INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN THE MANAGEMENT OF SCHOOL QUALITY ASSURANCE ACTIVITIES

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MASTER OF EDUCATIONAL MANAGEMENT AND ADMINISTRATION

THE UNIVERSITY OF DODOMA

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BY

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I, **John James,** declare that this dissertation is my original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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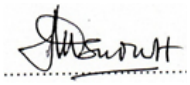
CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the University of Dodoma a dissertation entitled **"*Integration of Information and Communication Technology in the Management of School Quality Assurance Activities*"** in partial fulfilment of the requirements for the degree of Master of Educational Management and Administration of the University of Dodoma.

Signature  Date: 30th November 2024

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DEDICATION

I dedicate this dissertation to those who have been my steadfast pillars of support and inspiration throughout my academic journey. To my daughter Ivon John Nyange, as I pursue my educational dreams, I dedicate this work to you, my child. May you be inspired by the quest for knowledge and the commitment to excellence. I hope this dissertation shows the importance of lifelong learning and the incredible potential within you.

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ABSTRACT

This study focused on investigating the integration of Information and Communication Technology in the management of quality assurance activities in primary and secondary schools. The purpose of this study was to explore the integration of information and communication technologies (ICT) into the managerial activities of school quality assurance. The study focused on three specific objectives: (i) to explore the understanding of School Quality Assurance Officers (SQAOs) regarding the integration of ICT into the management of school quality assurance activities, (ii) to examine the experiences of SQAOs in using ICT for managerial activities, and (iii) to investigate the experiences of SQAOs on Ministry of Education, Science and Technology's (MoEST) resource support for integrating ICT into the management of quality assurance activities. The study employed a qualitative research approach with an exploratory case study design. Data were collected through interviews and focus group discussions and analysed thematically. The study involved a total of 16 participants, comprising 14 SQAOs and two (2) chief quality assurance officers. The findings revealed that school quality assurance officers demonstrated varying levels of understanding, with some demonstrating proficiency in using ICT tools for managerial activities, while others exhibited limited knowledge and skills. The findings also highlighted the experiences of school quality assurance officers towards the potential benefits of ICT, with some expressing optimism while others voiced hesitations due to perceived challenges in its integration. Additionally, the study revealed that adequate support from MoEST, including training, technical support, policy development, and funding significantly enhanced the effectiveness of ICT integration into school quality assurance. The study concludes that the integration of ICT into school quality assurance is still a work in progress, characterised by promising successes alongside ongoing challenges. The study emphasises that ICT adoption is not just a technological issue but a systemic one, requiring coordinated efforts across policy, training, funding, and administrative domains. Therefore, the study recommends organising regular, well-structured workshops and seminars to further enhance the technological proficiency of school quality assurance officers. Additionally, encouraging participation in online courses and certifications will help ensure that they stay updated on the latest ICT advancements.

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ACRONYMS AND ABBREVIATIONS

FGD	Focus Group Discussion
CQAOs	Chief Quality Assurance officers
ESSA	Every Student Succeeds Act
ICT	Information and Communication Technology
MoEST	Ministry of Education, Science and Technology
OECD	Organisation for Economic Cooperation and Development
PEOU	Perceived ease of use
PU	Perceived usefulness
SDGs	Sustainable Development Goals
SQA	School Quality Assurance
SQAs	School Quality Assurance officers
TAM	Technological Acceptance Model
TQM	Total Quality Management
UNESCO	United Nations Education, Science and Cultural Organisation
UK	United Kingdom
URT	United Republic of Tanzania
WHO	World Health Organisation

CHAPTER ONE
INTRODUCTION

1.0 Overview

This study investigated the integration of information and communication technology in the management of school quality assurance activities. This chapter presents the background of the study, the statement of the problem, the purpose of the study, the research objectives, and the research questions used in this study. It also covers the significance of the study, the delimitations of the study, the limitations of the study, and operational definitions of the key terms.

1.1 Background of the Study

School quality assurance (SQA) encompasses structured and systematic processes aimed at ensuring that schools meet educational quality standards (UNESCO, 2018). These processes often involve setting benchmarks, evaluating institutional performance, and providing recommendations for improvement (Mgaiwa, 2018). SQA is pivotal in enhancing school performance, fostering teacher accountability, and ensuring student satisfaction. By promoting continuous improvement, SQA contributes significantly to achieving national and global education goals, such as the Sustainable Development Goals (SDGs).

Information and Communication Technology (ICT) refers to a broad range of tools and resources, including hardware, software, and networks, used to create, store, transmit, and manage information (Todisco et al., 2021). ICT has become an essential component in enhancing the efficiency and effectiveness of managerial and administrative activities, including those of SQAs. Despite its potential, the integration of ICT in quality assurance processes remains a topic of considerable debate. For instance, Joseph (2021) highlights a lack of skills and inadequate infrastructure as major barriers to using ICT effectively for planning and evaluating quality assurance activities. Similarly, Wordu (2020) identifies poor ICT literacy and insufficient infrastructure as critical factors hampering the successful implementation of ICT in quality assurance tasks. These findings underscore those deficiencies in skills, knowledge, and infrastructure significantly challenge SQAOs in leveraging ICT for their everyday responsibilities.

In the United States, SQA has evolved through federally mandated accountability systems. Landmark initiatives such as the *No Child Left Behind Act* and then later, every *Student Succeeds Act (ESSA),* emphasized measurable outcomes and accountability. ICT integration within SQA in the U.S. has been significant, with tools like online assessment platforms and data management systems supporting real-time monitoring of school performance. The U.S. Department of Education has also invested heavily in professional development for SQAOs, enabling them to use advanced technologies for monitoring and reporting (OECD, 2015). In Canada, SQA focuses on localized school boards, where provinces like Ontario have adopted ICT to enhance data-driven decision-making processes. Advanced digital platforms are used to track student progress and school compliance with performance indicators, underscoring the importance of ICT in modern SQA practices.

In the United Kingdom, the establishment of the Office for Standards in Education (Ofsted) marked a turning point for SQA practices. Ofsted inspectors increasingly use ICT to streamline evaluations, generate reports, and share findings with stakeholders. Government-backed initiatives such as the EdTech Strategy have further facilitated ICT integration, particularly in data analysis and school performance tracking. Germany, with its decentralized education system, employs ICT tools tailored to regional needs. These tools help SQAOs assess adherence to national standards while addressing local challenges (OECD, 2015). Both countries highlight how ICT has enhanced transparency and efficiency in quality assurance.

Countries like Singapore and South Korea are pioneers in leveraging ICT for educational management and quality assurance. In Singapore, the Ministry of Education developed integrated ICT systems for tracking school performance, teacher effectiveness, and student outcomes. These systems provide real-time analytics, aiding SQAOs in decision-making (UNESCO, 2018). Similarly, South Korea has institutionalized ICT in SQA through policies like the Smart Education Initiative. This programme emphasizes training SQAOs in digital tools to improve their evaluations and streamline school inspections.

In Ghana, the integration of ICT in education remains a challenge despite government efforts to promote its adoption. SQAOs often lack the requisite skills and

tools for effective ICT usage in managerial activities. The Ministry of Education has initiated training programmes for SQAOs, but progress has been slow due to infrastructural deficits and uneven policy implementation (UNESCO, 2018).

South Africa is a regional leader in adopting ICT for education. The South African Council for Quality Assurance in General and Further Education (Umalusi) incorporates ICT to ensure efficiency in evaluation processes. SQAOs in South Africa utilise digital platforms to monitor schools, but challenges such as unequal access to ICT tools in rural areas persist (OECD, 2015). Kenya demonstrates a growing commitment to ICT in SQA through initiatives like the Digital Literacy Programme. This programme trains SQAOs in using digital tools to enhance school evaluations. However, infrastructural limitations and gaps in digital literacy among SQAOs remain significant barriers (UNESCO, 2018).

In Tanzania, the evolution of SQA has been shaped by policies such as the Education and Training Policy (2014) and the National ICT Policy (2016), which highlight the role of ICT in improving educational management. While these policies have successfully facilitated ICT adoption in teaching and learning, their application in SQA remains limited. SQAOs often face challenges such as inadequate ICT infrastructure, limited training opportunities, and insufficient awareness of ICT tools (Temu, 2019). Despite these obstacles, initiatives like the Teacher Development Management Strategy indicate progress in ICT integration, albeit with a focus on teaching rather than quality assurance. This study seeks to address the knowledge gap by exploring school quality assurance officers' (SQAOs') understanding and experiences towards ICT, as well as the supportive tools provided to facilitate ICT integration in their managerial activities.

This study draws on the Technology Acceptance Model (TAM) and Total Quality Management (TQM) to contextualize ICT integration in SQA. TAM highlights factors influencing SQAOs' adoption of ICT, particularly perceived ease of use and usefulness, while TQM underscores the importance of continuous improvement and accountability. By bridging theoretical insights and practical realities, this study aims to contribute to the knowledge base and provide actionable recommendations for enhancing ICT integration in the management of SQA activities in Tanzania.

1.2 Statement of the Problem

Information and Communication Technology (ICT) has been globally recognised as a transformative tool in the education sector. The importance of ICT application spans teaching and learning, school management, and assessment and evaluation, significantly enhancing efficiency and quality (UNESCO, 2018). Because of its importance, the government of Tanzania has acknowledged ICT's potential by enacting policies and strategies such as the National ICT Policy (2016), the Education and Training Policy (2014), and the ICT Policy for Basic Education (2007). These policies and strategies emphasize integrating ICT across educational activities, including the provision of infrastructure, training, and support systems to foster digital learning environments (SIDA, 2013; UNESCO, 2018).

Numerous studies have explored ICT integration in teaching, learning, and school administration in Tanzania. For instance, government reports show that ICT has improved teacher training, digital content creation, student management systems and distribution of tablets for improving learning and managerial activities (Tanzania Institute of Education, 2020; URT, 2016). Despite the Ministry of Education's distribution of tablets to SQAOs in recent years (2021), the integration of ICT in school quality assurance (SQA) activities remains underexplored. While the purpose of distributing tablets and the use of ICT tools for learning is obvious, its application and use in enhancing SQA managerial activities such as monitoring, evaluation, and reporting is unclear (Johnson et al., 2020; SIDA,2013). The application of ICT tools, awareness of its potential benefits to school quality assurance officers (SQAOs), and the support mechanisms provided to ensure effective ICT integration by the Ministry of Education, Science, and Technology need further investigation to improve management of quality assurance activities.

Understanding these dynamics is crucial to developing targeted strategies that empower SQAOs to harness the potential application of ICT and its integration into the management of quality assurance activities in schools. By understanding these dynamics, the government of Tanzania can align its educational quality assurance practices with global standards, fostering accountability and continuous improvement in schools (OECD, 2015; UNESCO, 2018). This study, therefore, sought to investigate the integration of ICT in the management of quality assurance activities

by SQAOs, focusing on SQAOs' knowledge, skills, attitudes, and the support provided to them.

1.3 Objectives of the Study

The study objectives are categorised into two parts: the general objective and the specific objectives.

1.3.1 General objective

The general objective of this study was to investigate the integration of ICT in the management of school quality assurance activities.

1.3.2 Specific objectives

To understand the integration of ICT in the management of school quality assurance activities, specifically, the present study aimed to achieve the following objectives:

i. To explore the understanding of school quality assurance officers (SQAOs) regarding the integration of ICT into the management of school quality assurance activities,
ii. To examine the experiences of school quality assurance officers in using ICT for managerial activities,
iii. To investigate the experiences of school quality assurance officers on the Ministry of Education, Science and Technology's (MoEST) resource support for integrating ICT into the management of quality assurance activities.

1.4 Research Questions

i. What is the understanding of the school quality assurance officers regarding the integration of ICT into the management of school quality assurance activities?
ii. How do school quality assurance officers experience the use of ICT for managerial activities?
iii. What are the experiences of school quality assurance officers regarding the MoEST's resource support for integrating ICT into the management of quality assurance activities?

1.5 Significance of the Study

The findings of this study aim to inform policies and practices to strengthen educational management and school quality assurance in Tanzania. This study is expected to contribute to Tanzania's educational sector in three significant ways. First, the study is expected to provide actionable insights into the knowledge, skills, and awareness of SQAOs regarding ICT integration in their managerial activities. It may highlight specific challenges and opportunities, enabling SQAOs to utilise ICT tools more effectively for monitoring, evaluation, and reporting. This enhanced capacity can directly contribute to improving the quality assurance processes in schools.

Second, the findings of this study are expected to offer evidence-based recommendations to MoEST and other stakeholders in managing ICT infrastructure, training, and policy implementation. These findings, are expected to offer strategies for improving the implementation of existing policies, such as the National ICT Policy (2016) and the Education and Training Policy (2014), ensuring that they address the practical needs of SQAOs and align with the goals of Tanzania's Vision 2025.

Third, the findings of this study are expected to bridge a potential knowledge gap by focusing on ICT integration in SQA activities, an area that has been relatively unexplored in educational research. The application of Technological Acceptance Model (TAM) and Total Quality Management (TQM) frameworks in this study may enrich the theoretical discourse on ICT adoption in education. Moreover, the findings are expected to serve as a reference for future studies, particularly in sub-Saharan Africa, where similar challenges are faced.

1.6 Scope and Delimitation of the Study

This subsection presents the scope and the delimitations of the study.

1.6.1 Scope of the study

This study focused on exploring the integration of ICT in the management of school quality assurance. Specifically, the scope encompassed three main areas: (i) exploring the understanding of school quality assurance officers in using ICT for their managerial activities, (ii) describing the awareness of SQAOs in using ICT in

their managerial activities, and (iii) investigating the support provided by the MoEST for facilitating ICT integration in SQA managerial activities. The study was limited to 16 external school quality assurance officers, comprising of 14 school quality assurance officers and two (2) chief quality assurance officers. The study focused on the qualitative aspects, highlighting the experiences, perceptions, and challenges faced by SQAOs in integrating ICT into their daily activities. Guided by the Technological Acceptance Model (TAM), the study framed the analysis of ICT adoption and its usability within the context of SQA.

1.6.2 Delimitation of the study

The study was confined to Kigoma District and did not extend to other districts or regions in Tanzania, which may have different contexts and infrastructural conditions. Participants were exclusively school quality assurance officers and chief quality assurance officers, as they are directly involved in SQA activities and play a key role in ICT integration within the education sector. A qualitative approach was employed, using interviews and focus group discussions as the primary data collection methods. Quantitative data or large-scale surveys were deliberately excluded to maintain an in-depth understanding of the participants' experiences.

The study did not explore other aspects of ICT in education, such as teaching and learning or administrative roles beyond quality assurance. Furthermore, it focused primarily on the managerial application of ICT, rather than addressing broader issues related to technological or infrastructural development. These delimitations were deliberately set to ensure a focused investigation that aligned with the study's specific objectives.

1.7 Definitions of Operational Key Terms

This section provides definitions for key terms relevant to the current study on the integration of information and communication technologies (ICT) into the managerial activities of school quality assurance. The terms include:

1.7.1 Information and communication technology (ICT)

UNESCO (2017) defined ICT as a diverse set of technological tools and resources used to transmit, store, create, share, or exchange information. In the context of this

study, ICT refers to technologies that provide access to information through telecommunications. It includes the internet, wireless networks, cell phones, computers, software, middleware, videoconferencing, social networking, and other media applications and services. Examples of ICT include computers, laptops, tablets, the internet, software applications, digital tools, and communication technologies such as email and video conferencing that can be used in SQA activities.

1.7.2 School quality assurance (SQA)

SQA involves systematic processes and practices designed to monitor, evaluate, and improve the quality of education within a school. It encompasses activities related to setting standards, assessing performance, and implementing improvements to ensure educational excellence (Mapunda, 2023). In this study, SQA was defined as individuals or professionals responsible for assessing, monitoring, and ensuring the quality of education in schools.

1.7.3 Quality assurance activities

According to the World Health Organisation (2021), QA activities are defined as those in which the primary purpose is to monitor, evaluate, or improve the quality of health care delivered by a healthcare provider, such as an individual, a service, or an organisation. In the current study, the term quality assurance activities mean an activity conducted to ensure that educational institutions meet certain standards of quality. These include monitoring and evaluation of teaching and learning processes, ensuring adherence to curriculum standards, assessing student outcomes, and implementing improvement strategies.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter provides a comprehensive review of the existing literature on the integration of information and communication technologies (ICT) in the management of school quality assurance. It includes the theoretical framework, with a focus on the Technology Acceptance Model, a synthesis of relevant empirical studies, identification of research gap, and an outline of the conceptual framework.

2.1 Theoretical Framework

This study was guided by two theories: Technology Acceptance Model (TAM) and Total Quality Management (TQM). TAM was used to explore the adoption and usage of ICT by SQAOs based on their knowledge and skills. TQM complemented TAM by addressing the managerial aspects of ICT integration, highlighting the importance of continuous improvement and quality enhancement in SQA processes.

