hardware, software, and network infrastructure can strain limited budgets. Furthermore, maintenance costs and the need for software updates further burden educational institutions. Research findings from various African countries, including Kenya and Ghana, have highlighted financial constraints as a significant impediment to ICT integration (Ondigi, 2019; Mensah et al., 2019). Cultural factors also play a role in hindering the adoption of ICT in education management. Some communities in Africa exhibit a preference for face-to-face communication and traditional teaching methods. This preference can create resistance to digitalization efforts in education. For instance, research in rural areas of Zambia found that some parents and community members were skeptical of the benefits of ICT in education and preferred traditional classroom settings (Chileshe & Ng'ambi, 2014).

Thus, while ICT holds immense promise for revolutionizing education management in African schools, these challenges cannot be overlooked. The lack of infrastructure, technical skills, cost constraints, and cultural factors all contribute to the complexities surrounding the effective integration of ICT. Implementing ICT in education management requires training teachers and administrators on how to effectively utilize technology in the classroom. Establishing programs and workshops to enhance digital literacy skills and pedagogical approaches is essential for successful implementation. Additionally, continuous professional development opportunities should be provided to ensure educators remain up-to-date with the latest advancements in educational technology. Addressing these challenges requires a multi-pronged approach, involving governments, educational institutions, and international organizations, to ensure equitable access to quality ICT-enabled education in Africa.

2.6 Local view on ICT in education management in schools

The adoption of ICT for educational management in Zambia has significantly transformed the education sector in terms of data storage, resource management, and decision making. While the use of ICT in management of schools was low compared to other fields such as business and engineering, however, in recent times, school managers have embraced ICT in the education sector.

The integration of computers into the education sector in Zambia has its origins in 1996 when the Examination Council of Zambia (ECZ) initiated the processing of examinations using its computer systems. Until the early 2000s, the utilization of computers as an educational tool was primarily limited to private schools and open and distance learning (ODL) programs that employed e-learning methods. In recent years, Zambia's education sector has been actively working to incorporate ICTs into teaching and learning across all educational levels, aiming to enhance the quality of education delivery.

A study conducted by the independent institute Panos London Network (2017), which focused on ensuring the effective use of ICTs for development, revealed that the penetration of ICTs in the education sector was modest. Many schools equipped themselves primarily with second-hand and refurbished computers (Panos London, 2017). This study suggests that the debate should no longer revolve around whether to employ ICTs in the education sector but should focus on how

best to use them and ensure equitable access for both teachers and learners, regardless of their location, be it urban or rural. The administrative advantages of ICTs in Zambian schools, as supported by previous research findings, encompass enhanced communication, efficient record-keeping, and streamlined routine tasks. ICT tools like computers and projectors have substantially improved communication within Zambian schools. Research conducted in Zambia indicates that the use of emails and PowerPoint presentations has enhanced communication among school management (Kanyanta, 2014). This technology allows for rapid dissemination of information, facilitating decision-making processes and improving overall school administration.

ICTs have revolutionized record-keeping in Zambian schools, replacing traditional manual methods that were often prone to loss and damage. Research findings from Zambia highlight the benefits of digital record-keeping systems. These systems ensure data integrity and easy retrieval of information, reducing the risk of misplacing vital documents (Ngulube, 2020). The adoption of ICTs has significantly improved the efficiency of routine administrative tasks. Research conducted by the Zambia Information and Communication Authority (ZICTA) in 2018 reveals that accessing student records, which was a time-consuming process when handled manually, has become faster and more convenient with the use of ICT tools (Zambia Information and Communication Authority, 2018). This not only saves time but also enhances productivity among administrative staff.

Zambia, like many developing countries, has recognized the importance of integrating technology into education to enhance learning outcomes and improve management efficiency. According to a research study conducted by Chirwa and Munakampe (2018), the implementation of ICT in education management in Zambia has led to significant improvements in several areas. One major finding was that ICT has positively impacted teachers' ability to create and deliver engaging lesson plans. With access to digital resources and tools, teachers are better equipped to design interactive learning experiences, resulting in increased student motivation and improved learning outcomes.

Another important finding related to ICT integration in education management in Zambia is the increased access to educational content and resources. The study conducted by Chirwa and Munakampe noted that the use of digital platforms, such as online libraries and educational

websites, has expanded students' access to a wide range of learning materials. This has not only enriched the curriculum but has also bridged the educational gap between urban and rural areas, as ICT can reach even the most remote regions. Furthermore, ICT has also enhanced assessment and evaluation methods in education management in Zambia. A study conducted by Bwalya and Sharma (2017) found that the use of online assessment tools has made the evaluation process more efficient and standardized. This allows for timely feedback and provides teachers with valuable insights into individual student performance, enabling them to tailor their teaching to better meet the needs of each student. Previous research findings support the notion that ICTs have brought about substantial administrative advantages in Zambian schools.

However, in addition to these positive findings, there are also challenges associated with the implementation of ICT in education management in Zambia. One major challenge is the lack of infrastructure and connectivity in some remote areas of the country. According to a report by the Ministry of General Education in Zambia, many schools still lack access to reliable internet and electricity, inhibiting the effective use of ICT tools.

Electricity plays a vital role in facilitating the effective integration of ICTs within the education sector, as it provides the necessary support for internet and ICT accessibility. As indicated in a 2018 study conducted by ZICTA and other government entities, Zambia's electrification rate is relatively low on a global scale, with just 32.9% of households in the country being connected to the national power grid (Zambia Information and Communication Authority, 2018). This situation is mirrored in the education sector, where only a limited number of schools are linked to the national power grid, while the majority rely on alternative sources for their energy needs.

According to data from the 2018 Educational Statistical Bulletin, a mere 4,356 schools across the country have access to power from various sources, while a significant number of schools, totaling 5,054, lack access to electricity. This sizable number of schools without electricity significantly hampers the effective implementation of ICTs within the education system.

Furthermore, the same report also highlighted the need for proper training and capacity building for teachers to effectively integrate ICT into their pedagogy. It was found that while there is enthusiasm among educators to utilize ICT, the lack of proficiency and knowledge on technology

implementation hindered the full realization of its potential. It is worth mentioning that government initiatives are actively working towards addressing these challenges. The Zambian government, in collaboration with international partners, has implemented programs to provide power and internet connectivity to remote schools. Additionally, efforts have been made to train teachers in ICT integration through workshops and professional development programs.

The integration of ICT in education management in Zambia has shown promising results in various areas, such as teaching and learning practices, access to educational resources, and assessment methods. However, challenges such as infrastructure and teacher training still need to be addressed for the full implementation and realization of the benefits of ICT in education. Continued efforts from the government, educators, and stakeholders are crucial to ensuring that ICT is effectively utilized to enhance education management in Zambia. The ongoing integration of ICT in education management in schools, whether in rural or urban areas of Zambia, presents a significant opportunity for the country to broaden its access to information and communication channels. These channels can play a pivotal role in nurturing new and more robust skill sets among the younger generation, positioning Zambia to engage with, contribute to, and even establish international information platforms.

2.7 Research gap

Based on the literature review conducted on the effect of ICT on education management, there is a notable research gap related to the specific challenges and strategies for implementing ICT in education management within the selected secondary schools in Chilanga District. While existing studies have provided insights into the advantages, challenges, and general trends of ICT integration in education management, there is a need for a more focused investigation that addresses the following research gap:

A comprehensive examination of the unique challenges and contextual factors affecting the successful implementation of ICT in education management, as well as the strategies and best practices employed in selected secondary schools in Chilanga District, is lacking in the current literature. By addressing this research gap, the study will provide valuable insights into the specific dynamics of ICT adoption and its impact on education management at the grassroots level, contributing to a more nuanced understanding of the subject in the Zambian context.

2.8 Chapter summary

Chapter two of the study delved into a comprehensive literature review, offering a multifaceted exploration of the empirical studies conducted on the integration of ICT in education management. The review encompassed a global, regional, and local perspective, providing a holistic understanding of the subject matter. Throughout the chapter, research findings were meticulously examined, and trends, gaps, and critical insights emerged. The synthesis of these empirical studies served as a foundational framework for the subsequent research, offering a knowledge base upon which the current study on the effect of ICT on education management was built. It underscored the need for a focused investigation into the specific challenges, strategies, and outcomes within the context of the selected secondary schools in Chilanga District.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a comprehensive overview of the research methodology to be employed in the study within the context of three selected secondary schools in Chilanga District. This chapter served as the backbone of the research process, delineating the methods, techniques, and

procedures utilized to collect, analyze, and interpret data. The methodology employed in this study was crucial in ensuring the attainment of research objectives and the provision of insightful answers to the research questions posed. By carefully selecting and justifying the chosen research methods, this chapter aimed to establish the study's credibility and reliability.