2.1.1 Technological Acceptance Model (TAM)

The TAM, developed by Fred Davis in 1989, provides a theoretical framework for understanding the factors influencing the acceptance and use of technology. It posits that perceived usefulness (PU) and perceived ease of use (PEU) are the primary determinants of an individual's behavioural intention to use technology, which in turn predicts actual technology use. The model has been widely applied across various disciplines, particularly in education and management studies, to explore technology adoption behaviours (Davis, 1989; Venkatesh & Bala, 2008).

TAM assumes that users are more likely to adopt a technology if they believe it enhances their productivity (PU) and is easy to use (PEU). Additionally, it suggests that users' attitudes towards technology and their behavioural intentions significantly influence actual technology adoption. While these assumptions are broadly applicable, they align closely with the study's focus on exploring SQAOs' knowledge, skills, and awareness in integrating ICT into their managerial activities.

The applicability of TAM to this study is evident in its alignment with the specific objectives. Perceived usefulness is particularly relevant to assessing SQAOs'

knowledge and skills in using ICT tools for monitoring, reporting, and evaluation. If SQAOs perceive ICT as an effective tool for improving their tasks, their likelihood of adoption increases. Similarly, perceived ease of use ties directly to their technical proficiency and the usability of ICT systems, addressing the barriers identified in the study's objectives. However, while TAM effectively explores individual adoption factors, it does not account for systemic barriers such as inadequate infrastructure or organisational support, which are critical to ICT integration in SQA activities. This limitation necessitates a complementary theoretical lens to address the broader managerial and systemic factors influencing ICT integration. Due to the inadequacy of TAM to encompass the aspect of quality management, the next section presents the additional model of Total Quality Management (TQM), which focuses on the organisational and quality management dimensions.

2.1.2 Total Quality Management (TQM)

Total Quality Management (TQM), introduced by W. Edwards Deming in 1986 and later developed by Juran and Crosby, emphasizes continuous improvement, customer satisfaction, and employee involvement as key drivers of organisational success (Alghamdi, 2016; Mohammad Pour & Yeshodhara, 1999; Neyestani, 2017). TQM's principles offer a comprehensive approach to aligning organisational processes with quality objectives, making it particularly relevant for examining the systemic integration of ICT in SQA.

TQM is underpinned by several principles as outlined by Siddiqui and Rahman (2007): customer focus, continuous improvement, employee involvement, and a process-centred approach. In the context of this study, these principles have clear applicability. Customer focus highlights the need to align ICT integration with the expectations of key stakeholders, including schools, teachers, and policymakers. Continuous improvement underscores the importance of ongoing training and capacity-building programmes for SQAOs to ensure they remain proficient in using ICT tools. Employee involvement ensures that SQAOs actively participate in designing and implementing ICT strategies, fostering a sense of ownership and accountability. The process-centred approach emphasizes optimizing ICT systems to enhance efficiency and effectiveness in SQA workflows.

However, TQM's focus on organisational processes can sometimes overlook individual-level factors such as attitudes and skills. Thereby, integrating TQM with TAM bridges this gap by providing a holistic framework that addresses both the individual and systemic aspects of ICT integration in SQA activities.

The integration of TAM and TQM in this study provides a robust theoretical foundation for examining ICT adoption in school quality assurance. TAM addresses individual adoption factors, focusing on the knowledge, skills, and attitudes of SQAOs, while TQM offers insights into systemic quality management practices, emphasizing stakeholder alignment and continuous improvement. Together, these theories align with the study's objectives and offer comprehensive guidance for understanding and enhancing ICT integration in SQA activities.

2.2 Empirical Literature Review

This section presents empirical studies on the integration of information and communication technology (ICT) into the managerial activities of school quality assurance (SQA). The studies explore schools' understanding of using ICT tools, the attitudes towards ICT adoption, and the support provided to SQAOs in utilising ICT for their management activities.

2.2.1 School quality assurance officers' understanding of using ICT facilities

This sub-section reviews various studies were relevant to the current research, including the study by Ramadass and Shah (2022), which investigated users' knowledge and attitudes towards the use of ICT in education in Malaysia. The study used a quantitative approach, collecting data from 780 language school teachers across 260 schools who participated in a course project focused in utilising ICT in Teaching English as a Foreign Language (TEFL). A questionnaire was employed as the data collection method. The findings revealed that respondents possessed adequate knowledge and held a positive attitude towards integrating ICT into their activities. They suggest that knowledge and a positive attitude significantly influence users' adoption of ICT in their activities. However, the current study differs in its methodology by employing a qualitative approach, using interviews and focus group discussions to explore ICT usage. This approach provides a deeper insight into the contextual factors, challenges, and experiences those quantitative methods may

overlook. By focusing on qualitative data, the present study aims to uncover the complexities of ICT adoption and usage in education, which are often missed by the structured and limited responses of questionnaires. This methodological contrast seeks to enhance the current study by offering a more comprehensive understanding of ICT integration in education.

According to Asiyai (2022), best practices for quality assurance have significant implications for educational administration. The study conducted in Nigeria aimed to describe the best practices for ensuring quality in higher education. A mixed-method approach was used, with data collected through both questionnaires and interviews. The research design employed was a parallel research design. The study involved 35 participants. The findings indicated that to achieve high-quality higher education in Nigeria, educational administrators must prioritise the development of physical facilities and infrastructure, foster innovations, ensure quality teaching, invest in human resources, and promote curriculum innovation that aligns with market demand and students' needs. These efforts are essential to meet globally acceptable standards, particularly in technology. The strength of the study lies in its mixed research approach, which combines both quantitative and qualitative methods. This comprehensive approach allows for a more robust analysis by capturing statistical trends as well as providing in-depth insights from participants. However, a limitation of the study is its relatively small sample size of 35 participants, which may not be representative of the broader population in Nigeria. This limits the generalisability of the findings and may not fully capture the diversity of experiences and practices across the country. The current study expands on these findings by providing a more detailed exploration of how physical resources and infrastructure, particularly those related to ICT, influence quality assurance in education.

Similarly, a study conducted in Japan by Prasojo et al. (2019) examined teachers' attitudes and the barriers they face in integrating information and communication technologies (ICT) into schools to enhance the quality of education. The study employed a mixed-methods research approach with an adapted descriptive study design. The findings revealed that ICT is widely perceived as a valuable tool for improving the quality of education. However, significant barriers were identified, including a lack of infrastructure, inadequate training, and resistance to change

among some teachers. The study provides valuable insights into the role of ICT in enhancing educational quality, aligning closely with the current study's focus on ICT integration in schools.

Prasojo et al. (2019) study emphasized the importance of understanding teachers' attitudes and perceptions as critical factors in the successful adoption of ICT. While their study highlights key barriers such as infrastructure deficits and resistance to change, the current study expands on these findings by exploring these issues in a different context, specifically comparing the experiences of teachers in Tanzania. By adopting a qualitative approach, the current study delves deeper into how these barriers manifest within specific educational settings and identifies strategies for overcoming them.

Lyimo and Mpatani (2021) conducted a study in Turkey to assess users' knowledge and attitudes regarding the integration of technologies into their professional activities. The findings revealed that users generally had limited knowledge of how to effectively incorporate technologies into their workflows. This study offers valuable insights relevant to the current research on integrating ICT in educational settings.

While Lyimo and Mpatani (2021) highlight concerns about users' levels of knowledge and attitudes towards technology use, the current study goes further by focusing on the educational context. It specifically explores how these factors impact teachers' ability to integrate ICT in schools. Building on their findings, the current study examines not only the knowledge gap but also the barriers educators face in adopting ICT. By addressing both the deficiencies in knowledge and the attitudinal barriers identified in the Turkish study, the current research provides a more targeted analysis of strategies for improving ICT integration in schools.

In Tanzania, a study conducted by Nihuka (2021) investigated the utilisation of ICT for secondary quality assurance. The study used a survey research design with 56 quality assurances comprising of 53 school quality assurance officers, and 3 chief school quality assurance officers from Kinondoni, Ilala, and Temeke Districts Dar es

Salam Region. Data were collected using structured questionnaires and interview guides, combining both quantitative and qualitative approaches.

The findings have revealed significant potential for utilising ICT in quality assurance practices. Between 57.1% and 98.2% of quality assurance officers reported access to computers and mobile phones, respectively. Also, over 50% of the school quality assurance staff were already using ICT for tasks such as report writing (66.1%), information storage (58.9%), accessing stored information (53.6%), and surfing educational resources (50%). However, about 40% of the quality assurance officers lacked ICT basic knowledge of computer applications.

In contrast, the current study adopted a qualitative approach, involving 14 school quality assurance officers and two (2) chief quality assurance officers from Kigoma District. Using interviews and focus group discussions, it explored the integration of information and communication technologies (ICT) into the managerial activities of school quality assurance (SQA). This approach allowed for an in-depth understanding of the context, challenges, and practices surrounding ICT integration in SQA activities.

In addition, a study conducted in Tanzania by Kweka (2018) examined the proficiency of teachers and quality assurance officers in using ICT in government-owned secondary schools. The research utilised both quantitative and qualitative methods, collecting data through questionnaires and interviews. The findings revealed that most teachers had limited ICT skills, primarily due to challenges such as inadequate ICT facilities, lack of computer labs, and insufficient teacher training. The study recommended a holistic approach that aligns curriculum requirements with ICT policies to raise awareness and develop the necessary ICT pedagogical skills among teachers.

In contrast, the current study employed a purely qualitative research approach, with data collected through interviews and focus group discussions. This approach provides a deeper exploration of the integration of ICT into the managerial activities of school quality assurance, focusing on the contextual factors and lived experiences of the participants.

2.2.2 School quality assurance and integration of ICT in managerial activities

This section reviews literature that shows the linkage between ICT integration and the management of quality assurance activities in primary and secondary schools. For instance, Gebremedhan (2015) conducted a study in Adwa, Tigray, Ethiopia to assess teachers' perceptions of integrating ICT into the teaching and learning process. The study focused on exploring teachers' attitudes and views regarding the use of ICT in educational activities. The study employed both qualitative and quantitative data methods, involving a total population of 74 participants. As the population was manageable, the study was conducted as a census. Data collection focused on individual units, and a cross-sectional design was utilised. The findings indicated that simply providing ICT resources in educational institutions is insufficient to achieve meaningful educational transformation. The study recommended integrating ICT into each course to foster interactive and easily understandable learning experiences for students.

Building on this previous work, the current study goes beyond examining teachers' attitudes by exploring specific barriers to ICT integration, including inadequate infrastructure, lack of training, and resistance to change. Moreover, while the study by Gebremedhan (2015) is context-specific to Adwa College, the current research aims to provide insights that are applicable across diverse educational settings, thereby offering broader relevance and practical recommendations.

In a similar vein, a study conducted in Malaysia by Ghavifekr et al. (2015) examined the integration of ICT in supporting quality assurance activities. The study employed a concurrent nested mixed-method research approach, where quantitative and qualitative data were collected and analysed independently but simultaneously. The research was conducted in 25 out of Ghana's 46 public colleges of education, purposefully selected using a nested concurrent sampling method. Data were collected through a survey and lesson observations. The survey included closed-ended questions focusing on specific aspects of the study.

The findings demonstrated the beneficial of ICT integration for both quality assurance and teachers. Quality assurance's preparedness for ICT resources and tools significantly supports technology-based teaching and learning. Additionally,

professional development training programmes for users were found to enhance teaching outcomes. Future research should investigate the relationship between ICT integration and management perspectives, such as policy-making and strategic planning. .

This study builds on the work of Ghavifekr et al. (2015) by examining these dynamics in a different context, focusing specifically on the barriers and attitudes of teachers. While Ghavifekr et al. (2015) emphasized the role of ICT in quality assurance, the current study aims to provide a more detailed understanding of how these practices can be effectively implemented in diverse educational settings. Notably, the findings varied due to differences in the cultural and demographic characteristics of the populations studied. A study conducted in Nigeria by Onwuagboke (2016) explored the integration of ICT in the teaching and learning process, focusing on secondary school teachers' experiences. The research examined how teachers utilise ICT to meet the demands of the 21st century. Data were collected through questionnaires administered to a sample of teachers. The findings revealed that, while teachers were aware of ICT resources, they faced significant challenges, including low computer literacy, inadequate facilities, and limited funding. The study recommended organising conferences and workshops to enhance teachers' ICT literacy. Additionally, it emphasised the need for collaboration among educational stakeholders to effectively integrate ICT into teaching and learning, thereby improving quality assurance in secondary education.

Thus, the current study builds on Onwuagboke's findings by focussing on the managerial aspect of ICT integration, specifically within the context of school quality assurance. While Onwuagboke highlights the challenges teachers face at the secondary school level, this current research extends this exploration to how these technologies are being adopted at the administrative and managerial levels in Kigoma District.

In the Tanzanian context, Nihuka (2021) examined the attitudes of secondary school teachers towards using ICT to improve quality assurance procedures. The study employed a mixed-methods research approach, with data collected through questionnaires and interviews. The study found that while many quality assurance

professionals had access to standard ICT tools, some lacked access to essential tools like iPads and the Internet. Additionally, only a small percentage of quality assurance professionals demonstrated proficiency in areas such as email and Microsoft Office usage. However, more than half of the quality assurance officers reported using ICT for tasks such as information storage and report generation. The study recommended implementing regular ICT training programmes to enhance the effective use of technology for activities like data collection, monitoring, and analysis in quality assurance procedures. The differences between the former and current studies were focused on the area where the study was conducted and the research methodology.

Therefore, the current study builds on Nihuka's findings by extending the exploration of ICT usage from attitudes and basic proficiency to a broader analysis of how these technologies are integrated into the managerial activities of school quality assurance. While Nihuka focuses on the use of ICT for tasks like storing information and creating reports, the current study delves deeper into how these technologies can be utilised for more complex managerial activities, such as strategic planning, monitoring, and evaluation within the quality assurance framework. Additionally, by comparing the Kigoma District context with the findings from Nihuka's study, the current research aims to provide a more comprehensive understanding of the regional variations and the specific challenges faced by quality assurance professionals in different parts of Tanzania. This comparison will help in identifying best practices and strategies for enhancing ICT integration across various educational settings.

Moreover, Mwalongo (2011) conducted a study on teachers' attitudes towards ICT usage for teaching, professional development, administration, and personal activities in Tanzania. The research, carried out at a Tanzanian secondary school, aimed to explore how teachers utilise ICT tools across these areas. Data were collected from 74 teachers through an online survey and blog posts. The findings revealed that the frequency of ICT usage was influenced by accessibility, while competence in ICT was influenced by training. Teachers primarily used ICT to support conventional teaching methods rather than transform pedagogical practices. The researcher recommended future studies include classroom observations for a more accurate understanding of ICT use and further exploration of the role of school leadership in integrating ICT into teaching and learning.

Thus, the current study builds on the former findings by focusing specifically on the managerial aspects of ICT integration within school quality assurance. While Mwalongo highlights the influence of accessibility and training on ICT usage, the current research seeks to understand how these factors affect the adoption of ICT in more strategic and managerial roles, particularly in quality assurance procedures. Additionally, the current study involved 16 participants, compared to Mwalongo's study with 74 participants, and was conducted at the district level rather than at the secondary school level.

2.2.3 Resource support for the integration of ICT in quality assurance management

This section presents a literature review that reflects on the supportive tools needed by quality assurance officers to integrate ICT into the management of quality assurance activities in primary and secondary school contexts. For example, a study conducted by Jung and Latchem (2012) in the United Kingdom examined how ICT can enhance school quality assurance. The study employed a qualitative research approach, using a case study design, along with semi-structured interviews and document analysis. The findings revealed that, while there is substantial institutional support for the use of ICT, including training programmes and access to digital tools, the effectiveness of these resources varies depending on individual skill levels and the extent of ongoing support. Continuous professional development and peer support were identified as key factors contributing to the successful integration of ICT.

While the UK study emphasises the importance of training programmes, access to digital tools, and peer support, the current research investigates whether similar support mechanisms are present in Kigoma District and how they impact the effectiveness of ICT integration. Additionally, the current study expands the exploration to address the unique challenges faced in Kigoma District, such as disparities in infrastructure, access to technology, and the availability of continuous professional development opportunities. By comparing these factors, the research aims to provide a more comprehensive understanding of the systemic and individual elements that influence the successful integration of ICT into school quality assurance in diverse contexts. The study by Larsen et al. (2021) investigates recent

governance arrangements for quality assurance in Norway. The purpose of the study was to examine these new governance structures and their impact on quality assurance. Using a qualitative research approach, data were collected through interviews and document analysis within case studies. The findings reveal that determining the appropriate level of governance is challenging, but highlights the potential for mutual learning and improvement across different arrangements. This underscores the importance of effective management in overseeing quality assurance in education.

While the previous study focuses on governance challenges and mutual learning, the current research investigates how these governance structures influence the adoption of ICT in quality assurance, particularly in the context of management supervision. Additionally, the current study extends the exploration to consider how different governance models may either facilitate or hinder the integration of ICT within the specific context of Kigoma District. By comparing these governance arrangements with those in Norway, the research aims to identify best practices and potential areas for improvement in ICT integration within school quality assurance processes across diverse educational settings. Furthermore, a study conducted by Mizuno (2020) found that management plays a crucial role in quality improvement because it supports planning, recording, managing, controlling, and evaluating the various aspects of education. The purpose of this study was to explore the mechanisms of support provided by ministry of education to SQAOs for incorporating ICT into their activities in Australian schools. The study demonstrated that quality assurance is a crucial standard for improving the quality of education. Additionally, management plays a key role in supporting quality assurance activities, enhancing their effectiveness in improving educational outcomes.

While the previous study provided insights from a developed country, the current research explores these dynamics in a different context, offering a comparative perspective on how management can drive ICT integration and quality assurance in diverse educational environments. This comparison is essential for identifying universal principles and context-specific strategies that can enhance the effectiveness of quality assurance activities through ICT. Additionally, the current study aims to investigate the support provided by MoEST for school quality assurance officers

(SQAOs) to use ICT in their activities within Kigoma District, an area where little is known about the role of SQAOs. A study conducted by Rasoo and Naidoo (2024) in South Africa focused on supporting ICT use in school quality assurance. The purpose of the study was to examine the types of support provided to school quality assurance officers (SQAOs) for using ICT in their activities within South African schools. The study employed a qualitative research approach with an ethnographic design. Data were collected through interviews and participant observation. The study involved 20 School Quality Assurance officers from different educational districts. The findings revealed that, although efforts are being made to support ICT use, challenges such as limited access to technology and insufficient training persist. Participants expressed a need for more comprehensive support, including regular training sessions, mentorship programmes, and better access to ICT resources.

The study differs from the current research in terms of research design; while the former employed an ethnographic approach, the current study uses a case study design, which is more suitable for the specific context of this research. Additionally, while the South African study focused on the cultural and social aspects of ICT integration through an ethnographic lens, the current study adopts a case study approach to provide a more structured analysis of ICT integration in a particular context. This difference allows the current study to concentrate on the organisational and managerial aspects of ICT integration in Kigoma District, offering a complementary perspective to the ethnographic insights. Ngassa (2020) conducted a study to explore the barriers faced by secondary schools in Shinyanga Municipality, Tanzania when integrating and utilising ICT for teaching and learning. The study used a mixed-methods approach for analysis, employing an embedded research design. Various data collection methods were utilised, including observation, interviews, questionnaires, and document reviews. The study identified several barriers to ICT integration, including a lack of qualified teachers, insufficient technical support, inadequate ICT software and infrastructure, as well as negative attitudes and perceptions towards ICT use among both teachers and students. The study recommended several interventions to address these challenges, such as providing qualified teachers, adequate technical support, improved infrastructure and funding, fostering positive attitudes towards ICT, offering incentives and support for

teachers, ensuring a reliable power supply, and securing administrative support to enhance the effective integration of ICT in teaching and learning.

The current study builds on these earlier findings by exploring how similar barriers, such as inadequate infrastructure, lack of technical support, and negative attitudes, impact the integration of ICT into quality assurance activities. Examining these barriers within the context of school quality assurance management provides a more comprehensive understanding of the challenges and opportunities for ICT integration. Furthermore, the recommendations from Ngassa (2020) inform the current research by suggesting potential solutions and interventions that could be adapted to the specific context of Kigoma District. 2.3 Research Gap

A review of empirical studies from developed countries reveals that existing research primarily focuses on teachers' use of ICT in teaching and learning, student engagement and achievement, and the role of ICT in enhancing quality assurance in education (Ramadass & Shah, 2022). These studies underscore the importance of ICT in improving educational quality, with the quality assurance sector being a key area where technology is leveraged to enhance education systems in various countries. However, challenges such as a lack of expertise, insufficient digital resources, inadequate infrastructure, and limited administrative support continue to hinder the effective use of ICT in school quality assurance (Kweka & Ndibalema, 2018; Lyimo & Mpatani, 2021; Nihuka, 2021). This underscores the need to address the knowledge gap by exploring the impact of ICT on school quality assurance activities in Tanzania. Existing studies have highlighted ICT integration in various areas, including teaching, learning, school administration, teacher training, digital content creation, student management systems, and the distribution of tablets to enhance learning and managerial activities (Kweka & Ndibalema, 2018; Lyimo & Mpatani, 2021; Nihuka, 2021; TIE, 2020; MoEST, 2016; UNESCO, 2018; OECD, 2015). However, despite these contributions, little is known about how school quality assurance officers (SQAOs) integrate ICT into the management of quality assurance activities in primary and secondary schools. This study, therefore, aims to investigate the integration of ICT in the management of quality assurance activities by SQAOs, with a focus on their understanding, experiences, and the supportive tools available to them.

2.3 Conceptual Model

A conceptual model refers to a logical tool that has several variations in the context used to make distinctive concepts through organised ideas (Reuben, 2020). It is a network of linked concepts or a set of consistent ideas and themes organised in a way that facilitates effective communication of the intended message. It presents different variables and their relationships in a narrative or visual manner, allowing for a better understanding and analysis of the subject matter.

The conceptual model for this study shows the linkage of understanding, experiences, and supportive tools in the process of integrating ICT in the management of quality assurance activities in primary and secondary schools. The study was structured around three primary variables influencing the use of ICT in quality assurance activities. The first variable focused on school quality assurance officers (SQAOs) experiences of ICT, the second examined their understanding of ICT, and the third explored the support provided by MoEST. These variables collectively contribute to the successful integration of ICT in the managerial activities of school quality assurance, leading to enhanced the integration in the use of ICTs in QA activities.

Therefore, the combined influence of these three major factors (SQAOs' experiences, their technological skills, and MoEST support) leads to the effective use of ICT in QA activities. When school quality assurance officers (SQAOs) perceive ICT as beneficial, possess the necessary skills, and receive adequate institutional support, its integration into quality assurance tasks can lead to improved data management, faster communication, enhanced accountability, and more efficient school inspection and reporting processes.

Figure 2.1 depicts a summary of the conceptual model.

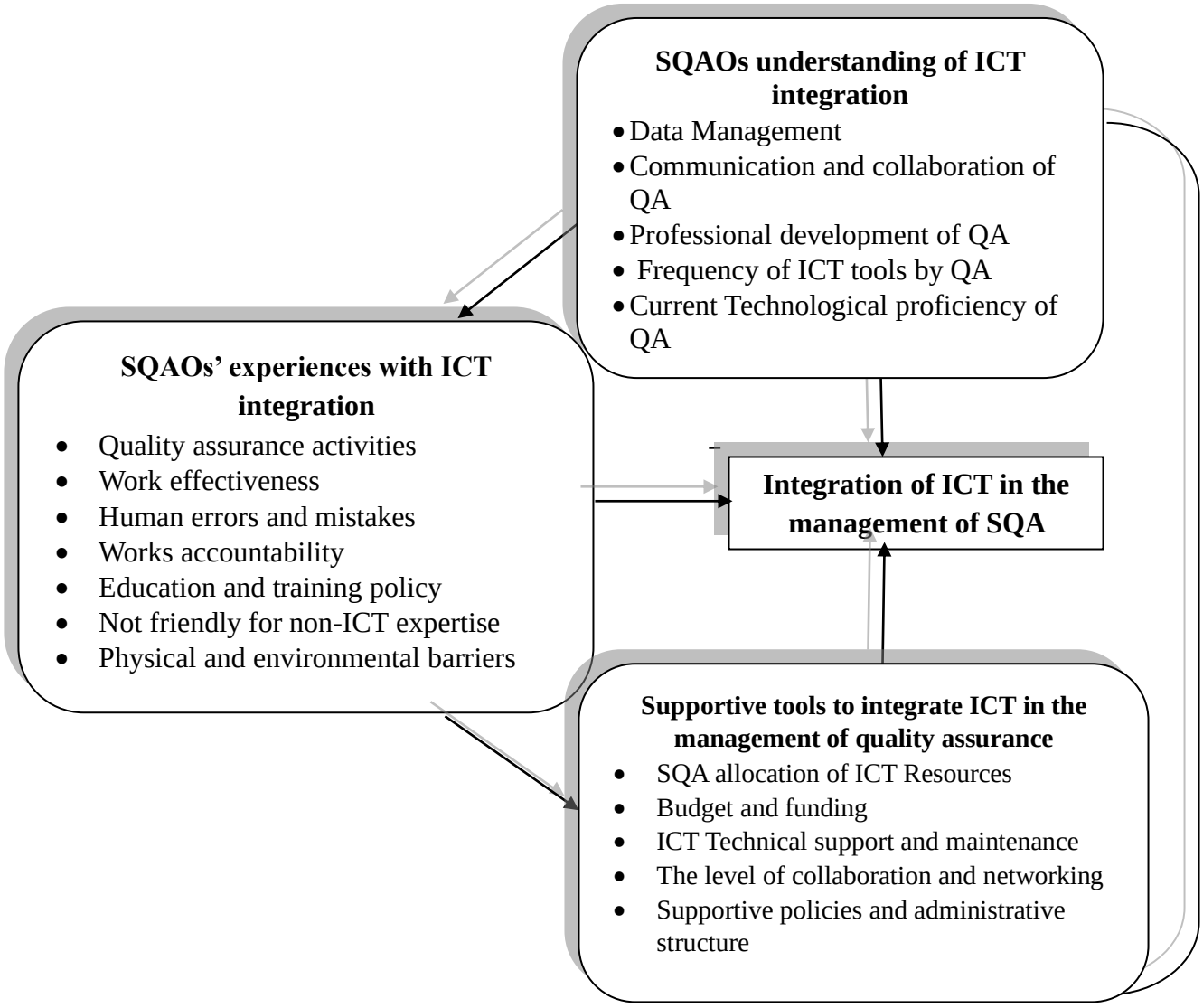

Figure 2.1: The Integration of ICT in the management of school quality assurance activities

Source: Adopted and Modified from Edward Deming principles of TQM of 1986 (Siddiqui & Rahman, 2007)

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes in detail how this research was conducted. It presents the research methodology that was used, which includes the research approach, research design, area of the study, and target population. The chapter also presents the sample and sampling techniques, data collection instruments, data analysis procedure, trustworthiness of findings, and ethical considerations.

3.1 Research Approach

This study employed a qualitative research approach to explore the integration of ICT into the managerial activities of school quality assurance. The qualitative paradigm was guided by interpretivist philosophy, which emphasizes understanding human experiences and social realities. Ontologically, the study assumes that reality is subjective and constructed through individual experiences, making qualitative inquiry appropriate for capturing SQAOs' perceptions and knowledge. Epistemologically, the study values participants as co-creators of knowledge, emphasizing their lived experiences as critical to understanding ICT integration in their work. Axiologically, the study acknowledges the researcher's role in interpreting findings and ensuring that the data reflects participants' views authentically. Rhetorically, the study adopts a descriptive style to narrate the complexities of ICT use in SQA activities, aligning with its qualitative nature.

The qualitative approach was essential for directly engaging SQAOs and chief school quality assurance officers, enabling them to share their perspectives on ICT integration. By prioritizing rich, in-depth narratives, the study captured the nuances of ICT use in managerial activities. As Creswell (2018) emphasizes, qualitative research provides a robust framework for interpreting complex phenomena through a detailed exploration of participants' experiences, making it suitable for this study's objectives.

3.2 Research Design

The study adopted an exploratory case study design, facilitating an in-depth examination of a specific phenomenon within its real-life context. In this study, the

integration of ICT into managerial activities can be complex, and the exploratory case study design is used to enable an in-depth understanding of how these technologies are utilized by SQAOs. Again, the reason for employing an exploratory case study design is its incorporation of multiple data collection methods, such as interviews and focus group discussions. This triangulation of data sources allowed for a richer understanding of the participants' experiences and perceptions regarding ICT integration, leading to more nuanced findings. Creswell (2018) asserts that selecting a research design is essential to guaranteeing the efficient execution of research activities and optimising information creation while minimising expenses, time, and labour.

3.3 Location of the study

This study was conducted in Kigoma District. The district has two councils: Kigoma Ujiji Municipal Council and Kigoma District in Kigoma Region where the integration of ICT in education remains underdeveloped. The choice of Kigoma as the study area is justified by comparative data illustrating its unique challenges. While national statistics indicate progress in ICT integration across Tanzania, Kigoma lags significantly. For instance, in 2019, less than 25% of schools in Kigoma reported stable internet access, compared to over 60% in regions like Dar es Salaam (MoEST, 2019). Similarly, fewer than 15% of SQAOs in Kigoma regularly utilised ICT for inspections, contrasting sharply with regions like Arusha, where ICT usage among SQAOs exceeds 50% (Temu, 2019).

This disparity highlights Kigoma's relevance as a study site for understanding barriers to ICT adoption in educational management. The region's SQAOs face considerable challenges, including limited training opportunities and inadequate resources, with over 60% of SQAOs reporting insufficient proficiency in using digital tools for data management and reporting (MoEST, 2019). Focusing on Kigoma sheds light on these systemic challenges and explores strategies to enhance ICT integration in similar rural and underserved contexts across Tanzania and sub-Saharan Africa.

3.4 Population of the study

For this study, the targeted population included chief quality assurance officers (CQAOs) and school quality assurance officers (SQAOs) from Kigoma District. In Kigoma District, the target population consisted of 22 participants, including 2 CQAOs—1 from Kigoma District Council and 1 from Kigoma Ujiji Municipal Council—and 20 SQAOs, with 11 from Kigoma District Council and 9 from Kigoma Ujiji Municipal Council. However, the study focused on 16 participants, comprising 2 chief school quality assurance officers and 14 SQAOs. This group was crucial to the study due to their roles in supervising, inspecting, monitoring, analysing, and assessing educational processes. Engaging this population enabled the researcher to gain valuable insights and a deeper understanding of the phenomenon under investigation through the perspectives of knowledgeable participants. 3.5 The Sample Size and Sampling Procedures

This section outlines the sample size and the sampling procedures employed in this study.

3.4.1 Sample size

The study involved sixteen (16) participants, including two (2) chief quality assurance officers from Kigoma District and fourteen (14) SQAOs from the two district councils in Kigoma, seven (7) participants from each council. The selection criteria for the sample were based on age, experience, gender, and their roles and responsibilities, with a particular focus on SQAOs who are expected to incorporate ICT into their duties. As a result, the total sample size for the study consisted of sixteen participants, as detailed in Table 3.1.

Table 3. 1: The composition of the study sample size

S/N	Category of participants	Total number
1	Chief quality assurance officers	2
2	School quality assurance officers	14

Source: Field Data (2024)

3.4.2 Sampling techniques

The study used purposive sampling techniques to target a specific subset of individuals, namely CQAOs and SQAOs. In purposive sampling, the researcher uses judgment to select participants for the study. This technique was chosen because it involved the intentional selection of participants based on the qualities they possess and also having first-hand information on the use of ICT in their activities. Additionally, the selected participants demonstrated the researcher's awareness of how strategies are implemented and the challenges encountered during the use of ICT. Purposive sampling involves identifying and selecting individuals or groups knowledgeable about the phenomenon of interest (Cohen et al., 2011).

In this study, the adoption of purposive sampling proved essential in obtaining participants who possessed the specific knowledge and expertise required to address the study's objectives. By intentionally selecting CQAOs and SQAOs, the researcher was able to focus on individuals who had direct experience with the integration of ICT in their professional activities. The researcher did not choose these participants randomly, but rather based on their roles and responsibilities, which equipped them with knowledge about the strategic implementation and challenges associated with ICT use.

This sampling technique allowed the researcher to gather rich, detailed insights from participants who were uniquely positioned to provide valuable information on the topic. The CQAOs and SQAOs had first-hand experience with ICT tools, enabling them to offer practical examples of how these tools are used in their daily tasks and the issues they face. Their involvement ensured that the data collected was highly relevant to the research, as these participants were already familiar with the operational context and possessed the technical expertise needed to provide informed insights on the effectiveness of ICT integration.

Furthermore, the purposive selection strengthened the validity of the study by ensuring that participants were knowledgeable and experienced, thereby minimizing the likelihood of irrelevant or uninformed responses. This targeted approach ensured that the data collected directly addressed the research questions, ultimately enhancing the quality and depth of the study's findings.

3.5 Data Collection Methods

To achieve the study objectives, interviews and focus group discussions (FGD) were employed as data collection methods.

3.5.1 Interview

This study used a semi-structured interview method because it allowed informants to express their views and opinions flexibly on the integration of information and communication technologies into the managerial activities of school quality assurance in Kigoma District in Tanzania. This method involved asking questions within a predetermined thematic framework where the questions were not set in order or in phrasing (Adhabi & Anozie, 2017). Also, the interview was used because it is an essential tool for data collection; with it, data were collected through verbal and non-verbal means to get needed information from the informants (Adams, 2015). However, sometimes an interview may be costly and time-consuming.