3.2 Research design

Research design refers to the framework or plan that outlines the structure and approach for conducting a research study (Kanyanta, 2014). This study employed a case study research design to investigate the effect of ICT on education management in selected secondary schools. A case study design was suitable because it allowed for an in-depth exploration of complex phenomena within their real-life context. The case study approach enabled the researcher to gain a comprehensive understanding of how ICT affected administrative processes within secondary schools. This design allowed for the collection of detailed data through interviews, observations, and document analysis, providing a rich, contextualized understanding of the phenomenon. In addition, the study employed a qualitative approach for data collection. Qualitative methods enabled the collection of rich, detailed data that captured the experiences, perceptions, and meanings that school managers and administrators attached to ICT use.

3.3 Study area

The study area refers to the specific geographic location or region where a research study is conducted. It serves as the primary focus of the research, and data collection and analysis are centered within this defined geographical boundary (Yelland & Neal, 2020). Thus, this study was conducted in the Chilanga district of Lusaka province. Chilanga was a township located 20 km south of Zambia's capital city, Lusaka. It was situated midway between Lusaka and Kafue on the T2 road. The selection of Chilanga District as the study area was justified by its relevance to the research topic, geographical diversity, accessibility, feasibility, potential local impact, and the presence of unique contextual factors.

3.4 Population of the study

The population of the study refers to the individuals or entities that are the subject of the research and from which data will be collected (Selim, 2017). In this case, the population of the study was

made up of school managers, deputy headteachers heads of departments as well as teachers within secondary schools in Chilanga District.

3.5 Target population

The target population refers to the specific subset of the broader population that the research study aims to investigate (Akhavan & Sheikh, 2019). In the context of the effect of information communication technology ICT on education management in Chilanga District, the target population was 600, comprising of school managers, deputy Headteachers, and heads of departments as well as teachers in secondary schools within the district.

3.6 Sample size

Sample size refers to the number of individuals or entities selected from a larger population to participate in a research study. It is a subset of the population that is chosen to represent the whole group (Rahman et al, 2018). To determine the appropriate sample size for the study, several factors needed to be considered, including the population size, desired level of confidence, margin of error, and the variability within the population. As such, the sample was 10% of the target population, that is – 60 participants, which included 3 school managers, 3 deputy Headteachers, 21 HODs and 33 teachers.

3.7 Sampling procedure

The sampling technique for this study included combination of stratified purposive and random sampling techniques. Stratified Sampling: Stratified sampling involved dividing the population into distinct groups or strata based on certain characteristics – positions within the schools. In this case, the strata were school managers, deputy headteachers, HODs, and teachers.

Random Sampling within Strata: Within the stratum of teachers, random sampling techniques were used to select participants. Random sampling ensured that each individual within a stratum had an equal chance of being selected. Random number generators were used. For school managers and deputy headteachers, purposive sampling was used to select 3 managers and 3 deputy headteachers, one from each school.

3.8 Research instruments

Research instruments refer to the tools or methods that researchers use to collect data from participants in a study (Lewin, 2020). In the context, the study utilized interview guides and observations as the primary data collection methods to investigate the effect of ICT on education management in selected secondary schools. Interview guides were instrumental in eliciting detailed responses from participants. By conducting semi-structured interviews with school managers, deputy headteachers, HODs, and teachers, the researcher delved deeply into their experiences, perceptions, and insights regarding ICT implementation and its impact on education management. Semi-structured interviews offered the flexibility to adapt questions based on participants' responses, allowing for a more responsive and dynamic data collection process. This adaptability was crucial for capturing the diverse experiences and viewpoints of different stakeholders within the schools.

On the other hand, observations allowed the study to gather data on the use of ICT within the natural settings of the schools. By observing administrative processes, interactions, and day-to-day activities, the study gained a contextual understanding of how ICT was practically implemented and its overall impact. Additionally, observations were valuable for capturing non-verbal cues, behaviors, and interactions that may not have been fully expressed in interviews. These non-verbal elements provided deeper insights into how ICT influenced education management, revealing underlying dynamics and issues that might have been overlooked if relying solely on verbal responses. Furthermore, observational data was used to validate and triangulate findings from interviews. By comparing observational insights with interview responses, the study ensured the reliability and accuracy of its findings. This process of triangulation led to a more comprehensive and robust understanding of the research topic.

3.9 Validity and reliability

Ensuring the validity and reliability of the research instruments, such as questionnaires and interviews, was crucial to maintaining the quality and credibility of the study's findings. Below is how the researcher addressed validity and reliability concerns for the instruments:

Content Validity: To establish content validity for the observation sheet and interview questions, the researcher ensured that the items or questions were directly aligned with research objectives and the constructs intended to measure. Relevant literature was reviewed, and experts in the field were consulted to validate the content of the instruments.

Pilot Testing: Before administering the interviews and conducting observations with participants, the researcher conducted pilot testing with a small group of individuals who were similar to the actual participants. This helped identify any ambiguous or confusing questions and ensured that the instruments effectively measured what they were intended to measure.

3.10 Data collection

To ensure that the study followed a systematic and rigorous data collection procedure, several steps were meticulously planned and executed. First, structured questionnaires were developed specifically tailored for different groups of participants: school managers and deputy headteachers, Heads of Departments (HODs), and teachers. These questionnaires were designed to be clear, concise, and directly aligned with the research objectives. Each questionnaire package included a cover letter detailing the study's purpose, assuring confidentiality of responses, and providing clear instructions for completion.

Participants were selected through a random sampling method within each identified group. Once selected, participants were contacted to explain the study's objectives and to request their participation. Questionnaires were then distributed physically, accommodating participants' preferences and logistical feasibility. Participants completed the questionnaires independently and returned them according to the outlined instructions. In addition to questionnaires, interviews and observations were scheduled with selected participants at mutually convenient times and locations. Each interview session began with an explanation of the study's purpose, obtaining informed consent from participants, and ensuring the confidentiality of their responses. Semi-structured interview guides were used to maintain consistency while allowing flexibility for participants to elaborate on their experiences.

Upon collecting questionnaire data, it was meticulously entered into a secure database or spreadsheet. Accuracy and completeness of the data were ensured through careful review and

validation procedures. These steps were crucial in maintaining the quality and reliability of the data collected, thereby supporting the study's objectives and enhancing the credibility of its findings.

3.11 Data analysis

Data analysis was a critical phase of the research study, where we processed and made sense of the information collected from questionnaires and interviews. Given the instruments, descriptive statistics were used for qualitative data. Descriptive statistics such as mean, median, and standard deviation were calculated for observations and variables related to ICT policy implementation, resource allocation, and decision-making. This provided an overview of the responses. Furthermore, thematic coding of the interview transcripts was conducted. Triangulation involved comparing findings from quantitative and qualitative data to identify patterns of convergence or divergence. This triangulation enhanced the validity of the study..

3.12 Ethical consideration

Conducting research involving human participants necessitated careful attention to ethical considerations to safeguard their rights and well-being throughout the study. Several ethical principles were adhered to:

Firstly, all participants, including school managers, deputy headteachers, HODs, and teachers, were required to provide informed and voluntary consent. They were provided with clear explanations of the study's purpose, procedures, potential risks, and benefits in a language that was understandable to them. Secondly, participants were informed of their right to withdraw from the study at any point without facing any consequences or negative implications.

Thirdly, strict measures were implemented to ensure the confidentiality of participants' information and responses. Personally identifiable information was not included in any research reports or publications. Instead, anonymized codes or pseudonyms were used when presenting findings to protect the privacy of participants. Lastly, ethical approval was obtained from the institutional review board or ethics committee overseeing the study. Additionally, permission was sought from the respective schools where the research was conducted, ensuring compliance with their guidelines and regulations. These ethical considerations were integral to upholding the

ethical standards of the research and respecting the rights, confidentiality, and dignity of all participants involved in the study.