There are various types of interviews, but the researcher chose a semi-structured interview because it allows for open-ended responses from informants and facilitates the collection of information tailored to the nature of each informant. Also, semi-structured interviews were applied because they combined the elements of structured and unstructured interviews. It avoids distractions while encouraging two-way communication and allows probing of more opinions and details (Daudi, 2020). In this study, the researcher used interview guides to collect data from CQAOs. The interview was conducted in the council, where every interviewee participated in a face-to-face interview lasting between thirty and forty-five minutes.

The interview questions were prepared in English and asked in Kiswahili, with informants given the option to respond in either English or Kiswahili to ensure clarity for all participants. The study used both languages during the interviews, as Kiswahili is the national and official language of Tanzania (see Appendix A). Additionally, an audio recorder was used to supplement the data collected, with the prior consent of the informants.

Furthermore, the interview consisted of two sessions, one for each CQAO, with each session lasting between 30 minutes to one hour. The management of the interviews

was carefully structured to ensure effective data collection and to capture the nuanced perspectives of informants. This was achieved through careful selection of the interview type, preparation of interview guides, logistical planning, language considerations, data recording, and efforts to mitigate costs and time constraints, all while summarizing the information for reporting purposes.3.6.2 Focus group discussion (FGD)

In this study, FGD was used to collect in-depth information from participants. The researcher facilitated the conversation with a group of seven school quality assurance officers from each council, Kigoma Ujiji Municipal and Kigoma Council. This method complemented the details obtained from individual interviews by providing in-depth information through group discussions. During FGDs, the guiding questions (Appendix 3) enabled the researcher to gather insights on the use of information and communication technologies in school quality assurance activities. Each session lasted in about one hour and 36 minutes and was held in a conducive setting for open dialogue, which encouraged meaningful interactions and in-depth discussions among participants.

Furthermore, the management of focus group discussions (FGDs) was strategically organised to maximise the collection of relevant data. Acting as the facilitator, the researcher guided the conversations using structured yet flexible guiding questions to elicit detailed responses while fostering an open environment for sharing insights. To document the discussions accurately, the researcher took detailed notes and potentially recorded sessions with consent, enabling effective transcription and analysis. Following the FGDs, the researcher planned a thematic analysis to identify key trends and patterns in the responses, enriching the understanding of SQAOs' attitudes and the use of ICT in their managerial activities.

3.6 Data Analysis Procedures

The study employed reflexive thematic analysis to analyse data collected through interviews and focus group discussions. Reflexive thematic analysis, as refined by Braun and Clarke (2020), offers a dynamic and flexible framework for identifying, analysing, and interpreting patterns within qualitative data. This approach builds on

Braun and Clarke's (2006) foundational work but incorporates recent advancements emphasizing researcher reflexivity and the iterative nature of theme development.

The analysis began with familiarization with the data by transcribing interviews and reading through transcripts repeatedly to gain a comprehensive understanding. This phase allowed the researcher to identify initial ideas and patterns relevant to the study's objectives. Coding followed, with the researcher generating codes that captured meaningful segments of data related to SQAOs' understanding, experience, and the supportive tools received from the Ministry of Education, Science and Technology. The codes were systematically organised and categorised to reflect the study's three specific objectives.

Themes were then generated by grouping related codes, focusing on the relationships and patterns emerging from the data. For instance, themes related to training gaps and attitudes towards ICT utility were linked to SQAOs' readiness and capacity to integrate ICT into their work. These themes were reviewed and refined to ensure coherence and alignment with the entire dataset. The researcher defined and named each theme, ensuring clarity and relevance to the study's focus. Finally, the themes were reported narratively, incorporating participants' direct quotes to substantiate findings and provide rich, illustrative insights into their experiences.

This iterative and reflexive approach ensured a thorough and nuanced analysis of the data, aligning with the study's epistemological stance and qualitative methodology. The flexibility of reflexive thematic analysis also allowed the researcher to adapt the process to the complexities of the data, ensuring that the findings accurately reflected participants' realities.

3.7 Trustworthiness of Data

The current study considered the trustworthiness of the research instruments by considering the following components of trustworthiness: credibility, transferability, conformability, and dependability.

3.7.1 Credibility

Credibility refers to the degree to which the study's results are reliable and accurately reflect reality as perceived by others (Cohen et al., 2011). To ensure credibility, this

study employed two data collection methods: interviews and focus group discussions (FGD). This triangulation allowed the researcher to cross-check data from different sources, such as SQAOs and CQAOs, increasing the credibility of the findings. For instance, information gathered from interviews with CQAOs on their use of ICT was compared with FGD responses on ICT infrastructure in Kigoma District, providing corroborating evidence and ensuring the results reflected a true-to-life representation of ICT integration in their managerial activities.

3.7.2 Transferability

Transferability refers to the extent to which the findings can be applied to other contexts, times, situations, and with other participants (Creswell, 2019). To ensure transferability in the study on the integration of ICT into the managerial activities of school quality assurance in Kigoma District, the researcher collected sufficient and rich data that was detailed enough to allow others to determine whether the findings could be applicable in different contexts or regions. Through rich, context-specific data collection, during fieldwork, the researcher gathered in-depth information related to the use of ICT in school quality assurance, focussing on the unique environment and challenges within Kigoma District. By collecting comprehensive details about the local ICT infrastructure, the skill level of SQAOs, and the specific management processes, the findings provided a rich description of the situation.

Furthermore, data saturation, means that the researcher continued data collection until saturation was reached, meaning no new insights were emerging from the data. This ensured that the findings were thorough and covered the relevant aspects of ICT integration in school management activities. By reaching saturation, the results became more reliable and transferable, as they reflect the full range of experiences and practices in Kigoma District.

3.7.3 Dependability

Dependability refers to the consistency of the findings over time and across conditions (Cohen et al., 2011). To ensure dependability in this study on the integration of ICT into the managerial activities of school quality assurance in Kigoma District, the researcher involved different participants from diverse contexts such as SQAOs and CQAOs. This variety of participants provided multiple

perspectives on the use of ICT in managing school quality assurance, ensuring that the findings are consistent across different groups and settings. Furthermore, the study process was carefully documented, allowing future researchers to replicate the study using the same methodology. By detailing the steps taken in data collection, including interviews and FGDs, other researchers can repeat the study with a similar group of participants in a comparable context and expect to obtain similar results.

3.7.4 Confirmability

Confirmability refers to objectivity in qualitative research, which is described as the degree to which the researcher demonstrates the neutrality of the findings reflecting the participants and the inquiry (Creswell, 2018). The researcher ensured that the findings were derived directly from the data and reflected the perspectives of the participants rather than personal biases or assumptions. Through data triangulation and cross-referencing, by employing different data collection methods (interviews and focus group discussions), the researcher was able to compare and cross-check data, ensuring that interpretations of ICT integration in managerial activities were firmly rooted in the actual data. This triangulation reinforced the objectivity of the conclusions, as patterns identified were corroborated through multiple sources, minimising bias.

3.8 Ethical Considerations

Ensuring ethical compliance is a crucial aspect of any research study. This study adhered to ethical standards throughout the research process, from proposal development to the completion of the dissertation report. Initially, a concept note was prepared and submitted to the supervisor for review. Acknowledgement of authors and sources was maintained by adhering to the APA 6th edition referencing style approved by the University of Dodoma. The proposal was presented at the departmental level, where reviewers provided comments, which were addressed and documented in a matrix as evidence for subsequent approval. A plagiarism check was conducted to ensure compliance with the University of Dodoma Postgraduate Studies Guidelines and Regulations of 2019. Following these initial steps, ethical clearance and a permission letter were obtained from the Office of the Vice-Chancellor of the University of Dodoma. These documents were then submitted to the Ministry of

Education, Science and Technology and then to the Western Zonal chief school quality assurance officer to seek permission to conduct the study in Kigoma District.

During the data collection phase, informed consent was sought from all participants before engaging them in the study. Participants were provided with clear information about the purpose of the study, potential risks, and benefits, as well as their rights, including the right to withdraw at any stage. Confidentiality was maintained by using pseudonyms instead of real names in the research report and ensuring that all collected data were securely stored and accessible only to authorized individuals (see Table 3.2). Participants were assured of anonymity throughout the research process (Burke & Larry, 2017). Equitable treatment was ensured for all participants, respecting their dignity regardless of gender, ethnicity, religion, or other factors. Participation was strictly voluntary, with no coercion or pressure. Additionally, any potential risks to participants were assessed, and appropriate measures were taken to minimise them. To further uphold ethical standards, a debriefing session of the study to explain its purpose and address any participant concerns was done. The study obtained ethical approval from the relevant ethics committee before any data collection commenced, ensuring that all activities adhered to established ethical protocols.

Table 3. 2: **Participants' Pseudonyms**

Council	**Chief School Quality Assurance Officer (CQAOs)**	**School Quality Assurance Officers (SQAOs)**	**Focus Group Discussion (FGD) Participants**
Council A	CQAOs 'A'	SQAOs 'A'	A1, A2, A3, A4, A5, A6, A7
Council B	CQAOs 'B'	SQAOs 'B'	B1, B2, B3, B4, B5, B6, B7

Source: Field Data (2020)

The participants from Council A include one Chief School Quality Assurance Officer, labelled as CQAOs 'A', and seven School Quality Assurance Officers labelled SQAOs 'A', classified as A1 to A7. Similarly, the participants from Council

B include one Chief School Quality Assurance Officer, labelled as CQAOs 'B', and seven School Quality Assurance Officers labelled SQAOs 'B', classified as B1 to B7.

CHAPTER FOUR
DATA PRESENTATION, ANALYSIS, AND DISCUSSION OF THE FINDINGS

4.0 Introduction

This chapter presents, analyses, and discusses the findings on the integration of information and communication technology into the management of school quality assurance activities. The research findings are guided by three questions that reflect the specific objectives of the study: (i) What is the understanding of the school quality assurance officers regarding the integration of ICT into the management of school quality assurance activities? (ii) How do the school quality assurance officers experience using ICT for managerial activities? (iii) What are the experiences of school quality assurance officers regarding the Ministry of Education, Science and Technology's (MoEST) resource support for integrating ICT into the management of quality assurance activities?

4.1 The Understanding of School Quality Assurance Officers Regarding ICT Integration in Managing Quality Assurance Activities

The first objective of this study was to assess the understanding of SQAOs in utilising ICT facilities in their managerial activities. This objective was based on the assumption that SQAOs possess varying levels of understanding, which significantly impact their effectiveness in utilising ICT facilities for quality assurance activities. Data from this objective were gathered through interviews with CQAOs and focus group discussions (FGD) with SQAOs from two councils in Kigoma District: Kigoma District Council and Kigoma Ujiji Municipal. The qualitative data were analysed and presented using generated themes and subthemes. The findings revealed a wide range of understanding among school quality assurance officers. Some demonstrated high skills in utilising ICT tools for quality assurance activities, while others exhibited limited skills and knowledge. Furthermore, the findings indicated a significant need for ongoing training and professional development to enhance ICT competencies of SQAOs. These results were provided and discussed in detail in the subsequent sections.

4.1.1 Data management in the QA process

The study in this sub-theme focused on exploring the understanding of SQAOs in integrating ICT in the management of SQA in Kigoma District. The data on effective data management were collected through interviews with the chief quality assurance and a focus group discussion with SQAOs. The findings indicate that quality assurers have developed strong skills in managing and analysing educational data through ICT software. This proficiency allows them to generate detailed reports, monitor school performance, and pinpoint areas needing improvement with increased accuracy and efficiency. During interviews with CQAOs regarding their understanding of how school quality assurance officers (SQAOs) integrate ICT in managing SQA, a CQAO from Council B shared the following: Our ability to manage data has significantly improved with the integration of ICT. We can now store, retrieve, and analyse data efficiently, which enhances our decision-making process (CQAO B, Interview, 20th June 2024).

This quotation indicates that the adoption of ICT tools has greatly improved how data is managed. The ability to efficiently store, retrieve, and analyse data has been enhanced, leading to better-informed and timely decision-making. This improvement suggests that ICT integration is crucial for effective data handling and strategic planning within the education sector. In the same line of questioning, aimed at understanding how SQAOs integrate ICT in the management of SQA, School Quality Assurer A1 further elaborated on their perspective regarding the role of SQAOs in incorporating ICT into School Quality Assurance activities:

> With the use of ICT facilities, we have reduced the time spent on manual data entry and paperwork. This has allowed us to focus more on the quality of education rather than administrative tasks (SQAO A1, FGD, 21st June 2024).

This quotation emphasises that ICT facilities have streamlined administrative processes by reducing the time required for manual data entry and paperwork. As a result, staff can allocate more time and resources to enhancing the quality of education rather than being bogged down by routine administrative tasks. This shift highlights the role of ICT in improving operational efficiency and focusing on core

educational objectives. However, CQAO from Council A narrated the following understanding of SQAOs in integrating ICT in the management of SQA:

> There is a significant gap in technological knowledge among some of our staff. This hinders our ability to fully utilise ICT tools for data management, resulting in inefficiencies and delays in our work (CQAOs A, interview, 19th June 2024).

The School Quality Assurer B2 added the following on the understanding of SQAOs in integrating ICT in the management of School Quality Assurance activities:

> Despite the availability of ICT facilities, many of us struggle with effective data management due to a lack of proper training. This often leads to errors and inconsistencies in the data we collect and report. Additionally, the unreliable internet connection in certain areas of Kigoma District poses a challenge to effectively managing data using ICT. We often face disruptions that compromise the accuracy and timeliness of our reports (SQAOs B2, FGD, June 25th, 2024).

The quotation highlights numerous critical challenges that SQA officers face in utilising ICT for data management. Despite the availability of ICT facilities, officers express difficulties due to insufficient training, which impacts their ability to manage data effectively. This results in frequent errors and inconsistencies in the data they collect and report, indicating that the presence of technology alone is insufficient without proper capacity-building efforts.

Furthermore, the officers identify unreliable internet connectivity as a major barrier to effective data management. Inconsistent internet access in certain areas of Kigoma District disrupts their work, making it hard to manage data accurately and submit reports on time. These disruptions compromise not only the quality of the data but also the timeliness, which could affect decision-making processes that rely on accurate and up-to-date information.

The findings indicate that while ICT infrastructure in Tanzanian schools has improved in recent years, effective data management remains a significant challenge due to inadequate training, support, and infrastructural limitations. This is consistent with Mwenda (2019), who observed that despite improvements in ICT access, a lack of systematic training has hindered its optimal use in school quality assurance activities. Similarly, Ngussa and Makewa (2014) highlighted the importance of ICT training in enhancing data management skills among educational administrators, while emphasising the need for continuous professional development to sustain these gains.

Contrarily, Smith et al. (2018) reported seamless data management in educational quality assurance after the introduction of ICT, which they attributed to robust infrastructure and comprehensive training. These findings contrast with the current study, where challenges like power outages and limited internet connectivity persist, impeding efficient data management. Furthermore, Thompson and Lee (2019) emphasised that ICT integration enhances data accuracy and efficiency. However, the current study highlights a gap in implementation, stemming from infrastructural and technological constraints specific to Tanzania.

The Tanzanian government's National ICT Policy (2016) recognises ICT as a driver for enhancing efficiency in education and advocates for the development of infrastructure and capacity-building programmes. However, the implementation of this policy appears fragmented, underscoring the need for more targeted interventions aligned with the Total Quality Management (TQM) framework, which emphasises continuous improvement and stakeholder engagement. Furthermore, the Technology Acceptance Model (TAM) could inform strategies to enhance user acceptance of ICT tools, ensuring their effective integration into data management processes.

4.1.2 Current technological proficiency

Data for this sub-theme were gathered through interviews with CQAO and focus group discussions (FGDs) with SQOAs. The study revealed that the majority of SQAOs showed a basic understanding of common ICT tools, such as Microsoft Office (Word and Excel), data analysis, and programming. However, there was a

significant variation in skills, with some assurers demonstrating advanced proficiency, while others struggled with basic operations. Additionally, the findings revealed that many quality assurers had developed their ICT skills primarily through self-teaching or irregular short-term training sessions, as formal and structured ICT training was less prevalent. Interviews with CQAOs revealed varying levels of familiarity with educational software used for quality assurance purposes. While some CQAOs are skilled at utilising these tools to monitor and evaluate school performance, others need further training to fully leverage the software's capabilities. In this context, during FGDs, one participant, SQAO A4, shared the following regarding their understanding of SQAOs' role in integrating ICT into the management of SQA:

> Most of us are comfortable using Microsoft Word and Excel for our daily tasks, such as writing reports, creating schedules, and analysing data. These tools have become essential for our routine work. However, there are still a few who struggle with even these basic operations. This can be a significant barrier to efficiency, as those who are less skilful often need extra time and assistance to complete their tasks (SQAO A4, FGD, 21st June 2024).

SQAOs B1 added the following concerning the understanding of SQAOs in integrating ICT in the management of SQA.

> We frequently encounter scenarios where formal training opportunities for new software are either limited or unavailable. Consequently, we proactively take on the responsibility of self-learning, leveraging mutual support from colleagues and online tutorials as crucial resources to acquire and master the necessary skills effectively (SQAO B1, FGD, 25th June 2024)

In this context, during the interview, CQAO A remarked on the following regarding their understanding of how SQAOs integrate ICT in the management of SQA: There's a discernible disparity in ICT proficiency among our staff members. While some demonstrate proficiency in utilising advanced features within software

applications such as Excel, others possess only a foundational understanding and require supplementary support to enhance their skill. This variation necessitates tailored training and development initiatives to ensure all staff members can effectively leverage ICT tools across their responsibilities (CQAO **A,** interview: 20th June 2024).

The findings highlight a significant disparity in technological proficiency among SQAOs. While some demonstrate advanced skills in using ICT tools for tasks such as data analysis and programming, others struggle with basic operations, posing challenges to the consistency and efficiency of quality assurance processes. This aligns with Tondeur et al. (2017), who observed similar disparities among educators, emphasising the need for structured, continuous ICT training programmes. Aladejan et al. (2020) also noted that ongoing training significantly improves the technological proficiency of quality assurers, enabling them to integrate ICT effectively into their practices.

The variation in proficiency levels can be attributed to the lack of standardised ICT training initiatives within the Ministry of Education, Science, and Technology (MoEST). The findings underscore the relevance of the National ICT Policy (2016), which calls for equitable access to ICT training across all education stakeholders. Furthermore, adopting the TAM framework can enhance the acceptance of ICT tools by addressing perceived ease of use and usefulness, fostering better adoption among SQAOs. By integrating these insights into policy-driven training programmes, MoEST can bridge the proficiency gap, ensuring consistent and effective ICT use in quality assurance.

4.1.3 Training and professional development

The interviews and focus group discussions with CQAOs and SQAO's revealed a need for more extensive and regularly updated formal ICT training opportunities. The findings also highlighted that these programmes should focus on the latest technological advancements and tools essential for their roles. Moreover, the findings indicated that training mainly focuses on basic computer skills, overlooking the advanced ICT applications required for comprehensive quality assurance tasks. Furthermore, a minority of the SQAOs view current training initiatives as

insufficient and call for more comprehensive and continuous professional development opportunities. In this regard, during the interview, CQAO A shared the following regarding their understanding of how SQAOs integrate ICT in the management of SQA:

> We recognise the critical role that ICT plays in improving our quality assurance efforts. However, the current training offerings are not aligned with the rapid pace of technological advancements. There is a pressing need for more extensive and sophisticated programmes that specifically address advanced applications pertinent to our responsibilities. Such programmes would equip us with the necessary skills to effectively utilise new technologies in enhancing educational outcomes and ensuring quality standards across schools (CQAO A, interview, 19th June 2024).

The quotation reflects the recognition among CQAOs of the importance of ICT in enhancing their quality assurance tasks within the education sector. While they acknowledge the potential of ICT to improve their work, they express dissatisfaction with the current training programmes, which they feel are outdated and inadequate in keeping pace with the rapid evolution of technology. The mismatch between the training they received and the technological tools they need to use hinders their ability to fully leverage ICT in their roles.

The CQAOs emphasise the need for more comprehensive and advanced training programmes tailored to their specific responsibilities. These programmes should focus on equipping them with skills to use advanced technological applications that can improve educational outcomes and help maintain high-quality standards in schools. The statement highlights a gap between the available training and the actual demands of their work, suggesting that better-aligned training could significantly enhance the effectiveness of their quality assurance efforts. In that regard, through focus group discussion with SQAOS, SQAO B3, had this to report:

> The current training modules are falling short when it comes to keeping us updated with the latest technological advancements. We recognise the pivotal role of ICT in enhancing our ability to support schools in meeting and exceeding quality standards. To truly empower us in this role, we urgently need more comprehensive programmes that delve deeply into advanced ICT applications. These programmes would equip us with the specialised skills necessary to effectively utilise cutting-edge technologies in our quality assurance practices, ensuring that our assessments are thorough, insightful, and beneficial for educational improvement (SQAO B3, FGD, 25th June 2024).

Thus, the above quotations highlight a critical need for ongoing and enhanced professional development in ICT. This is essential in strengthening educational quality assurance efforts, emphasising the pivotal role of advanced ICT tools in promoting educational excellence and fostering innovation. These calls for improvement are crucial for advancing systemic enhancements throughout educational practices.

The study found that outdated ICT training programmes continue to be a significant barrier to effective quality assurance practices. This is in parallel with Jones and Brown (2019), who noted a disconnect between training content and emerging technological trends. Similarly, Johnson (2018) highlighted widespread perceptions of inadequacy among quality assurers regarding current ICT training programmes, emphasising the urgency for tailored and adaptive initiatives.

Incorporating insights from the TQM framework, educational institutions should adopt a continuous improvement approach to ICT training, ensuring programmes remain relevant and responsive to the evolving needs of quality assurance professionals. The Tanzanian Education Sector Development Plan (ESDP) 2021/22–2025/26 calls for strengthening teacher training programmes, including ICT competency development, which aligns with the findings of this study. Integrating these recommendations into policy implementation would enhance professional

growth and equip quality assurers with the skills needed to leverage ICT for educational excellence.

4.1.4 Utilisation of ICT tools

Through interviews and FGDs, the study found that SQAOs in Kigoma District exhibit varying levels of ICT tool usage. While some regularly use these tools for tasks such as monitoring and evaluation, others utilise them sporadically, reflecting differences in technological skills. Also, the findings reveal that both SQAOs and the CQAO expressed a mutual need for structured guidance to consistently integrate ICT tools into daily activities, aiming to enhance the efficiency and effectiveness of quality assurance tasks. Additionally, the research identified a range of ICT tools used by SQAOs, including educational software, data management systems, and communication platforms. However, there are notable discrepancies in the depth of usage and familiarity with these tools among SQAOs. Concerning understanding of SQAOs in integrating ICT in the management of SQA, SQAO A5 had this to say:

> Some of us possess a higher comfort level with ICT tools, allowing us to employ them routinely for tasks such as monitoring and evaluation. However, others encounter challenges in maintaining consistent integration of these tools into our daily activities, primarily due to differing levels of proficiency in technology (FGD, SQAOs A5, FGD, 21st June 2024).

Moreover, during the interview with the chief quality assurers from Council B, they emphasised the importance of establishing structured support mechanisms and providing comprehensive guidance to ensure the consistent integration of ICT tools into the daily activities of SQAOs. This approach is aimed at maximising operational efficiency and effectiveness in conducting quality assurance tasks throughout Kigoma District. Moreover, during the interview with the CQAOs B, the influence through which SQAOs' understanding in integrating ICT in the management of SQA was revealed:

> Structured support and guidance are essential to establishing a comprehensive framework that guarantees the seamless and consistent adoption of ICT tools by our SQAOs. This strategic approach is essential not only for strengthening our ability to conduct SQA activities effectively across the district but also for promoting a culture of innovation and continuous improvement in educational standards and practices. By ensuring all SQAOs are equipped with the necessary skills and resources, we can effectively leverage ICT to meet the evolving needs of our educational community and maintain high-quality standards (CQAOs B. Interview, 20th June 2024).

The study highlights that structured support and guidance significantly influence the frequency and effectiveness of ICT tool usage among SQAOs. This resonates with Smith et al. (2021), who emphasised the importance of targeted support and training in enhancing ICT adoption and fostering innovation in educational practices. Similarly, Wang and Liu (2022) noted that disparities in technological skills necessitate tailored interventions to optimise ICT integration in daily tasks like monitoring and evaluation.

The National ICT Policy (2016) and the TAM framework provide actionable insights for improving ICT usage. By addressing barriers such as perceived difficulty and limited access, these frameworks can guide the development of supportive environments that encourage frequent and effective ICT use. Moreover, aligning these strategies with the TQM principles of process improvement and stakeholder engagement can foster a culture of continuous learning, ensuring that ICT adoption effectively supports broader educational quality goals.

4.1.5 Collaboration and communication through ICT

Interviews and focus group discussions revealed that ICT tools such as emails, instant messaging apps, and platforms like Google Workspace and Microsoft Teams were widely utilised for communication and coordination among school quality assurance teams. These tools facilitated faster information dissemination, real-time feedback, and more efficient decision-making processes. More advanced

technologies like video conferencing, cloud-based project management tools, and virtual learning environments were less frequently used. The adoption of ICT has significantly improved record-keeping and data management, enhancing the capacity to monitor and evaluate school performance. During FGDs, a SQA A6 shared his/her perspective on how SQAOs integrate ICT into the management of SQA, highlighting their understanding of its role and impact: The use of emails and instant messaging apps has significantly enhanced our ability to communicate and coordinate effectively. These tools allow for rapid dissemination of information across our team, enabling us to provide immediate feedback that is essential for our timely decision-making processes. This real-time communication capability has become indispensable in ensuring that we stay agile and responsive in our quality assurance efforts (SQAO A6, FGD, 21st June 2024).

> Furthermore, concerning SQAOs' understanding of integrating ICT into SQA management, SQAO A7 stated: While our daily operations greatly benefit from fundamental ICT tools for communication, such as emails and instant messaging, there remains a distinct opportunity to leverage more sophisticated technologies like video conferencing and cloud-based project management tools. Embracing these advanced tools has the potential to significantly elevate our collaborative efforts, fostering greater efficiency and integration across our quality assurance initiatives. (SQAOs A7, FGD, 21st June 2024).

During an FGD with the CQAOs, it became evident that while their reliance on basic ICT tools like emails and instant messaging has streamlined daily communication processes, enabling quick updates and feedback among team members, they acknowledged a noticeable gap in the utilisation of more advanced technologies such as video conferencing and cloud-based project management tools. They emphasised that these advanced tools hold great potential to further enhance collaboration efforts, facilitate more dynamic discussions, and improve project oversight across all schools in their district. Through the interview, the CQAO shared the following perspective regarding the SQAOs' understanding of integrating ICT into SQA management:

> However, we have noticed a significant gap in our adoption of more advanced technologies, such as video conferencing and cloud-based project management tools. Embracing these tools could substantially enhance our ability to collaborate effectively and improve project oversight across all schools in our district. They offer the potential to foster more interactive and engaging discussions among stakeholders, streamline project timelines, and ensure that resources are utilised efficiently to support educational quality assurance initiatives (CQAO A, interview, 19th June 2024).

The findings emphasize the importance of advanced ICT tools such as video conferencing and cloud-based project management systems in enhancing collaboration and communication among SQAOs. This aligns with Lee and Kim (2021), who highlighted that adopting these technologies improves coordination and supports evidence-based decision-making in educational quality assurance. Similarly, Johns and Brown (2019) emphasised the role of advanced ICT tools in facilitating better monitoring and evaluation processes across diverse school environments.

The National ICT Policy (2016) advocates for the integration of ICT to enhance connectivity and collaboration across educational stakeholders. Implementing this policy effectively, alongside leveraging frameworks like TAM to improve acceptance, can drive widespread adoption of ICT tools. Moreover, embedding TQM principles, such as cross-functional teamwork and continuous improvement into collaboration initiatives can optimise the use of ICT for achieving educational quality assurance goals.

4.2 Experiences of School Quality Assurance Officers in Using ICT for Managerial Activities

The second objective of this study was to explore the awareness of school quality assurance officers (SQAOs) towards the integration of ICT into their managerial activities. The aim was to understand how SQAOs perceive the use of ICT in quality assurance processes and the factors shaping their attitudes towards its adoption. This objective was based on the understanding that attitudes—shaped by beliefs, perceptions, and experiences—play a significant role in determining the effectiveness

of ICT adoption. The findings revealed a range of attitudes among SQAOs, from enthusiastic support for ICT integration to hesitation and scepticism about its practicality and relevance in quality assurance activities. These attitudes were shaped by factors such as perceived benefits, individual ICT proficiency, and the availability of institutional support. Through thematic analysis, several subthemes emerged, offering deeper insights into these attitudes. These subthemes are presented and discussed in detail in the following subsections.

4.2.1 Simplifying the school quality assurance activities

The involvement of ICT in quality assurance is vital for fastening the activities of quality assurance simply because the technology makes it easier for the SQAOs to undertake their daily activities rapidly and simply. Quality assurance activities, such as monitoring teaching and learning, auditing and inspecting teaching methodologies, developing quality processes and procedures, establishing standards for reviews, and implementing corrective and preventive actions, are likely to become more effective when streamlined and simplified through the integration of ICT into quality assurance practices. During interviews, the chief quality assurer "A" had this to report on experiences in integrating ICT into their managerial activities:

> The development of science and technology has been a solution for simplifying various activities in the world, particularly quality assurance activities. With no doubt, the integration of quality assurance in our activities is a great advantage, especially in fastening our daily activities of auditing and inspecting the school's activities on a weekly, monthly, midterm, and annual basis. By so doing, it results in fastening and simplifying our daily activities (CQAO A, interview, 19th June 2024).

Additionally, during the focus group discussion with SQAO A, they expressed a strong belief in the integration of ICT into their quality assurance activities. They viewed it as a modern, streamlined, and efficient approach to managing their daily tasks to achieve better educational outcomes for schools and the wider community. In this context, A3 shared the following perspective on their experiences with integrating ICT into their managerial activities:

> The integration of ICT in quality assurance activities is very beneficial for us because the number of school quality assurers is very small in comparison to the existing schools in our council. Hence, quality assurance activities such as performance monitoring and review of the subject teaching and learning notes following the subject syllabus, which were previously implemented for six months, can now be implemented for only one week through ICT. Thus, the integration of ICT in quality assurance activities is a modern and simplified way of accomplishing our daily activities (SQAO A3, FGD, 25th June 2024).

The findings reveal that integrating ICT into school quality assurance activities significantly simplifies and accelerates the workload associated with inspecting, auditing, and monitoring schools. By automating routine processes such as data collection and analysis, ICT reduces the time spent on manual tasks, allowing SQAOs to focus on core responsibilities. This is consistent with Enemuo and Okafor (2023), who observed that ICT integration dramatically reduces the time required for quality assurance tasks in schools, enhancing efficiency.

However, the findings also highlight the critical challenge of an insufficient number of SQAOs compared to the growing number of schools. This discrepancy underscores the urgency of leveraging ICT to mitigate human resource constraints. The Tanzanian National ICT Policy (2016) emphasizes ICT as a catalyst for operational efficiency and advocates for its integration across all levels of education management. Furthermore, adopting the Total Quality Management (TQM) framework can support continuous process improvement, ensuring ICT tools are used effectively to streamline workflows and improve accountability in school quality assurance.

4.2.2 Increasing work effectiveness

The quality of the services depends on the effectiveness of the tools involved in the overall process of auditing and inspection. The attitudes of SQAOs on the integration of ICT in their activities are obligatory because it increases the work's effectiveness in comparison to manual or traditional auditing and inspections. Therefore, using

ICT tools such as computers, mobile phones, and other information and communication devices enhances the effectiveness of quality assurance activities, including monitoring teachers' lesson notes, teaching and learning materials, and other related tasks. During the interview, the Chief Quality Assurer A shared their experiences regarding integrating ICT into their managerial activities:

> There is greater effectiveness in integrating ICT into quality assurance activities such as monitoring, auditing, reviewing, and establishing quality standards for doing work in a school setting. Moreover, the integration of ICT in quality assurance activities results in greater effectiveness compared to the non-use of ICT. Currently, we motivate our subject's school quality assurers to employ ICT in their activities for the sake of increasing the effectiveness of their work (CQAO A, interview, 19th June 2024).

In line with this assertion, during a focus group discussion with the school quality assurance team, they viewed the integration of ICT into quality assurance activities as a solution for performing their work more accurately, with minimal human errors that could otherwise jeopardize their efforts. In that regard, SQAOs, B6 had this to report regarding experiences in integrating ICT into their managerial activities:

> To be honest, the integration of ICT into quality assurance activities is a solution for resolving errors either in auditing, reviewing, or monitoring activities that class teachers have prepared and submitted manually. In return, the integration of ICT increases, speeds, and accelerates the work's effectiveness and accuracy in quality assurance activities simply because technology resolves human errors that might occur in the overall process of monitoring. We admire the integration of ICT for the primary aim of increasing the effectiveness of our activities regarding quality assurance (SQAO B6, FGD, 25th June 2024).

ICT integration is identified as a transformative factor in enhancing the effectiveness of quality assurance activities, particularly in auditing, monitoring, reviewing, and

planning. The findings reveal that ICT reduces human errors, enhances accuracy, and supports data-driven decision-making. This aligns with Nihuka and Ngonile (2021), who found that ICT significantly improves the precision and timeliness of educational quality assurance processes. Similarly, Choudhary (2020) highlighted that ICT enhances access to teaching resources, supports e-learning, and facilitates efficient reporting mechanisms.