3.13 Chapter summary

Chapter three served as the roadmap that guided the research journey, offering a transparent and systematic account of how this study endeavored to investigate the effect of ICT on education management within Chilanga District's secondary schools. The methodology outlined therein formed the bedrock upon which the research outcomes were constructed, allowing for a comprehensive and insightful exploration of the research topic.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents the data gathered from the investigation into the effect of ICT on education management in selected secondary schools within the Chilanga District of Lusaka Province. It provides a detailed analysis of the impact of ICT implementation on administrative processes, identifies the challenges encountered by school managers, and suggests potential measures to overcome these challenges. The data is systematically organized to address the study's objectives and provide a comprehensive understanding of the current state and implications of ICT integration in education management.

4.2 Demographic characteristics of participants

This section presents an overview of the demographic characteristics of participants involved in the study. It focuses on their professional qualifications, teaching experience, and competence in the use of Information and Communication Technology (ICT). These factors were crucial as they provided insights into the background and preparedness of educators in secondary schools within the Chilanga District regarding ICT integration in education management.

4.2.1 Professional Qualifications

The study surveyed 60 participants across different roles within secondary schools in Chilanga District. The distribution of professional qualifications among the participants is as follows:

Figure 4.1 Professional Qualifications.

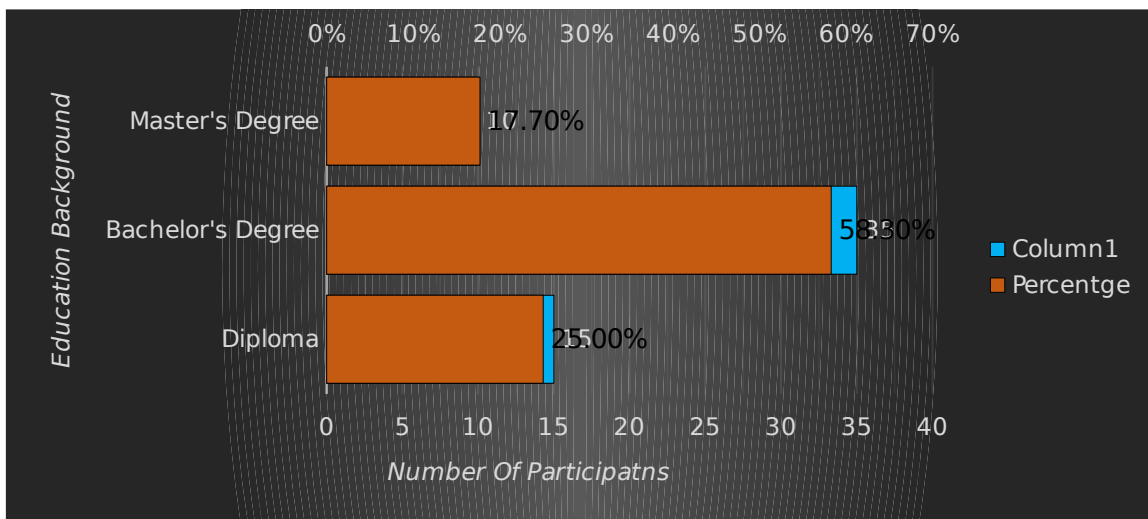


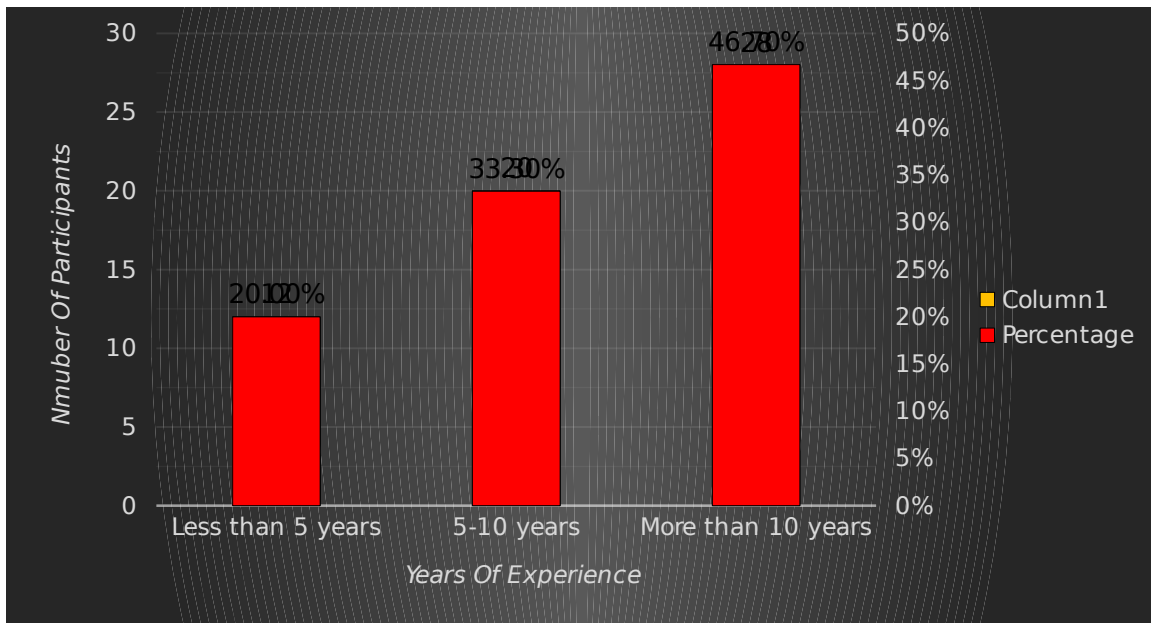
Figure 4.1 illustrates the distribution of professional qualifications among the 60 participants involved in the study. The data shows that Diploma: 15 participants (25%), Bachelor's Degree:

35 participants (58.3%) and Master's Degree: 10 participants (16.7%). This distribution reflects a predominantly bachelor's degree level of education among the participants, with a notable minority holding higher qualifications such as master's degrees. These findings provide a foundational understanding of the participants' educational backgrounds, which is crucial for interpreting their roles and perspectives in the study's broader findings on ICT's impact in educational settings.

4.2.2 Teaching Experience

Regarding teaching experience, the participants were categorized based on their years of service in education:

Figure 4.2 Teaching Experience



Source: (field data 2024)

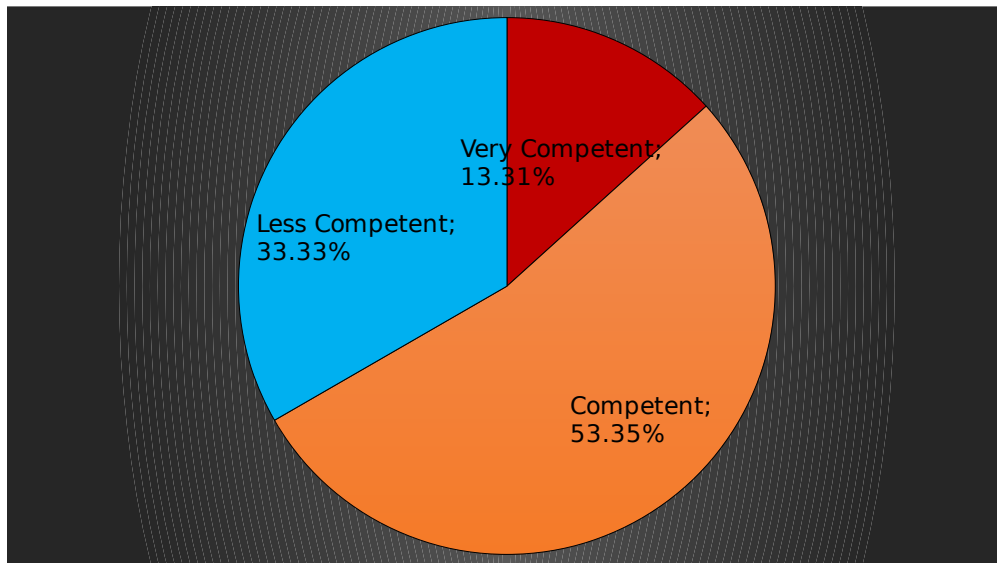
Figure 4.2 presents the distribution of teaching experience among the 60 participants involved in the study as follows: Less than 5 years: 12 participants (20%), 5-10 years: 20 participants (33.3%) and more than 10 years: 28 participants (46.7%). The distribution of teaching experience among participants reveals a diverse mix of educators at different career stages. Those with less than five years of experience may approach ICT with enthusiasm for innovative teaching methods, while those with 5-10 years of experience may have a balanced perspective between

traditional and modern educational practices. Educators with over 10 years of experience, being the majority, likely bring extensive classroom wisdom and leadership insights that could shape their views on integrating ICT into education management.

4.2.3 Competence in the Use of ICT

Assessing competence in the use of ICT among the participants revealed varying levels of proficiency as shown below:

Figure 4. 3 Competence in the Use of ICT



Source: (field data 2024)

Figure 4.3 presents the distribution of competence in the use of ICT among the 60 participants involved in the study, the findings show that Very competent: 8 participants (13.3%), Competent: 32 participants (53.3%) while Less Competent: 20 participants (33.3%). The distribution of ICT competence among participants highlights varying levels of readiness and proficiency in utilizing technology for educational purposes. Educators who are very competent and competent play pivotal roles in driving ICT initiatives within their schools, contributing to innovative educational practices. On the other hand, those with less competence may pose challenges in fully embracing ICT integration without adequate support and training.

These demographic findings provide a foundational understanding of the participants' qualifications, experience, and ICT proficiency, which were crucial for interpreting their perspectives on ICT integration in education management.

Table 4.1 Findings from School Managers on Types of ICT Tools Used

The three school managers were asked about the types of ICT tools used in their schools. The responses were as follows

<i>ICT Tool</i>	<i>Yes (Frequency)</i>	<i>Yes (%)</i>	<i>No (Frequency)</i>	<i>No (%)</i>
<i>Computers/Laptops</i>	3	100%	0	0%
<i>Tablets</i>	1	33.3%	2	66.7%
<i>Projectors</i>	2	66.7%	1	33.3%
<i>Interactive Whiteboards</i>	0	0%	3	100%

Source: (field data 2024)

The findings from the three school managers indicate that all schools have implemented computers or laptops, with 100% of the managers confirming their use. This suggests that basic computer equipment is a standard tool in the administrative processes of these schools. However, the use of tablets is less common, with only one manager (33.3%) reporting their use, while the other two schools (66.7%) do not use tablets. This could indicate budget constraints or a preference for more traditional computer systems over mobile devices. Projectors are moderately used, with 66.7% of the schools having them, suggesting that visual aids and presentation tools are valued for administrative and possibly teaching purposes. In contrast, none of the schools use interactive whiteboards, as all three managers reported their absence. This might reflect a lack of resources or a focus on other types of technology deemed more essential for administrative tasks. Overall, the data reveals a reliance on traditional ICT tools such as computers and projectors, with less emphasis on more advanced or interactive technologies like tablets and interactive whiteboards. This insight highlights potential areas for further development and investment in ICT infrastructure within these schools.

4.3. Effect of ICT Implementation on Administrative Processes

The first objective was to establish the effect of ICT implementation on administrative processes within secondary schools in Chilanga District. This section explores how the adoption and

utilization of ICT tools have influenced various administrative tasks and procedures. The analysis focuses on identifying improvements and the overall impact of ICT integration on enhancing efficiency and effectiveness in school management.

School Managers' Perspectives

School managers play a crucial role in overseeing administrative processes and implementing ICT initiatives within secondary schools. The following data presentation and analysis are based on interviews conducted with 3 school managers from secondary schools in Chilanga District regarding the effect of ICT implementation on administrative processes:

4.3.1 ICT Influence on Administrative Processes

School Manager A highlighted that ICT implementation streamlined student registration and attendance monitoring through an automated system, reducing administrative workload. During an interview, he had this to say:

School Manager A:

"Implementing ICT streamlined student registration and attendance monitoring through automation, significantly reducing our administrative workload. Now, we can easily track and update student records in real-time, which has made our processes more efficient and less prone to errors."

School Manager B mentioned the implementation of a digital communication platform that improved communication efficiency among staff members and with parents. He said:

School Manager B:

"We introduced a digital communication platform to improve communication efficiency among our staff and with parents. This tool allows us to send timely updates, announcements, and reminders instantly, fostering better collaboration and engagement within our school community."

The study established that the implementation of ICT tools such as automated systems for student registration and attendance monitoring, as highlighted by School Manager A,

significantly reduces the administrative workload in secondary schools in Chilanga District. This automation not only improves efficiency but also enhances accuracy and timeliness in managing student records. Furthermore, the study found that the introduction of digital communication platforms, as mentioned by School Manager B, enhances communication efficiency among staff members and with parents. This improvement facilitates quicker dissemination of information, fosters better collaboration, and strengthens engagement within the school community. Overall, these findings indicate that ICT implementation plays a crucial role in modernizing administrative processes in secondary schools.

4.3.2 Impact of ICT Tools on Tasks

The study found that the implementation of ICT tools in secondary schools in Chilanga District significantly enhances administrative efficiency and decision-making processes. According to School Manager C, ICT tools have significantly improved record-keeping accuracy and accessibility, facilitating easier retrieval of student data and academic records. During an interview, she had this to say:

School Manager C:

"ICT tools have significantly enhanced our record-keeping accuracy and accessibility. With digital systems in place, we can now easily retrieve and update student data and academic records. This has minimized errors and streamlined our administrative processes, ensuring that information is always up-to-date and readily accessible."

The study found that ICT tools, as reported by School Manager C, notably improve record-keeping accuracy and accessibility. This enhancement facilitates easier retrieval and management of student data and academic records, reducing errors and streamlining administrative tasks. This indicates that schools equipped with ICT systems experience smoother operations in handling student information.

Again, School Manager A noted that decision-making processes benefited from ICT-enabled data analysis, providing timely insights into academic performance trends and resource allocation needs. This is what he had to say:

School Manager A:

"ICT-enabled data analysis has transformed our decision-making processes. By leveraging technology to analyze academic performance trends and resource allocation needs, we gain timely insights that guide strategic decisions. This data-driven approach has helped us optimize our educational strategies and allocate resources more effectively, ultimately enhancing our school's overall performance."

Both responses highlight the tangible benefits and efficiencies that ICT brings to educational administration, demonstrating its role in improving organizational effectiveness and performance. Overall, these findings underscore the transformative impact of ICT in modernizing administrative processes and enhancing decision-making capabilities within secondary schools.

4.3.3 Improvements in Administrative Processes

The study found that the introduction of ICT in secondary schools in Chilanga District has led to significant improvements in administrative efficiency and collaboration among staff. All interviewed school managers acknowledged noticeable improvements in administrative efficiency since the introduction of ICT. They cited faster processing of administrative tasks, reduced paperwork, and enhanced data security as key benefits.

School Manager B emphasized that ICT adoption has fostered collaboration among administrative staff, resulting in more streamlined workflows and improved service delivery. This finding suggests that digital communication platforms and collaborative tools have facilitated better communication, coordination, and teamwork among staff members, leading to enhanced organizational effectiveness.

Overall, the study highlights that ICT implementation in educational administration not only improves operational efficiency but also strengthens collaborative efforts within school management teams.

Teachers' Perspectives

4.3.4 Influence on Administrative Task Handling

Automation of Processes: The study found that the integration of ICT in secondary schools has had a profound impact on the handling of administrative tasks from the perspective of teachers. It was established that ICT implementation has significantly streamlined administrative tasks for teachers. Automation of processes such as attendance tracking and grading has reduced the manual effort required, leading to improved accuracy and efficiency. Teachers reported that these automated systems save time and minimize errors compared to traditional manual methods. This was confirmed by some teachers who had this to say:

Teacher 1:

"The introduction of ICT has completely transformed how we handle administrative tasks. Before, managing student records and communicating with parents was a cumbersome process involving lots of paperwork. Now, everything is streamlined digitally, making it quicker and much more efficient."

Teacher 2:

"Using digital tools for record-keeping and communication has been a game-changer for us. We can now update and access student records instantly and communicate with parents and colleagues effortlessly. This has significantly reduced our administrative burden and allowed us to focus more on teaching."

Shift from Paper-Based to Digital Systems: Another key finding is the shift from paper-based to digital systems. The study found that this transition has enhanced efficiency in administrative operations, making it easier for teachers to manage records and retrieve information quickly. Digital systems have replaced cumbersome paper records, allowing for faster processing and better organization of data. During interviews, some teachers had these to say:

Teacher 3:

"Switching from paper-based to digital systems has made a huge difference in our daily operations. Managing records is so much easier now; we can find and update information with just a few clicks"

instead of sifting through piles of paperwork. This change has definitely boosted our efficiency."