TAM offers a theoretical lens to understand how perceived ease of use and usefulness influence ICT adoption among SQAOs. Addressing these attitudes through targeted training and user-friendly tools can enhance acceptance and effectiveness. Furthermore, the findings align with the Education Sector Development Plan (ESDP) 2021/22–2025/26, which emphasises ICT as a driver of educational quality and innovation. Implementing these insights can result in improved outcomes for quality assurance processes and broader educational standards.

4.2.3 Reducing human errors and mistakes

Human is a creature who commits various errors as well as mistakes in different aspects, including quality assurers in quality assurance activities. The errors and mistakes are the source of inappropriate information as well as reports, which spoils all the effort that has been put into quality assurance activities. Quality assurers are not immune to errors, as they too commit various mistakes that affect inspections, audits, and reviews of subject teachers' classroom materials and activities. However, through interviews with respondents, it was revealed that the integration of ICT into quality assurance activities helps reduce or minimise human errors, such as those related to auditing, counting, and report writing. Likewise, using a computerised system for auditing, reviewing, and monitoring school activities, such as the Kobo toolbox, reduces some errors and mistakes that quality assurance professionals are likely to commit. Thus, the integration of ICT into quality assurance activities is the best solution for helping quality assurance provide free error activities. Moreover, through the focus group discussion, the school quality assurer A2 had this to say about experiences in integrating ICT in their managerial activities:

> We are committing various mistakes and errors in the process of auditing and inspecting teachers, as well as writing reports. These errors are the source of getting the wrong data because we are conducting this process traditionally. The integration of ICT in quality assurance activities reduces errors such as spelling errors, reporting errors, grammar errors, and counting errors, to mention a few. Moreover, this is to acknowledge that the integration of ICT in quality assurance activities is the best way of doing things with minimal or no errors and mistakes at all. In line with that, our whole belief is based on the integration of ICT for the sake of reducing errors, which we commit either by knowing or unknowing (SQAO A2, FGD, 21st June 2024).

Additionally, the interview with the chief quality assurer indicated that in most cases the school quality assurance officers reported information that had various errors and mistakes to their offices. Additionally, the information in the submitted reports contradicted itself, with one paragraph conflicting with the next upon review. Hence, after doing some rough research, I came to notice that there were problems related to human errors and mistakes. Moreover, an interview with the CQAO B revealed the following fact:

> It has been a long-time tradition for subject teachers to apologise to me following errors and mistakes that have been found in their final report submitted to me as chief quality assurer of this council. For sure, it creates a bad picture for us as professionals. Most of the time, I feel bad to see the re-occurrence of errors and mistakes in each submitted report. Despite the seminars and directives that I provide to them, my efforts have had little success. Thus, it is high time to seek another solution to overcome the problem of human errors based on quality assurance activities (CQAO B, interview, 20th June 2024).

Therefore, the above quotations revealed that SQAOs are committing various errors and mistakes in their quality assurance activities. The recurring nature of the

mistakes and errors committed by quality assurers tarnishes their professional image, raising concerns about their credibility and the impact of such errors on their work. The findings highlight persistent errors and mistakes in school quality assurance activities, often recurring due to reliance on manual processes. These errors, ranging from reporting inaccuracies to grammatical mistakes, can tarnish the professional image of quality assurance. However, the integration of ICT is perceived as a viable solution to minimise such errors. Ghaviefekr and Rosdy (2015) corroborate these findings, demonstrating that ICT tools, such as grammar checkers and automated monitoring systems, significantly reduce errors and enhance overall efficiency.

The Tanzanian ICT Policy for Basic Education (2007) advocates for ICT integration to improve operational accuracy and consistency. Leveraging ICT tools, such as data management systems and error-checking software, can help mitigate human errors while fostering confidence in the quality assurance process. Adopting these measures aligns with the TQM framework, emphasising error prevention and process standardisation to uphold high-quality education standards.

4.2.4 Enhancing works accountability

The integration of ICT in quality assurance is a new phenomenon for most quality assurers because we undertook activities very traditionally from the time, we got a chance to do this work. Therefore, the integration of ICT in quality assurance is a new custom for us, and ultimately, its integration into our work will increase accountability for quality assurance. Technology will need human power to operate, and that tendency will automatically reduce laziness and increase work accountability for the majority of quality assurers. Through the interview with the chief quality assurer and school quality assurer, they harmoniously reported that the integration of ICT in the quality assurance activities increases work accountability for the workers; hence, they will be responsible most of the time. Likewise, the school teachers will be most of the time accountable for doing their work for the welfare of a better education. Moreover, the chief quality assurer had the following to say during an interview:

> The integration of ICTs in quality assurance activities keeps school quality assurers busy and accountable for their daily activities. This is because it is very difficult to draw information without being accountable for using ICT to monitor, review, audit, and inspect various issues that have been submitted by subject school teachers. Thus, I acknowledge the integration of ICT as an integral aspect of doing quality assurance activities that increase work accountability (CQAO, Interview, 20th June 2024).

Additionally, during the FGD with SQAOs, participants generally agreed that integrating ICT into quality assurance activities is an effective mechanism for enhancing accountability, both for themselves and subject teachers. The logic of increasing work accountability has emanated from the integration of ICT because the processes of auditing, monitoring, and inspecting will be conducted through ICT and not manually as they were previously. Thus, school teachers and subject quality assurance teachers ensure accountability in one way or another to accomplish activities of quality assurance. In line with this, during a focus group discussion with subject school quality assurers, A5 added the following:

> It will increase and introduce a culture of accountability to our work because, at all times, we will be obliged to employ ICT to accomplish our quality assurance activities. With no doubt, the level of accountability for us will be high because we will be forced by ICT to be accountable all the time. Hence, ICT will be a forceful mechanism that will help us to be accountable in our daily work. (SQAO A5, FGD, 25th June 2024).

Therefore, the above quotation entails that the integration of ICTs in quality assurance activities not only helps to increase work accountability for the quality assurers but also for subject school teachers. Integrating ICT in school quality assurance activities enhances accountability among both quality assurance officers and school teachers. The findings suggest that ICT creates a transparent mechanism for tracking and evaluating performance, ensuring adherence to established

standards. This aligns with Kapur (2019), who noted that ICT fosters greater accountability by enabling real-time monitoring and reporting.

The Tanzanian National ICT Policy (2016) emphasises using technology to improve transparency and accountability in educational management. ICT tools such as digital dashboards and real-time reporting platforms provide SQAOs and teachers with actionable insights, fostering a culture of responsibility and continuous improvement. Furthermore, embedding these practices within the TQM framework ensures that accountability measures are systematic, scalable, and sustainable, ultimately contributing to higher educational quality.

4.2.5 Aligning with Tanzania's Education and Training Policy

The introduction and integration of ICTs in quality assurance have been cemented in the Tanzania Education and Training Policy of 2014 and reviewed in 2023, which emphasises the use of ICT in teaching and learning as well as inspecting and auditing. Thus, the policy creates a good platform for quality assurance to integrate ICT into their daily activities, as long as policy concerns. Through the interview and focus group discussion, it was revealed that quality assurers are responsible for practically translating the policy by integrating it into their activities. During focus group discussion, SQAO B6 revealed the following regarding experiences in integrating ICT into their managerial activities:

> As implementers of the Educational and Training Policy, we need to put the 2014 policy, revised in 2023, into practical action by integrating it into our daily activities. Therefore, through the implementation of the policy, the mission and vision of this education policy will be easily attained. Generally, integration is the best way of practically implementing the policy (SQAO B6, FGD, 25th June 2024).

Moreover, the integration of ICT into quality assurance activities is to align with education policy, which is the source of the paradigm shift from content-based to competence-based teaching. Meanwhile, the newest curriculum perpetuates the concepts of competence. As a result, the government of Tanzania intensified its

efforts to promote ICT education in primary and secondary schools. Consequently, various ICT infrastructures have been developed in these schools to facilitate the integration of ICT into teaching and learning processes. Thus, during an interview, the Chief Quality Assurer, A, shared the following insights regarding their knowledge and skills in integrating ICT into their managerial activities:

> Tanzania's Education and Training Policy has provided a framework for us on how to execute our daily activities. The policy clearly states the issue of ICT in teaching and learning in public secondary schools; it will be greater wisdom for us to motivate and create a conducive environment that ought to support the integration of the ICTs in the quality assurance activities (CQAO A, interview, 19th June 2024).

Therefore, the above quotation reveals that the integration of ICTs in quality assurance is necessary. By this integration, SQAOs will directly be implementing the Tanzanian education policy, which supports the use of ICTs for teaching and learning. The findings further entail that the integration of ICTs into quality assurance is a way of supporting the policy because the policy has created a roadmap that guides how far quality assurance activities ought to be conducted. Thus, there is a strong belief that integrating ICTs into quality assurance activities is key to effectively implementing the Tanzanian education policy. Meanwhile, through the execution of the policy, the mission and vision of the policy are likely to be easily attained since quality assurers, as implementers of the policy, are the ones who are practically implementing the policy on the ground. Thus, the chief quality assurers and SQAOs both perceived the integration of ICT as the best way of aligning with and implementing the Tanzanian education policy. Meanwhile, the findings of this study are consistent with the directives of the Ministry of Education, Vocation, and Training (MoEVT) through the Information and Communication Technology ICT Policy for Basic Education (2007). The policy postulated that the integration of ICT is the best way of enhancing access, equality, and relevance of basic education while stimulating and improving teaching and life-long learning for the students.

4.2.6 Inaccessible to non-ICT professionals

The perception of integrating ICT in quality assurance activities varied because quality assurers had different perceptions. Despite many quality assurers having a positive perception of ICT integration, some were hesitant due to their limited experience with ICT usage. Through the interview and focus group discussion, it was revealed that most of the quality assurers were not familiar with information and communication technologies due to various reasons based on age and experience of using ICT. This has posed a significant obstacle to their acceptance of the rapid integration of ICTs into quality assurance activities. Due to their limited expertise in using ICT, they continue to rely on traditional methods, such as manual inspection, monitoring, and reviewing the pedagogical content prepared by subject teachers for delivery in the academic year. Moreover, during an interview with Chief Quality Assurer B, the following was shared regarding their experiences with integrating ICT into their managerial activities:

> Despite the benefits of integrating ICT into quality assurance activities, some quality assurers are reluctant to embrace and adapt to technological changes. Their conservative approach leads to limited cooperation in adopting ICTs. I often hear them claiming in the corridors that they were born before the advent of computers, and for them, the idea of integration feels like a great punishment due to their limited knowledge and skills in using technology. (CQAO Interview, 20th June 2024).

Furthermore, most of the quality assurers are hiding in the shadow of age, while others are hiding in the shadow of low skills and knowledge. Despite the integrative initiatives that the government has taken towards the usage of ICT, such as providing ICT seminars and workshops for the sake of raising awareness and skills of using ICT, the challenges of integration still exist. Thus, through the focus group discussion with teachers, they emanated various concerns, which reveal that the concept of being familiar with the use of ICT is a problem for them to positively perceive the integration of ICT in quality assurance activities. As a result, A4 shared the following perception regarding their knowledge and skills in integrating ICT into their managerial activities:

> To be honest, ICT is more familiar to youth, but for us, it is very challenging to adopt and use in our quality assurance activities. We often seek assistance from our sons and daughters to use, share, and manipulate our ICT devices, such as smartphones. Yet, the initiates of the government want us to align with the use of ICT, but proportionally, we face challenges in the usage of ICT in our activities simply because it is the newest thing for us. As a result, we have thought that the integration of ICT in quality assurance activities will provide greater challenges, especially for those who are not familiar with ICT (SQAO A4, FGD, 21st June 2024).

The findings reveal a significant challenge in ICT adoption among non-experts, particularly older SQAOs who may lack familiarity and confidence in using technology. Despite efforts by the Tanzanian government to provide training and workshops, many quality assurance officers rely on external help, such as family members, to navigate ICT tools. This aligns with Charles et al. (2024), who noted that while ICT offers transformative benefits, it also presents barriers for non-experts, necessitating ongoing support and training. Similarly, Phutela and Dwivedi (2019) found that non-ICT experts struggle with technology adoption despite recognising its advantages.

Addressing this challenge requires targeted interventions, such as user-friendly ICT tools, customised training programmes, and mentorship opportunities. The TAM framework provides insights into addressing barriers to technology adoption by focusing on ease of use and perceived usefulness. Aligning these efforts with the Education Sector Development Plan (2021/22–2025/26) can ensure that all SQAOs, regardless of expertise, are empowered to embrace ICT, thereby enhancing their effectiveness and confidence in quality assurance activities.

4.2.7 Physical and environmental conditions for ICT integration

The perception of integrating ICTs into quality assurance activities has gained momentum nowadays due to the advancement of science and technology. This resulted in many schools starting to deliver their teaching and learning through ICTs. The integration is contrary to the existing reality of the physical infrastructures that

support the facilitation of the ICT's quality assurance activities in secondary schools. Through the interviews and focus group discussions, it was revealed that there is a fear of integration emanating from the bad physical infrastructure. During an interview, the chief quality assurance A, had the following to report:

> Integration is possible when the physical facilities, such as ICT instruments, are available for quality assurance. Currently, the quality assurance officers do not have computers, stationary devices, or other ICT devices that facilitate their daily activities of inspections, auditing, and monitoring. Thus, it has been a barrier to the integration of the use of ICT for quality assurance activities (CQAO A, interview, 19th June 2024).

Furthermore, the concept of physical infrastructure has been perceived as an obstacle that hinders the integration of ICTs in quality assurance activities. This is based on some schools lacking enough computers while others lack ICT rooms, equipment, and electricity which are essential for ICT integration. Due to these obstacles, the concept of integration sounds as a daydream because the schools are not equipped for integration. The schools' physical environments and infrastructure do not align with quality assurance officers' readiness to integrate ICT. Based on this observation, the quality assurance officer, B3, stated the following during focus group discussion:

> How can we entertain the integration of ICT into our quality assurance activities while, in the schools, there is no electricity, no power, and no facilities that support the integration? Some of the schools are geographically located in remote areas where there is a problem with communications, no electricity, and no internet at all; thus, teachers cannot show maximum cooperation because of physical and environmental barriers. Thus, the integration of ICT into our activities is good, but until the environment that supports the integration is constructed (SQAO B3, FGD, 25th June 2024).

Therefore, the above findings reveal that quality assurers are ready to integrate ICT into their quality assurance activities, but a concern about the physical infrastructure emerged as the greatest barrier to the perception of ICT's integration. The concerns

resulted from the fact that many schools had no ICT devices, such as computers and ICT rooms that facilitate the integration of ICT into quality assurance activities. Meanwhile, the findings reveal that some schools are located in remote areas and in vulnerable conditions where there is no access to communication, no electricity as well as internet; hence, this retards the efforts of ICT integration. Furthermore, the findings suggest that ICT integration is feasible once the necessary physical infrastructure and environment are in place, allowing subject teachers to access the internet and use ICT devices in their schools. Likewise, quality assurers do not have supportive facilities that facilitate the integration of ICTs into their daily activities of quality assurance.

The findings of this study are concurrent with those of the MoEVT, specifically, the policy for Information and Communication Technology (ICT) (2007), which maintains that there is inadequate infrastructure, including critical supporting infrastructure such as electricity and telecommunication, especially in rural and remote areas, for integrating ICT in basic education. Meanwhile, MoEVT reveals that there is an insufficient number of qualified technical personnel to manage and maintain ICT resources. Similarly, Kapur (2022) revealed that electricity, a shortage of equipment, and a lack of ICT rooms are the physical and environmental barriers that hinder the integration of ICT in educational settings.

4.3 Experiences of School Quality Assurance Officers on Ministry of Education, Science and Technology's Resource Support for Integrating ICT on Managerial Activities

The third objective aimed to describe the support provided by MoEST to SQAOs for using ICT in their managerial activities. This objective was guided by the premise that institutional support—encompassing training, resources, and policy—plays a pivotal role in facilitating the effective integration of ICT in quality assurance processes. The findings indicated that MoEST has implemented various forms of support, including training, access to ICT resources, technical assistance, and funding. However, the extent and effectiveness of this support varied across different aspects of ICT integration. Several subthemes emerged from the analysis, each highlighting specific dimensions of support provided and the challenges encountered. These subthemes are explored in detail in the subsequent subsections.

4.3.1 Access to ICT resources

The data for this sub-theme were gathered through interviews with chief quality assurances and FGDs with school quality assurance officers. The study revealed that SQAOs in Kigoma District have significant access to ICT resources. Many schools are equipped with modern computers, tablets, and other digital tools essential for carrying out quality assurance activities. The chief quality assurance officers have made a concerted effort to ensure that quality assurers are well-equipped with the necessary technological resources. Furthermore, the findings indicate that there has been significant improvement in the provision of ICT resources to school quality assurance in Kigoma District. Many participants acknowledged the availability of physical and software resources.