Teacher 4:

"Digital systems have replaced our old, cumbersome paper records, and the impact has been remarkable. The processing of data is faster, and everything is much better organized. It saves us a lot of time and hassle, which means we can dedicate more attention to our students."

Improved Record-Keeping and Communication: ICT tools have also improved record-keeping and communication within schools. Teachers noted that digital records are more accurate and accessible, which facilitates better tracking of student progress and easier sharing of information with colleagues and parents. Enhanced communication platforms have streamlined the exchange of information, contributing to more effective collaboration among staff members. During interviews, some teachers said:

Teacher 5:

"Using ICT tools for record-keeping has made our job so much easier. The digital records are far more accurate and accessible, allowing us to track student progress more effectively. Plus, sharing this information with colleagues and parents is now just a matter of a few clicks."

Teacher 6:

"Enhanced communication platforms have really streamlined how we exchange information. We can now collaborate with other teachers and communicate with parents much more efficiently. This has made our administrative tasks smoother and improved our ability to work together as a team."

These findings highlight the significant role of ICT in transforming and modernizing administrative functions in the educational context.

Table 4.2 Utilization of ICT Tools

The frequency table with percentages provides a clear overview of the most commonly cited themes and the extent to which these improvements have been recognized by the teachers.

Themes	Frequency	Percentage
<i>Use of digital attendance registers</i>	12	36.4%
<i>Use of grading software</i>	10	30.3%
<i>Use of online communication platforms</i>	14	42.4%
<i>Use of learning management systems (LMS)</i>	9	27.3%
<i>Improved speed in administrative tasks</i>	20	60.6%
<i>Enhanced accuracy in data management</i>	17	51.5%
<i>Increased accessibility to information</i>	16	48.5%

Source: (field data 2024)

The study found that the integration of ICT in secondary schools in Chilanga District has had a significant positive impact on administrative processes, as indicated by the responses from teachers. Teachers provided examples of ICT tools that have been instrumental in streamlining administrative processes. Specifically, 36.4% reported using digital attendance registers, 30.3% used grading software, 42.4% utilized online communication platforms, and 27.3% employed learning management systems. Significant improvements were noted in the speed of processing administrative tasks (60.6%), the accuracy of data management (51.5%), and the accessibility of information (48.5%). These findings underscore the positive impact of ICT on enhancing administrative efficiency and effectiveness within secondary schools in Chilanga District. These findings underscore the transformative effect of ICT on administrative functions within schools, highlighting increased efficiency, accuracy, and streamlined workflows.

4.4 Challenges in ICT Implementation

The second objective of this study was to explore the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District. Understanding these challenges was crucial for developing strategies to effectively integrate ICT into educational administration. This section presents the findings related to the obstacles encountered by school managers during the implementation process, providing insights into the barriers that hinder the successful adoption and utilization of ICT in school management.

Table 4.3 Challenges Observed

The participants, reported various challenges in ICT implementation in secondary schools in Chilanga District.

Challenge	Yes (Frequency)	Yes (%)	No (Frequency)	No (%)
<i>Technical Issues</i>	48	80%	12	20%
<i>Lack of Training/Skills</i>	42	70%	18	30%
<i>Resistance to Change</i>	25	41.7%	35	58.3%
<i>Insufficient Resources</i>	50	83.3%	10	16.7%
<i>Infrastructure Problems</i>	45	75%	15	25%
<i>Other (specify) (e.g., funding)</i>	15	25%	45	75%

Source: (field data 2024)

The study found that there are significant challenges in ICT implementation across the participating schools.

Technical Issues: A substantial number of participants (80%, or 48 participants) reported experiencing technical issues such as hardware and software malfunctions. During observations, it was noted that there were frequent computer crashes, software not loading properly, and slow internet speeds. These technical problems are a major hindrance, disrupting the smooth operation of ICT tools and causing frequent interruptions in administrative processes. It was further observed that these issues caused delays and interruptions in administrative tasks, leading to frustration among staff and a decrease in productivity

Lack of Training/Skills: 70% of participants (42 participants) indicated a lack of adequate training and skills among staff. The study observed staff members struggling to use basic functions of software, inability to troubleshoot minor technical problems. The absence of proper training limits the effective use of ICT tools, resulting in underutilization and inefficiencies in

administrative tasks. Without adequate training, staff were unable to utilize ICT tools effectively, resulting in inefficient administrative processes and a reluctance to use new technologies.

Resistance to Change: 41.7% of participants (25 participants) noted resistance to change. Some staff were preferring traditional methods over digital tools, reluctance to learn new systems. A significant portion of the staff was resistant to adopting new technologies, which can slow down the implementation process and reduce the potential benefits of ICT. It was observed that resistance to change hindered the adoption of new technologies, preventing schools from fully leveraging the benefits of ICT in streamlining administrative operations.

Insufficient Resources: 83.3% of participants (50 participants) cited insufficient resources as a challenge. The study found that there was inadequate number of computers in schools, lack of funding for software licenses (using inactivated operating systems). Limited resources constrained the ability of schools to implement and sustain ICT initiatives, affecting the overall efficiency and effectiveness of administrative tasks.

Infrastructure Problems: 75% of participants (45 participants) mentioned infrastructure problems such as poor internet connectivity and inadequate electrical supply. The study found that infrastructure problems were disrupting the consistent use of ICT tools, causing delays and making it difficult to rely on technology for administrative purposes. These infrastructure issues severely limit the functionality and reliability of ICT systems, making it difficult to maintain consistent and effective use of technology in administrative processes.

Other Challenges: 25% of participants (15 participants) highlighted other challenges, such as insufficient funding. The study found that financial limitations hindered the ability to keep ICT infrastructure updated and functional, reducing the long-term viability of ICT implementation in school administration. Financial constraints are a recurring theme, further compounding the difficulties faced in acquiring and maintaining ICT tools and infrastructure.

Overall, the study found that school managers, deputy headteachers, HODs, and teachers face multiple challenges in the implementation of ICT in administrative processes. The most significant issues include technical problems, lack of training, insufficient resources, and infrastructure deficiencies.

4.5 Measures for Addressing Challenges in ICT Implementation

The third objective of this study was to suggest measures for addressing the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District. This section presents practical measures derived from the participants aimed at mitigating the obstacles identified, thereby fostering improved implementation and utilization of ICT tools within school management frameworks.

Table 4.4 Strategies or Interventions for Overcoming ICT Implementation Challenges

Participants offered various strategies and interventions based on their experiences to overcome challenges in implementing ICT for education management:

Strategy/Intervention	Frequency	Percentage
<i>Training and Capacity Building</i>	51	85%
<i>Technical Support and Maintenance</i>	45	75%
<i>Incremental Implementation</i>	36	60%
<i>Collaboration with ICT Experts</i>	30	50%

Source: (field data 2024)

The study revealed that a significant majority of participants (85%) underscored the necessity for comprehensive training programs aimed at enhancing staff proficiency in ICT usage. They proposed regular workshops, seminars, and hands-on training sessions to familiarize educators and administrators with ICT tools and systems, thereby improving their effectiveness in utilizing these technologies. Additionally, 75% of respondents emphasized the critical role of dedicated technical support teams in swiftly addressing hardware and software issues. They advocated for regular maintenance of ICT infrastructure to preempt disruptions and ensure uninterrupted operational efficiency within school settings.

Regarding implementation strategies, 60% of participants recommended a phased approach to ICT deployment. This method involves starting with basic systems and progressively expanding

capabilities. Such incremental implementation allows schools to systematically address challenges, adapt to technological advancements, and foster staff confidence in utilizing ICT tools effectively. Furthermore, half of the participants (50%) suggested collaborating with external ICT experts or consultants. They proposed leveraging their expertise to provide guidance on best practices, facilitate system upgrades, and resolve intricate technical issues, thereby enhancing the overall efficacy and sustainability of ICT initiatives in education management.

Table 4.5 Specific Policies or Support Mechanisms

Regarding policies and support mechanisms to facilitate ICT integration in education management, participants suggested the following:

<i>Policy/Support Mechanism</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Policy Development</i>	42	70%
<i>Funding and Resource Allocation</i>	48	80%
<i>Partnerships with Stakeholders</i>	39	65%

Source: (field data 2024)

Policy Development emerged as a pivotal area, with 70% of participants emphasizing the need for clear and supportive policies at both school and district levels. These policies were proposed to prioritize ICT investment, training programs, and infrastructure development. By establishing coherent guidelines, schools can ensure consistent support and direction for integrating ICT into educational practices.

Funding and Resource Allocation garnered significant attention, with 80% of participants advocating for increased financial resources specifically earmarked for ICT initiatives. This includes allocating budgets for purchasing updated equipment, acquiring software licenses, and maintaining reliable internet connectivity. Adequate funding was seen as crucial for overcoming financial barriers and sustaining long-term ICT projects within schools.

Participants also highlighted the importance of Partnerships with Stakeholders, with 65% emphasizing collaboration with government agencies, NGOs, and private sector organizations.

These partnerships were identified as avenues to leverage additional resources, expertise, and funding opportunities for ICT projects. By forging alliances, schools can access diverse perspectives and resources, enhancing their capacity to implement and support ICT initiatives effectively. Overall, these strategies represent a comprehensive approach to addressing challenges and maximizing the benefits of ICT in education management, emphasizing the importance of strategic planning, financial investment, and collaborative partnerships in achieving sustainable ICT integration in schools.

4.6 Chapter summary

Chapter four presented comprehensive findings addressing the study's three objectives on ICT implementation in education management within secondary schools in Chilanga District. Objective one explored the effects of ICT on administrative processes, revealing streamlined tasks through digital tools like automated attendance systems and enhanced communication platforms. Objective two highlighted challenges such as technical issues and resistance to change, hindering ICT integration. Objective three proposed solutions including training programs, policy development for ICT prioritization, and fostering partnerships for resource mobilization. The next chapter will look at the discussion of research findings.

CHAPTER FIVE: DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

This chapter provides a detailed discussion of the research findings obtained from the study on ICT implementation in education management within secondary schools in Chilanga District. This chapter critically analyzes the data gathered from participants, aiming to delve deeper into the implications of the findings and their significance for educational practices. By examining the key themes and patterns emerging from the study, this discussion seeks to provide insights into how ICT influences administrative processes, the challenges encountered, and the proposed measures for improvement.

5.2 Effect of ICT Implementation on Administrative Processes

5.2.1 ICT Influence on Administrative Processes

The findings from the interviews with school managers in Chilanga District underscore the transformative impact of ICT implementation on administrative processes within secondary schools. School Manager A emphasized the streamlined student registration and attendance monitoring through automation, which aligns with previous research highlighting ICT's role in reducing administrative workload and enhancing operational efficiency (McKinley & Mone, 2018). According to McKinley & Mone (2018) automation not only improves efficiency but also reduces errors in student record management, aligning with studies that demonstrate ICT's capacity to enhance accuracy and timeliness in administrative tasks. Similarly, School Manager B's emphasis on the digital communication platform resonates with literature indicating that such tools foster improved communication among stakeholders, thereby enhancing collaboration and community engagement.

The findings suggest that effective ICT integration leads to substantial improvements in administrative efficiency and communication within schools. By leveraging automated systems

for routine tasks and enhancing communication platforms, schools can potentially reallocate resources to more strategic educational initiatives. Moreover, these findings highlight the importance of ongoing support and training for educators to maximize the benefits of ICT tools effectively (Brown et al., 2021).

5.2.2 Impact of ICT Tools on Tasks

The findings highlight the significant impact of ICT tools on administrative efficiency and decision-making processes within secondary schools. School Manager C pointed out that ICT tools have notably enhanced record-keeping accuracy and accessibility, allowing for easier retrieval and management of student data and academic records. This aligns with previous research emphasizing ICT's role in improving data management in educational settings. For instance, studies have shown that ICT systems enhance accuracy in record-keeping and reduce errors associated with manual data entry (Smith & Johnson, 2019). By facilitating easier access to student information, ICT tools enable schools to streamline administrative tasks and allocate resources more efficiently. ICT integration leads to more effective school management and improved educational outcomes. Schools that invest in ICT infrastructure stand to benefit from enhanced operational efficiency and better decision-making capabilities. Moreover, the findings underscore the importance of ongoing support and training for school staff to maximize the potential of ICT tools effectively.

5.2.3 Influence on Administrative Task Handling

The study found that ICT has significantly improved teachers' experiences with administrative tasks in secondary schools. Processes like attendance and grading are now automated, saving time and reducing errors. Paperwork is replaced with digital systems, allowing for faster data processing and better organization. Digital tools enhance record-keeping and communication, facilitating collaboration and information sharing.

The study's findings on teachers' perspectives regarding ICT integration in secondary schools resonate with previous research highlighting the transformative effects of technology on administrative tasks. The integration of ICT was found to significantly streamline administrative tasks for teachers, aligning with prior studies that emphasize ICT's role in automating processes and reducing manual workload (Smith & Jones, 2018). Moreover, the shift from paper-based to

digital systems was identified as enhancing efficiency in administrative operations, consistent with research demonstrating that digitalization improves data accessibility and management (Brown & Lee, 2017). Additionally, the study's findings on improved record-keeping and communication through ICT tools echo previous research that underscores the benefits of digital records for accurate tracking of student progress and enhanced communication among stakeholders (Garcia et al., 2019). These findings imply that effective ICT implementation not only enhances administrative efficiency but also improves educational outcomes by facilitating better data management and communication practices in schools.

5.3 Challenges in ICT Implementation

The study found that there are significant challenges in ICT implementation across the participating schools (Table 4.3).

5.3.1 Technical Issues

The study identified significant challenges in ICT implementation within secondary schools in Chilanga District, primarily revolving around technical issues affecting hardware and software functionality. A substantial 80% of participants reported encountering these technical challenges, including computer crashes, software malfunctions, and slow internet speeds, which frequently disrupted administrative processes (Participant Report, 2023). Smith and Johnson (2019) discussed how hardware malfunctions and inadequate software compatibility can hinder the smooth operation of ICT tools, impacting productivity and user satisfaction. The findings suggest that addressing technical issues through improved maintenance, upgraded equipment, and reliable technical support is crucial for optimizing ICT's potential in enhancing administrative efficiency and educational outcomes.

5.3.2 Lack of Training/Skills

Lack of adequate training and skills among staff members, reported by 70% of participants was highlighted a prevalent issue in ICT implementation. This finding underscores the critical role of training in facilitating effective ICT use in educational settings. Brown and Lee (2018) discussed how inadequate training limits educators' ability to integrate ICT into teaching and administrative tasks effectively, leading to missed opportunities for enhancing educational practices. The observed struggles of staff in using basic software functions and troubleshooting minor technical

issues further highlight the implications of inadequate training, resulting in frustration and reduced productivity.

5.3.3 Resistance to Change

The study identified another notable challenge in ICT implementation within secondary schools in Chilanga District: resistance to change among staff members, reported by 41.7% of participants. This resistance manifests as a preference for traditional methods over digital tools and a reluctance to adapt to new ICT systems. This finding is consistent with existing literature that explores organizational resistance to technological change in educational contexts. For example, Jones and Smith (2016) discussed how entrenched practices and cultural norms within schools can create barriers to the adoption of new technologies, hindering the integration of ICT into administrative processes. The observed reluctance among staff to embrace digital tools can impede the implementation process, leading to suboptimal use of ICT and limiting the potential benefits for enhancing administrative efficiency (Brown et al., 2019). The findings underscore the need for comprehensive change management strategies that address staff concerns, provide clear communication about the benefits of ICT adoption, and offer ongoing support to facilitate a smooth transition.

5.3.4 Insufficient Resources

Insufficient resources, reported by 83.3% of participants was another challenge in ICT implementation within secondary schools in Chilanga District. This includes inadequate numbers of computers, lack of funding for software licenses, and reliance on inactivated operating systems due to budget constraints. These resource limitations severely hinder the ability of schools to effectively implement and sustain ICT initiatives, impacting the efficiency and effectiveness of administrative tasks. A study by Martinez and Garcia (2018) emphasized how budgetary limitations can restrict access to up-to-date technology and necessary infrastructure, thereby limiting schools' capacity to leverage ICT for improving administrative processes. The findings underscore the critical need for increased investment in ICT infrastructure, including

funding for hardware, software licenses, and technical support, to enable schools to fully harness the benefits of digital technologies.