Physical resources

The findings showed improvements in access to essential physical resources, such as computers, tablets, ICT rooms, and infrastructure, which enhanced their effectiveness in carrying out quality assurance activities. Also, the findings revealed that, when supported with ICT tools and resources related to physical infrastructure management, they demonstrated improved effectiveness in assessing and maintaining school facilities. This support likely facilitated quicker identification of maintenance needs, better resource allocation, and enhanced overall management of physical resources within schools. SQAO A3 had the following to say about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> We have been provided with up-to-date computers and tablets, which have greatly enhanced our ability to perform our duties effectively. Access to these resources has streamlined our work processes. Also, we now have access to modern laptops and tablets, which have significantly improved our ability to perform our duties efficiently (SQAO A3, FGD, 21st June 2024).

CQAO B narrated the following about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> The provision of ICT equipment like printers and projectors has made our supervision in schools more interactive and impactful, ensuring that all quality assurers are well-equipped to carry out their roles effectively. However, few of our schools lack basic infrastructure like reliable internet and functional computers, which hinder effectively use of ICT for quality assurance (CQAO B, interview, 20th June 2024).

Furthermore, during focus group discussion, the school quality assurance staff B5 reported the following on the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> Our council has received several computers specifically designated for quality assurance purposes. This ensures that our quality assurance is not hindered by a lack of resources. Also, the provision of digital tools like projectors and interactive whiteboards has enhanced the quality of our presentations and reports (SQAOs B5, FGD, 25th June 2024).

The quotation emphasised the positive impact that up-to-date technological resources, such as modern computers and tablets, have had on the work of SQA officers. By gaining access to these tools, the officers have experienced improvements in their ability to carry out their responsibilities more efficiently. The availability of advanced devices has streamlined their work processes and enabled them to perform tasks more effectively and with greater ease.

The reference to modern laptops and tablets highlights the tangible benefits of these resources in enhancing the officers' productivity. These devices likely enabled them to manage data, communicate, and execute their quality assurance duties with increased speed and accuracy. Overall, the quotation reflects the crucial role that access to the latest ICT tools plays in improving the operational efficiency of quality assurance officers in the education sector.

Software resources

In the area of software resources, the study revealed that the available software to support school quality assurance activities through ICT is significantly extensive. Specifically, A1 shared the following:

> Having access to educational software and databases has made it easier to gather and analyse data. Also, they added that the introduction of specialised software for data management has revolutionised our quality assurance processes. It allows us to organise and analyse school performance data swiftly, helping us pinpoint areas needing improvement (SQAOs A1, FGD, 21st June 2024).

B1 added the following regarding the support provided by MoEST to SQASQAOs in using ICT for their managerial activities:

> Access to educational software has empowered us to conduct more insightful evaluations. We can now delve deeper into teaching methodologies and student progress, offering targeted recommendations for enhancing educational standards. Using software for reporting and feedback has improved transparency in our assessments. We can now provide detailed reports to schools promptly, fostering a more collaborative approach to improving educational quality (SQAOs B1, FGD, 25th June 2024).

Also, A2 had this to say about the support provided by MoEST to SQAO for using ICT in their managerial activities:

> The training we receive on using the software is minimal and often outdated. We need continuous and updated training to effectively utilise these tools in our quality assurance activities. We do not have access to the latest and most effective software applications needed for our work. The software provided is either outdated or lacks the necessary features, which hampers our productivity and efficiency (SQAO A2, FGD, 21st June 2024).

However, CQAO A shared the following about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> With access to robust software tools, our record-keeping processes have become much more streamlined and accurate. This has not only saved us time but also improved the accuracy of our assessments and reports. Also, the introduction of educational management software has significantly improved our efficiency. We can now manage and analyse school data more effectively, which helps us provide timely feedback and support to schools (CQAO A, interview, 19th June 2024).

The quotation highlights the transformative effect that access to robust software tools and educational management software had on the work of CQAOs. The introduction of these tools has streamlined their record-keeping processes, making them more efficient and accurate. This improvement has led to time savings and enhanced the precision of their assessments and reports, ensuring that data is both reliable and readily available when needed.

Additionally, the educational management software significantly improved their ability to manage and analyse school data. This has empowered the CQAOs to provide timely feedback and support to schools, contributing to more effective educational oversight and quality assurance. The software not only improved operational efficiency but also reinforced their ability to make data-driven decisions that lead to better educational outcomes.

Access to ICT resources is foundational for the effective integration of technology in quality assurance activities. The findings highlight that insufficient access to modern ICT tools and reliable internet connectivity limits the capacity of SQAOs to perform their duties efficiently. This aligns with the findings of Juma and Amani (2021), who emphasise that equitable access to ICT resources ensures enhanced monitoring and auditing processes in education. Similarly, Ndege (2021) reported that providing adequate ICT infrastructure directly correlates with improved oversight and reporting practices.

The Technology Acceptance Model (TAM) supports this observation, suggesting that perceived ease of access and usefulness significantly influence technology adoption. In the context of Tanzania, the ICT Policy for Basic Education (2007) emphasises equitable access to ICT tools to bridge the digital divide, yet disparities persist in underprivileged regions like Kigoma. According to the Ministry of Education and Vocational Training (MoEVT) Annual Report (2021), only 35% of schools in rural Tanzania have access to functional ICT tools, underscoring the urgency of targeted investments.

To address these challenges, it is recommended that government agencies collaborate with private stakeholders under a Public-Private Partnership (PPP) framework to improve ICT infrastructure. Additionally, mobile technology and offline digital tools could be leveraged to ensure accessibility in remote areas, aligning with the Sustainable Development Goal (SDG) 4 of ensuring inclusive and equitable quality education.

4.3.2 Technical support and maintenance

Another subtheme that emerged from the analysis of the data analysis was technical support and maintenance, which played a crucial role in helping SQAOs to use ICT in their activities. The findings from interviews with CQAOs and focus group discussions (FGD) with SQAOs revealed that technical support and maintenance have been consistently available to school quality assurances and chief quality assurances. Also, the findings showed that Kigoma District has established a dedicated helpdesk to address any technical issues that arise, ensuring minimal disruption to quality assurance activities. Furthermore, participants reported receiving reliable technical support and maintenance services, which ensure the continuous functionality of ICT tools. In that regard, during FGDs, one participant of A6 had this to say about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> Whenever we encounter technical issues, the helpdesk is just a call away. They are prompt and efficient in resolving our problems, which helps us maintain our productivity. Also, the technical support team is always prompt in addressing any issues we encounter with our ICT equipment (SQAO A6, FGD, 21st June 2024).

During an interview, CQAO A reported the following concerning the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> The technical support team is very responsive. They have been instrumental in ensuring that our ICT tools are always in good working condition. Also, regular maintenance checks and updates have minimised downtime, allowing us to carry out our activities without interruptions (CQAO A, interview, 19th June 2024).

The quotation above implies the importance of the technical support team in maintaining the effectiveness of ICT tools used by CQAOs. The responsiveness of the support team has played a critical role in ensuring that the ICT equipment remains functional and reliable. By promptly addressing any technical issues, the support team has helped to keep disruptions to a minimum, allowing the CQAOs to perform their duties without unnecessary interruptions.

Additionally, the mention of regular maintenance checks and updates emphasises the proactive measures taken to ensure that the ICT tools are always up to date and in good condition. This ongoing maintenance has reduced downtime, further enhancing the CQAOs' ability to efficiently carry out their quality assurance activities. The quotation underscores the value of having a dependable technical support system, which is crucial for ensuring the smooth operation of ICT tools in managerial activities. However, the CQAOs from Council B reported the following about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> The technical support we receive and provide for ICT is basic and sometimes delayed. When issues arise, it can take a considerable amount of time to get them resolved, which disrupts our workflow for quality assurance activities. There is a need for more robust and timely technical support to help us use ICT effectively in our tasks and quality-assured activities (CQAO B, interview, 20th June 2024).

During focus group discussion with SQAOs, B4 had the following to say about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> Although we have access to ICT tools, the maintenance aspect is quite lacking. We often have to deal with outdated software and hardware issues without adequate technical assistance. This lack of support affects our productivity and the overall quality assurance process (SQAOs B4, FGD, 25th June 2024).

The quotations above highlight a significant challenge related to the maintenance and technical support of ICT tools that SQAOs face. Despite having access to these tools, the officers expressed frustration with the inadequate maintenance and outdated software and hardware. This lack of proper technical assistance created obstacles, affecting their ability to fully utilise the ICT resources available to them.

The absence of timely and sufficient support leads to frequent technical issues that hinder productivity and disrupt the quality assurance process. As a result, the overall effectiveness of their work is compromised, as they struggle with maintaining the necessary technological infrastructure. This further underscore the critical need for improved and consistent technical support to ensure that ICT tools function optimally and contribute positively to school quality assurance activities.

Technical support and maintenance are critical for sustaining ICT integration in quality assurance processes. The findings indicate that a lack of consistent technical support impedes the effective use of ICT by SQAOs. This observation is consistent with studies by Polinkevych and Kuzmak (2023), who emphasise that regular maintenance schedules and technical assistance minimise disruptions in ICT operations. Omari (2022) found that proactive technical support enhances the

reliability and functionality of ICT tools, while Ahmed and Khan (2019) highlighted the role of continuous training in empowering users to handle minor technical issues.

The findings also resonate with the Total Quality Management (TQM) framework, which stresses the importance of consistent operational support to maintain high standards. Conversely, inadequate support, as reported by Mwalongo (2011) and Kafyulilo et al. (2015), leads to frequent downtimes, frustration among users, and reduced efficiency. The Tanzania Education Sector Development Plan (2021/22–2025/26) acknowledges this challenge and recommends establishing regional technical support hubs to provide timely assistance.

A robust technical support system, including mobile repair units and a centralised help desk, is necessary to address these issues. Moreover, capacity-building initiatives, such as workshops and refresher courses, could empower SQAOs to manage routine technical problems independently.

4.3.3 Budget and funding

The findings from the focus group discussion and interview revealed budget allocation for ICT in quality assurance has been a priority in Kigoma District. The CQAOs have secured sufficient funding to purchase and maintain ICT equipment and to provide ongoing training for quality assurance. Furthermore, the study found that there has been adequate allocation of funding for ICT initiatives, enabling the procurement and maintenance of necessary tools. In that regard, through FGDs, one participant of SQA A6 had this to say regarding the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> We have a dedicated budget for ICT that allows us to upgrade our tools and software regularly. This has been a game-changer for our operations. Also, fund provisions for ICT have allowed us to stay up-to-date with technological advancements (SQA A6, FGD, 21st June 2024).

The CQAO A echoed the following about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> The funding we receive for ICT is more than adequate. It covers not only the purchase of equipment but also the necessary training for our staff. Also, the district has allocated sufficient funds to ensure we have the latest ICT tools and resources (CQAO A, interview, 19th June 2024).

The quotation highlights a positive aspect of ICT funding in the district, emphasising that the financial resources allocated for ICT are more than sufficient. This funding not only allows for the acquisition of up-to-date equipment but also ensures that staff receive the necessary training to effectively use these tools. The district's commitment to providing adequate funds has enabled the quality assurance officers to access the latest ICT resources, enhancing their ability to perform their duties efficiently.

The mention of both equipment and training in the funding allocation indicates a comprehensive approach to ICT integration. By addressing both hardware and skill development, the district ensures that staff are not only equipped with the necessary tools but also possess the knowledge and expertise to use them effectively. This holistic approach likely contributes to the improved productivity and effectiveness of the school quality assurance process in the district. However, during a focus group discussion, the B6 had the following to say on the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> The budget for ICT is almost non-existent. We are expected to perform our duties efficiently, but without the necessary tools and resources, it is nearly impossible. Added to that, we often have to rely on outdated equipment or personal devices because the budget allocated for ICT is insufficient. This not only affects our work efficiency but also the accuracy of our assessments (SQAO B6, FGD, 25th June 2024).

On the other hand, CQAO A had this to say about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> Funding is a major issue, I am telling you, researcher. Even when we identify the ICT tools we need, there is no financial support to procure them. This makes us struggle in keeping up with the demands of modern quality assurance processes. Also, the lack of funding for ICT training programmes means that even when we do get new technology, we don't have the knowledge or skills to use it effectively. This makes the whole investment seem useless (CQAO A, interview, 19th June 2024).

The findings showed that the allocation of funding and budget were much considered in Kigoma District; however, effective integration of ICT into school quality assurance activities was severely compromised by insufficient budget and funding. This is based on the participants' claim that sufficient budget and funding was necessary for both procuring ICT tools and providing necessary training. This dual challenge of inadequate resources and a lack of training hampers the ability of quality assurance workers to keep up with modern demands, leading to inefficiencies and potential inaccuracies in their work.

Adequate budgetary allocation is a prerequisite for the successful integration of ICT in school quality assurance activities. The findings reveal that insufficient funding constrains the procurement of ICT tools, training, and maintenance. This is consistent with Mosha and Nyirenda (2019), who argue that strategic budgeting is critical for sustaining ICT initiatives. The Ministry of Education and Vocational Training (2021) reported that only 5% of the education budget is allocated to ICT, a figure significantly lower than the recommended 20% by the UNESCO ICT in Education Guidelines (2018).

The TAM framework underscores the importance of perceived usefulness in securing funding; stakeholders are more likely to invest in ICT if they observe tangible benefits in quality assurance outcomes. However, contrasting findings by Nyirenda and Hoskins (2020) highlight the persistent challenge of inadequate financial prioritisation, especially in rural regions.

To address these funding gaps, the government could adopt a results-based financing model, wherein funds are allocated based on measurable improvements in ICT

adoption and efficiency. Additionally, encouraging donor contributions and leveraging corporate social responsibility (CSR) initiatives can help bridge the funding shortfall.

4.3.4 Collaboration and networking

The findings from interviews and a focus group discussion revealed that collaboration and networking among schools and quality assurance have been significantly enhanced through the use of ICT. Also, the findings reveal that online platforms and digital communication tools have facilitated the sharing of best practices and resources. Furthermore, participants emphasised the benefits of increased collaboration and networking facilitated by ICT tools, enhancing communication and information sharing. The SQAO B7 had the following to say concerning the support provided by MoEST to SQAOs for using ICT in their managerial activities.

> ICT has made it easier for us to collaborate with our peers in other schools. We regularly share insights and strategies through online forums and meetings. ICT has made it easier to collaborate with colleagues from other districts, sharing best practices and resources. Also, through ICT, we can participate in virtual meetings and training sessions, broadening our professional networks (SQAO B7, FGD, 25th June 2024).

Also, the CQAO B stated the following regarding the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> Networking with other schools has never been easier. We use various ICT tools to stay connected and share valuable information. Also, it was said that online platforms allow us to network with other schools and quality assurance providers, fostering a community of practice (CQAO B, interview, 21st June 2024).

The quotation above showed enhanced connectivity and collaboration among schools facilitated by ICT tools. The participants expressed that networking with other schools had become significantly easier, thanks to the use of various online

platforms. This ability to stay connected allowed them to share valuable information and resources, which is crucial for fostering collaboration and mutual support. The reference to creating a community of practice emphasises the benefits of these networking opportunities. By connecting with other schools and quality assurance providers, the CQAOs can exchange best practices, discuss challenges, and develop solutions collaboratively. This not only enhances their capacities but also strengthens the overall quality assurance framework within the educational system. On the other hand, the CQAO A had this to say about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> We observed limited collaboration and networking among school quality assurances, which hampers the exchange of best practices and innovative approaches in using ICT for quality assurance (CQAO A, interview, 19th June 2024).

SQAO A added the following concerning the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> As a school quality assurer, we feel that there is a lack of structured networking opportunities with peers and senior quality assurers. This limits our ability to learn from each other's experiences and explore new ICT tools collaboratively (CQAO A, interview, 19th June 2024).

The quotation above highlights the insight among both CQAOs and SQAOs that there is insufficient collaboration and networking in utilising ICT for quality assurance. This finding emphasises the need for structured platforms to foster collaboration, enable knowledge sharing, and enhance the effectiveness of ICT tools in educational quality assurance processes.

Collaboration and networking among educational professionals are critical for enhancing quality assurance practices, with ICT playing a pivotal role. The findings indicate that while ICT facilitates knowledge sharing and collaboration, its potential remains underutilised due to limited infrastructure and training in Kigoma. This is consistent with Mwanza (2021) and Nyirenda (2022), who found that digital

platforms enhance communication and teamwork among SQAOs. However, as highlighted by Johnson et al. (2020), inadequate ICT infrastructure leads to professional isolation, hindering the exchange of best practices. The TQM framework emphasises the role of collaborative practices in fostering a culture of continuous improvement, which can be facilitated by ICT tools. Similarly, the Tanzania National ICT Policy (2016) advocates for leveraging technology to create professional learning communities.

To overcome these barriers, it is recommended that the government establish a national ICT-based platform for SQAOs to share reports, access resources, and collaborate on problem-solving. Such initiatives would also align with the African Union Continental Education Strategy for Africa (CESA 2016–2025), which prioritises ICT-enabled networking.