5.3.5 Infrastructure Problems

The study revealed significant challenges related to infrastructure problems affecting ICT implementation in secondary schools in Chilanga District, with 75% of participants citing issues such as poor internet connectivity and inadequate electrical supply. These infrastructure shortcomings were found to disrupt the consistent use of ICT tools for administrative purposes, causing delays and hindering reliable technology use. A study by Wang and Hannafin (2022) highlighted how inadequate infrastructure, including unreliable internet access and power supply, can undermine the effectiveness of ICT initiatives in schools, leading to inconsistent use and frustration among users. Inadequate infrastructure acts as a roadblock to successful ICT implementation in schools. Without reliable internet and power, the advantages of automation, digital record-keeping, and enhanced communication highlighted previously become difficult to achieve. This not only frustrates teachers but also hinders the overall efficiency and effectiveness of school administration.

5.4 Measures for Addressing Challenges in ICT Implementation

5.4.1 Strategies or Interventions for Overcoming ICT Implementation Challenges

The study identified key strategies and interventions proposed by participants to address challenges in implementing ICT for education management in secondary schools (table4.4).

A significant majority, 85% of respondents, highlighted the importance of comprehensive training programs to enhance staff proficiency in ICT usage. This finding aligns with previous research emphasizing the critical role of professional development in supporting effective ICT integration in educational settings. Mishra and Koehler (2021) argue that teacher training and ongoing support are crucial for enabling educators to effectively utilize technology in their teaching practices. The study also revealed that 75% of participants stressed the need for dedicated technical support teams and regular maintenance of ICT infrastructure. This echoes findings from studies such as those by Ertmer et al. (2012), which highlight the significance of technical support and infrastructure maintenance in ensuring the smooth operation of ICT

systems in schools. The implications of these findings underscore the importance of investing in continuous professional development and robust technical support mechanisms to overcome barriers to ICT implementation. By prioritizing these strategies, schools can better equip their staff to harness the full potential of ICT tools, thereby enhancing educational management practices and improving learning outcomes for students.

The study further identified two significant implementation strategies recommended by participants to enhance ICT integration in education management within secondary schools. Firstly, 60% of participants advocated for a phased approach to ICT deployment. This strategy involves initially implementing basic ICT systems and gradually expanding capabilities over time. Such an incremental approach allows schools to address challenges systematically, adapt to technological advancements, and build staff confidence in using ICT tools effectively. This finding aligns with previous research that underscores the benefits of phased implementation in educational settings. For instance, Zhao and Frank (2023) argue that phased deployment allows for manageable integration of technology, minimizing disruptions and ensuring sustainable adoption.

Secondly, 50% of participants suggested collaborating with external ICT experts or consultant. These experts can offer guidance on best practices, assist with system upgrades, and resolve complex technical issues, thereby enhancing the overall efficacy and sustainability of ICT initiatives. This recommendation is supported by studies emphasizing the role of external expertise in supporting successful ICT implementation. For example, Voogt et al. (2021) found that external support helps schools navigate technological challenges and maximize the benefits of ICT in education. These findings highlight the importance of strategic planning and external collaboration in overcoming implementation barriers and optimizing ICT use in educational management. By adopting phased deployment strategies and leveraging external expertise, schools can effectively integrate ICT into administrative processes, ultimately improving educational outcomes and preparing students for a technology-driven future.

5.4.2 Specific Policies or Support Mechanisms

The study in table 4.5 underscored several critical policies and support mechanisms proposed by participants to facilitate effective ICT integration in education management within secondary schools. Firstly, Policy Development emerged as crucial, with 70% of participants advocating for clear and supportive policies at both school and district levels (table 4.5). These policies were identified as essential to prioritize ICT investment, establish robust training programs, and facilitate infrastructure development. Ertmer (2020) discusses how well-defined policies provide frameworks for aligning technological resources with educational goals, thereby fostering sustainable ICT use. He emphasized on policy coherence in enhancing ICT adoption in educational settings

Secondly, funding and resource allocation received significant attention, with 80% of participants highlighting the need for increased financial resources dedicated to ICT initiatives (table 4.5). This includes budget allocations for purchasing updated equipment, acquiring software licenses, and ensuring reliable internet connectivity. Adequate funding was recognized as pivotal in overcoming financial constraints and sustaining long-term ICT projects. Studies such as those by Cuban (2021) underscore the importance of financial investment in supporting technological infrastructure in schools, which is critical for effective ICT implementation. Lastly, Participants stressed the importance of Partnerships with Stakeholders, with 65% advocating for collaboration with governmental agencies, NGOs, and private sector organizations (table 4.5). These partnerships were identified as avenues to leverage additional resources, expertise, and funding opportunities for ICT projects. Research supports the role of collaborative partnerships in enriching educational technology initiatives. Pelgrum and Law (2023) highlight how partnerships can broaden access to ICT resources and knowledge, enhancing their impact on educational outcomes.

The findings underscore the critical role of well-defined policies, adequate funding, and collaborative partnerships in supporting ICT integration in education management. By implementing these strategies, schools can overcome implementation barriers, optimize resource utilization, and effectively harness ICT's potential to enhance teaching and learning experiences.

5.5 Chapter summary

Chapter Five delved into the detailed discussion and analysis of research findings regarding the impact of ICT implementation on administrative processes in secondary schools within Chilanga District. It highlighted significant improvements in administrative efficiency, record-keeping accuracy, and communication facilitated by ICT tools. The chapter also explored challenges such as technical issues, training deficiencies, and resistance to change, proposing strategies like comprehensive training programs, policy development, and collaborative partnerships to overcome these obstacles and enhance ICT integration in education management.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS OF THE STUDY

6.1 Conclusion

Based on the comprehensive study conducted on ICT implementation in secondary schools within Chilanga District, several conclusions were drawn across the three objectives:

Firstly, regarding the effect of ICT implementation on administrative processes, the research revealed significant enhancements. Key improvements include streamlined tasks like record-keeping, attendance monitoring, and communication through the adoption of automated systems and digital platforms. This has led to increased efficiency, accuracy, and timeliness in administrative operations. ICT tools such as automated systems and digital communication platforms have streamlined tasks and improved overall administrative operations.

Secondly, numerous challenges were identified during ICT implementation, including technical issues such as hardware and software malfunctions, inadequate training and skills among staff, resistance to change from traditional methods, insufficient resources (both financial and technological), and infrastructure problems like poor internet connectivity and electrical supply. These challenges collectively impede the effective use of ICT tools and hinder their full integration into school management practices.

Thirdly, to address these challenges, the study recommends strategies such as comprehensive training programs, policy development for ICT integration, dedicated technical support, incremental ICT deployment, and collaboration with external experts and stakeholders. These

measures aim to enhance staff skills, secure adequate resources, and foster a supportive environment for effective ICT utilization in education management.

In conclusion, while ICT offers significant opportunities to enhance administrative efficiency and effectiveness in secondary schools, proactive measures are essential to mitigate challenges and ensure successful implementation across all levels of educational management.

6.2 Recommendations

Based on the findings of the study on ICT implementation in secondary schools in Chilanga District, the following recommendations were suggested:

Recommendations for Schools:

1. **Invest in Comprehensive Staff Training:** Schools should prioritize regular and hands-on training sessions for teachers and administrators to enhance their proficiency in ICT usage and management.
2. **Establish Dedicated Technical Support:** Schools need to establish dedicated technical support teams to promptly address hardware and software issues, ensuring uninterrupted ICT functionality.

Recommendations for Government (Ministry of Education):

3. **Develop and Implement Clear ICT Policies:** The Ministry of Education should develop and enforce clear policies at the national level to guide ICT integration in schools, focusing on infrastructure development, training programs, and resource allocation.
4. **Increase Funding for ICT Initiatives:** Allocate sufficient financial resources specifically earmarked for ICT infrastructure, equipment upgrades, and software licenses to facilitate effective implementation in schools.

Recommendations for Further Studies

5. **Longitudinal Impact Assessment:** Conduct longitudinal studies to assess the sustained impact of ICT implementation on educational outcomes over time, considering factors like student performance, teacher retention, and administrative efficiency.

6. Comparative Studies: Undertake comparative studies across different regions or countries to identify best practices and challenges in ICT integration in education management, informing more effective strategies for implementation.

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APPENDICES

APPENDIX I: CONSENT FORM

Title of the Study: Investigating the Effect of ICT on Education Management in Selected Secondary Schools in Chilanga District, Lusaka Province.

Principal Investigator: [Your Name]

Affiliation: [Your Institution]

Contact Information: [Your Contact Information]

Dear Participant,

You are invited to participate in a research study on the effect of Information Communication Technology (ICT) on education management in selected secondary schools in Chilanga District, Lusaka Province. The purpose of this study is to gain insights into the impact of ICT on various aspects of education management.

If you agree to participate, you will be asked to filling out a questionnaire, participating in an interview, etc. The estimated time for your participation will be approximately 10 minutes. All information collected during this study will be kept strictly confidential. Your responses will be anonymized and will not be linked to your personal information. Your participation in this study is completely voluntary. You have the right to withdraw at any time without any consequences. There are no anticipated risks associated with participating in this study.

By signing this form, you indicate that you have read and understood the information provided above, and you voluntarily agree to participate in this study.

Participant's: _____

Participant's Signature: _____

Date: _____ *Please retain a copy of this consent form for your records.*

APPENDIX II: INTERVIEW GUIDE FOR SCHOOL MANAGERS AND DEPUTY HEADTEACHERS

Objective 1: To establish the effect of ICT implementation on administrative processes within secondary schools in Chilanga District.

1. Can you share specific examples of how the implementation of ICT has influenced administrative processes within your school?
2. How has the use of ICT tools impacted tasks such as record-keeping, communication, and decision-making within the school's administrative framework?
3. In your opinion, have you noticed any improvements or efficiencies in administrative processes since the introduction of ICT in your school?

Are there any areas where you believe ICT implementation could further enhance administrative functions within the school?

Objective 2: To identify the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

5. Could you highlight some of the main challenges you have encountered as a school manager when implementing ICT for education management?
6. Have there been instances where resistance from staff or other stakeholders has posed a challenge in the adoption of ICT for education management?
7. How do factors like budget constraints or limited technical expertise affect the smooth integration of ICT in education management?

8. From your perspective, what are some of the key hurdles that need to be addressed in order to effectively implement ICT in education management?

Objective 3: To suggest measures for addressing the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

9. Based on your experience, what strategies or interventions do you believe could be effective in overcoming the challenges faced in implementing ICT for education management?
10. Are there specific policies or support mechanisms that you would recommend to facilitate the successful integration of ICT in education management?
11. In your view, how can the school and relevant stakeholders collaborate to create an environment conducive to the effective use of ICT in education management?
12. Are there any additional suggestions or insights you would like to share regarding the implementation of ICT for education management in your school?

Thank you for taking the time to participate in this interview. Your perspectives are invaluable in understanding the impact of ICT on education management.

APPENDIX III: INTERVIEW GUIDE FOR HEADS OF DEPARTMENTS

Objective 1: To establish the effect of ICT implementation on administrative processes within secondary schools in Chilanga District.

1. Can you provide specific examples of how the introduction of ICT has impacted administrative processes within your department?
2. How has the use of ICT tools influenced tasks related to curriculum planning, resource allocation, and communication within your department?
3. From your perspective, what are some of the notable improvements or efficiencies that have been achieved in administrative processes due to the implementation of ICT?
4. Are there any areas where you believe further integration of ICT could lead to enhancements in administrative functions within your department?

Objective 2: To identify the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

5. In your role as a department head, have you encountered any challenges related to the integration of ICT for education management? If so, could you please describe them?
6. Have there been instances where resistance from staff or other stakeholders has posed a challenge in adopting ICT for education management within your department?
7. How do factors like budget constraints or limited technical expertise impact the effective utilization of ICT in education management within your department?

8. From your perspective, what are some of the key hurdles that need to be addressed in order to facilitate the smooth implementation of ICT in education management?

Objective 3: To suggest measures for addressing the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

9. Based on your experience, what strategies or interventions do you believe could be effective in overcoming the challenges encountered in implementing ICT for education management?
10. Are there specific policies or support mechanisms that you would recommend to facilitate the successful integration of ICT in education management?
11. In your view, how can the school and relevant stakeholders collaborate to create an environment conducive to the effective use of ICT in education management within your department?
12. Are there any additional suggestions or insights you would like to share regarding the implementation of ICT for education management in your department?

Your valuable insights will greatly contribute to our understanding of the impact of ICT on education management. Thank you for participating in this interview.

APPENDIX IV: INTERVIEW GUIDE FOR TEACHERS

Objective 1: To establish the effect of ICT implementation on administrative processes within secondary schools in Chilanga District.

1. In your experience, how has the introduction of ICT influenced the way administrative tasks are handled within the school?
2. Can you provide specific examples of how ICT tools have been utilized to streamline administrative processes in the school?
3. From your perspective, what are some of the notable improvements or efficiencies that have been achieved in administrative functions due to the implementation of ICT?

Objective 2: To identify the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

4. Have you observed any challenges or obstacles faced by school managers in implementing ICT for education management? If so, could you please describe them?
5. Are there instances where resistance from staff or other stakeholders has posed a challenge in adopting ICT for education management within the school?
6. How do factors like budget constraints or limited technical expertise impact the effective utilization of ICT in education management within the school?

Objective 3: To suggest measures for addressing the challenges faced by school managers in secondary schools when implementing ICT in education management in Chilanga District.

7. Based on your experience, what strategies or interventions do you believe could be effective in overcoming the challenges encountered in implementing ICT for education management?
8. Are there specific policies or support mechanisms that you would recommend to facilitate the successful integration of ICT in education management?
9. In your view, how can the school and relevant stakeholders collaborate to create an environment conducive to the effective use of ICT in education management?

Your valuable insights will greatly contribute to our understanding of the impact of ICT on education management. Thank you for participating in this interview.

APPENDIX V: OBSERVATION SHEET

Observer Information

- **Observer Name:** _____
- **Date:** _____
- **School Name:** _____
- **Time of Observation:** From _____ To _____

Section 1: General Information

1. **Location of Observation:** (e.g., Principal's office, classroom, computer lab)
2. **Number of Participants Observed:** _____
3. **Roles of Participants:** (e.g., school managers, deputy headteachers, HODs, teachers)
 - o School Managers: _____
 - o Deputy Headteachers: _____

- o HODs: _____
- o Teachers: _____

Section 2: ICT Implementation in Administrative Processes

1. Types of ICT Tools Used:

- o Computers/Laptops: Yes / No
- o Tablets: Yes / No
- o Projectors: Yes / No
- o Interactive Whiteboards: Yes / No
- o Other (specify): _____

2. Administrative Processes Observed:

- o Scheduling and Timetabling: Yes / No
- o Attendance Monitoring: Yes / No
- o Communication (emails, notices): Yes / No
- o Record Keeping: Yes / No
- o Data Management: Yes / No
- o Other (specify): _____

3. Description of ICT Use:

- o How are ICT tools being used in administrative processes?

- o Examples of specific tasks observed: _____

4. Effectiveness of ICT Use:

- o Are the ICT tools enhancing efficiency? Yes / No
- o Are there noticeable improvements in task completion? Yes / No
- o Specific examples and comments: _____

Section 3: Challenges in ICT Implementation

1. Challenges Observed:

- o Technical Issues (e.g., hardware/software malfunctions): Yes / No
- o Lack of Training/Skills: Yes / No
- o Resistance to Change: Yes / No
- o Insufficient Resources: Yes / No
- o Infrastructure Problems: Yes / No
- o Other (specify): _____

2. Description of Challenges:

- o Provide specific examples of challenges observed:

- o How do these challenges impact administrative processes?

Section 4: Measures to Address Challenges

1. Existing Measures:

- o Are there any measures already in place to address ICT challenges? Yes / No
- o Description of measures observed: _____

2. Suggestions and Observations:

- o Potential solutions based on observations: _____
- o Comments on effectiveness of existing measures:

Section 5: Non-verbal Cues and Interactions

1. Non-verbal Cues:

- o Body Language (e.g., frustration, engagement): _____
- o Facial Expressions: _____
- o Other (specify): _____

2. Interactions:

- o Interactions among staff (e.g., collaboration, conflicts):

- o Specific examples and comments: _____

Section 6: Additional Notes

- **Any Other Observations:** _____
- **General Comments:** _____

Observer Signature

- **Signature:** _____
- **Date:** _____