4.3.5 Policy and administrative support

During interviews and FGDs with participants, it was revealed that the implementation of ICT in quality assurance has been strongly supported by both policy and administration. It was also highlighted that Kigoma District has established clear policies that encourage the use of ICT, and administrative leaders have been proactive in promoting these initiatives. Moreover, the findings revealed a strong policy and administrative support for the integration of ICT in school quality assurance activities. Concerning the finding of this sub-theme, SQAO A7 had this to say about the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> Our administration has been very supportive on ICT integration. They have put in place policies that not only encourage but also mandate the use of ICT in our quality assurance processes. The administration has been very supportive, implementing policies that encourage the use of ICT in our daily operations (SQAO A7, FGD, 21st June 2024).

Similarly, CQAO B narrated the following concerning the support provided by MoEST to SQAOs for using ICT in their managerial activities:

> We have clear guidelines and strong administrative support that make the use of ICT in our work not just an option but a necessity. There are clear guidelines and frameworks in place that support the adoption of ICT in school management and quality assurance (CQAO A, interview, 20th June 2024).

The quotation above implies that within Kigoma District, there are established and comprehensive guidelines and policies that mandate the use of ICT in quality assurance. This suggests that ICT integration is not merely recommended but viewed as essential and obligatory for the effective execution of their roles. The strong administrative support mentioned reinforces the commitment to these guidelines, indicating that there is likely district backing to ensure that ICT tools are utilised effectively in their work. This support can enhance motivation among CQAOs and encourage them to embrace ICT solutions, ultimately leading to improved quality assurance outcomes in schools.

Furthermore, SQAO A3 reported that:

> Administrative support has been instrumental in facilitating training programmes and providing the necessary resources for ICT use. The encouragement from both the policy framework and the administration has been instrumental in promoting the effective use of ICT in our daily activities (SQAO A3, FGD, 21st June 2024).

The quotation implies that administrative support has played a crucial role in facilitating training programmes and ensuring adequate resources for ICT use. It suggests that both policy and administrative support have been pivotal in promoting the effective integration and utilisation of ICT in daily activities related to education quality assurance. This support likely includes policy guidelines that foster a conducive environment for leveraging ICT tools in their work. Therefore, the findings indicated that a supportive administrative structure, along with well-defined policies, significantly enhanced the capacity of SQA officers to utilise ICT

effectively. This support not only aids in the adoption of technology but also contributes to improved productivity and efficiency in their quality assurance processes.

Policy and administrative support are essential for the effective integration of ICT in educational quality assurance. The findings indicate that while Tanzania has policies promoting ICT use, their implementation is often weak due to insufficient administrative oversight. This observation aligns with Nyalusi and Kilonzo (2017) and Langat (2023), who emphasise the need for strong policy frameworks and proactive administration.

The TAM framework highlights that clear policies and administrative support enhance user acceptance and utilisation of ICT tools. However, as Chigona et al. (2014) and Mutisya and Makokha (2016) note, the absence of clear guidelines and monitoring mechanisms undermines policy effectiveness. The ICT Policy for Basic Education (2007) and the Education and Training Policy (ETP 2014) advocate for integrating ICT into teaching, learning, and quality assurance processes. Yet, the MoEVT Annual Report (2021) reveals that only 40% of policy directives on ICT integration have been implemented nationwide.

To address these gaps, policymakers should focus on developing actionable implementation plans with measurable targets. Regular monitoring and evaluation, coupled with stakeholder engagement, can ensure that policies translate into tangible improvements in quality assurance activities.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Overview

This chapter presents the summary of the study. The chapter summarizes the entire study, including the major findings of each objective. Also, the chapter comprises the conclusions and recommendations of the study.

5.1 Summary of the Study

This study investigated the integration of information and communication technologies into the managerial activities of school quality assurance in Kigoma District, Tanzania. The study was pivoted on three specific objectives, including to explore the understanding of SQAOs regarding the integration of ICT into the management of school quality assurance activities, to examine the experiences of SQAOs in using ICT for managerial activities, and to investigate the support provided by the MoEST for SQAOs' integration and use of ICT in quality assurance activities. The study was guided by the Technological Acceptance Model (TAM), developed by Davis in 1989 and the Total Quality Management (TQM) theory introduced by W. Edwards Deming in 1986. The study adopted a qualitative research approach using a case research design, with data collected through interviews and focus group discussions and analysed thematically. The study included a total of 16 participants, constituting of 14 SQAOs and two (02) CQAOs. Lastly, the study adhered to all ethical principles and ensured the confidentiality and privacy of the study participants.

5.2 Major findings of the study

The first objective of the study assessed the school quality assurance officers' understanding of using ICT facilities. The findings revealed a wide range of understanding among SQAOs in terms of current technological proficiency, training and professional development, usage frequency of ICT tools, and collaboration and communication through ICT. Some SQAOs demonstrated high proficiency in utilising ICT tools for quality assurance activities, while others exhibited limited proficiency and knowledge. Additionally, the findings indicated a significant need for ongoing training and professional development to enhance ICT competencies of school quality assurance staff.

The second objective explored the attitudes of SQAOs on the use of ICT in their managerial activities. The study revealed different participants' attitudes regarding integrating ICTs in quality assurance activities. These experiences mainly based on the participants' perceptions, beliefs, and needs for integrating ICTs in overall quality assurance activities. However, there were some hesitations from the respondents concerning integrating ICTs into quality assurance activities. Furthermore, the use of ICT in quality assurance was found to be vital in fastening the activities of quality assurance because the technology makes it easier for the school quality assurance staff to undertake their daily activities rapidly and thoroughly.

The third research objective examined the support provided by MoEST to SQAOs in using ICT in their activities. The data for this objective was gathered through interviews with chief quality assurers and FGDs with SQAOs. The study identified that adequate training, technical support and maintenance, policy, and access to ICT resources, as well as budget and funding, significantly enhanced the effectiveness of school quality assurance in Kigoma District. This support led to improved monitoring capabilities, faster data analysis, and more timely interventions, ultimately contributing to enhanced educational outcomes and accountability within Kigoma District.

5.3 Conclusions of the Study

The study concludes that SQAOs demonstrate foundational technological skills, underpinned by formal training and continuous professional development. This proficiency has led to measurable improvements in data collection, analysis, and reporting. However, these advancements are unevenly distributed due to disparities in access to resources and training opportunities. While many SQAOs effectively leverage ICT for quality assurance tasks, a significant proportion struggles with advanced functionalities due to limited exposure to cutting-edge tools.

5.4 Recommendations

Based on the findings of this study on the integration of information and communication technologies into the managerial activities of school quality assurance in Kigoma District in Tanzania, the following recommendations were

drawn. These recommendations are divided into three subsections: recommendation for action, recommendation for policymakers, and the recommendation for further research.

5.4.1 Recommendations for action

Firstly, the study recommends that there should be training programmes which should be implemented regularly based on technological competencies among SQAOs and Chief Quality Assurers. These programmes should cover basic to advanced ICT skills and their practical applications in quality assurance activities. Additionally, the study recommends that there should be regular professional development workshops and seminars to update SQAOs on the latest ICT tools and technologies. Encouraging participation in online courses and certification programmes can also enhance their technological proficiency.

Secondly, the study recommends that awareness campaigns should be considered as they highlight the benefits and positive impacts of using ICT in school quality assurance activities. In addition, these campaigns could allow SQAOs to share success stories and case studies from other districts where ICT integration has led to improved outcomes. Also, the study recommends that feedback mechanisms should be considered to create feedback mechanisms where SQAOs can voice their concerns, challenges, and suggestions regarding ICT use. Hence, addressing their feedback promptly can improve their perception and willingness to embrace technology.

Also, the study recommends that the provision of ICT resources is most important to ensure adequate provision of necessary ICT infrastructure to all SQAOs. ICT resources need to be regularly updated and maintained to keep them functional and up-to-date. Similarly, the study recommends technical support services to be active in assisting SQAOs with any ICT-related issues. They should provide on-site and remote support options to address technical problems promptly.

Lastly, the researcher recommends policy and framework development to support and facilitate the integration of ICT in school quality assurance services. The present policies should be well-communicated and understood by all stakeholders.

5.4.2 Recommendations for Policymakers

A structured national ICT proficiency framework for SQAOs is required to ensure equitable training opportunities and establish standardised benchmarks for technological competencies across all districts.

Furthermore, to sustain positive attitudes among SQAOs, policymakers should focus on addressing barriers to ICT adoption through targeted capacity-building initiatives, provision of user-friendly tools, and promoting a culture of technological adaptability within education quality assurance frameworks.

Lastly, there should be a decentralised support model that empowers regional and district-level offices to independently manage ICT infrastructure, budget, and training. This is critical for creating a sustainable ICT ecosystem for quality assurance.

5.4.3 Recommendations for further research

To build on the findings of this study and address any identified gaps, the following recommendations for further research are proposed: First, to conduct longitudinal studies on ICT integration to assess the long-term impact of ICT integration on school quality assurance activities. This can provide insights into how technological advancements and continuous professional development influence quality assurance outcomes over time.

Secondly, the study recommends that a comparative study be conducted across different districts and regions in Tanzania to identify regional disparities and best practices in ICT integration for school quality assurance. Such studies can highlight contextual factors that influence the effectiveness of ICT use.

Lastly, the study recommends that further studies be conducted to explore the indirect impact of ICT use in school quality assurance on student academic outcomes and overall school performance. Thus, understanding this relationship can provide a more comprehensive view of the benefits of ICT in education.

Lastly, the study recommended that a study be conducted to examine the barriers and challenges that SQAOs face in adopting and effectively using ICT. This can include

factors such as infrastructure limitations, resistance to change, and a lack of technical skills. Identifying these barriers can inform strategies to overcome them.

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APPENDICES

Appendix 1: Informed Consent Form

Dear Research Participant,

I am **John James**, a Master's student in Educational Management and Administration (**MEMA**) of the University of Dodoma, with the registration number **T22-05-00080**. I am conducting a study titled ***"Integration of Information and Communication Technology in the Management of School Quality Assurance Activities:"*** as part of my MEMA programme.

You have been selected to participate in this research because of your valuable expertise in this field. I kindly request your informed consent to participate in this study. Your insights and contributions will be instrumental in the success of this research.

1. The purpose of this research: This study intends to explore the *"**Integration of Information and Communication Technology in the Management of School Quality Assurance Activities:"***

2. Names of the research team: The data for this study will be collected by **John James** This research is being supervised by **Dr. Majiyd Suru** and **Dr. Erasto Kano.**

3. Procedures: I warmly invite you to participate in my research by completing an interview guide. As a participant, you will be asked to respond to interview questions conducted by the researcher. Please note that the interview will be recorded for preservation and used as a reference during data analysis.

4. Risks: Participation in this study involves no compensation or identifiable risks.

5. Benefits: Participating in this study may not provide direct benefits to you. However, the insights gained could advance our understanding of the impact of information and communication technologies on school quality assurance in Kigoma District. This research aims to enhance educational supervision and foster a harmonious school environment. You will have access to the summarized findings through the University Library repository.

6. Time commitment: The exercise is expected to take 30 to 60 minutes to complete.

7. Privacy and confidentiality: The information you provide will be kept confidential, and your identity will remain anonymous. Your institution and yourself will be anonymized using letters to protect your identity and ensure confidentiality.

8. Voluntary Participation: You have the liberty to participate, decline, or withdraw from this study at any time without facing any consequences. Your decision will not impact your employment. Feel free to ask any questions for further clarification before making your decision to participate in this research**.**

9. Compensation: There will be no obligation for the researcher to provide compensation for your participation in this study.

10. Sharing of results: The results of this study will be published in peer-reviewed journals online. A printed copy of the research report will be accessible at the University of Dodoma Library.

11. Contact information: You may contact the following for any information:

1. The researcher: John James. Mobile number **+225621 247 363/+225765 900 781** or my e-mail nyangejj@gmail.com

2. Supervisors: Dr. Majiyd Suru mobile: 0713407852 or e-mail majiydsuru@gmail.com And Dr. Erasto Kano: Mobile 0656231033 or E-mail erastokano@gmail.com .

12. Declaration: "I have reviewed the requirements for participating in this research. I comprehend my obligations and willingly agree to participate."

Name……. Signature……..…… (Research participant)

Name……...Signature…… (Researcher)

Thank you for your cooperation

Appendix 2: An Interview Guide for Chief Quality Assurance Officers (CQAOs)

Part I: Introduction

Dear Sir/Madam,

My name is John James; I am a Master's student of the University of Dodoma. I am conducting research on ***"Integration of Information and Communication Technologies into the Management of School Quality Assurance Activities."*** As a key stakeholder in quality assurance activities, your participation in this interview is crucial. I kindly ask you to answer the questions sincerely and to the best of your knowledge. We will treat the information you provide with the utmost confidentiality and use it solely for this study.

Part II: Interview Questions

1. Can you describe your current level of proficiency with various ICT tools used in school quality assurance?
2. Have you received any formal training on the use of ICT tools for school quality assurance? If so, can you describe the training?
3. How frequently do you use ICT tools in your daily quality assurance tasks?
4. How do you use ICT tools to collaborate with other quality assurance officers, teachers, and school administrators?
5. Can you provide examples of how ICT has simplified or expedited your quality assurance activities?
6. In what ways has the use of ICT increased your work effectiveness?
7. How has ICT helped in reducing human errors and mistakes in your quality assurance tasks?
8. Do you believe that the use of ICT increases accountability in your work? Can you explain how?
9. How does the use of ICT align with the Tanzania Education and Training Policy?
10. What challenges do non-ICT experts face when using these tools, and how do you address them?
11. What physical and environmental barriers affect your ability to use ICT in quality assurance activities?
12. How accessible are ICT resources for your quality assurance activities, and what kind of technical support and maintenance do you receive

Appendix 3: **Focus Group Discussion Guide for School Quality Assurance Officers (SQAOs)**

Part I: Introduction

Dear Sir/Madam,

My name is John James; I am a Master's student of the University of Dodoma. I am conducting research on ***"Integration of Information and Communication Technologies in the Management of School Quality Assurance"*** As a key stakeholder in quality assurance activities, your participation in this interview is crucial. I kindly ask you to answer the questions sincerely and to the best of your knowledge. We will treat the information you provide with the utmost confidentiality and use it solely for this study.

Part II: Focus group discussion **Questions**

1. Can you describe your current level of proficiency with various ICT tools used in school quality assurance?
2. Have you received any formal training on the use of ICT tools for school quality assurance? If so, can you describe the training?
3. How frequently do you use ICT tools in your daily quality assurance tasks?
4. How do you use ICT tools to collaborate with other quality assurance officers, teachers, and school administrators?
5. In what ways do ICT tools help to fasten and simplify quality assurance activities?
6. How do ICT tools increase your work effectiveness in quality assurance tasks?
7. Can you provide examples of how ICT tools have reduced human errors and mistakes in your work?
8. How do ICT tools enhance accountability in your quality assurance activities?
9. In your opinion, how well do ICT tools align with Tanzania's education and training policy?
10. What challenges do non-ICT experts face when using these tools in quality assurance?

11. What physical and environmental barriers have you encountered in accessing and using ICT tools?
12. How accessible are ICT resources to you, and what kind of technical support and maintenance do you receive?

END

Appendix 4: Research Clearance Forms

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
THE UNIVERSITY OF DODOMA

Cur. Ref. No. MA.84/261/72/35 25th March, 2024

To: John James,
The University of Dodoma.

RE: RESEARCH PROPOSAL ETHICAL CLEARANCE

The heading above is concerned.

2. The Institutional Research Review Ethics Committee (IRREC) convened for its 72nd meeting on 14th March, 2024 and reviewed a research proposal titled **"Potentials of Using Information and Communication Technology in School Quality Assurers Activities: A Case of Kigoma District Council, Tanzania."**

3. I am pleased to inform you that the committee has granted ethical clearance to the submitted proposal.

4. Furthermore, as the Principal Investigator of the study the following issues must be observed: -

- A progress report is submitted to the University of Dodoma.
- Copies of final publications are made available to the University of Dodoma.
- Study area: **Kigoma Region.**

Best regards,

Prof. Pendo S. Kasoga
Chairperson Institutional Research Review Committee (IRREC)

cc: Deputy Vice Chancellor-Academic, Research and Consultancy

Directorate of Research, Publications and Consultancy (DRPC), The University of Dodoma, P. O. Box 259,
Benjamin Mkapa Street, Benjamin Mkapa Building, 41107 Dodoma, Tanzania.
Tel: +255 262310118, Email: drpc@udom.ac.tz, Website: www.udom.ac.tz

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
THE UNIVERSITY OF DODOMA
OFFICE OF THE VICE CHANCELLOR

Ref. No. MA.84/261/02/'A'/72/171 **8th April, 2024**

Regional Administrative Secretary,
Kigoma Region,
P.O. Box 125,
KIGOMA.

RE: RESEARCH CLEARANCE

Please refer to the above heading.

2. The purpose of this letter is to introduce to you **Mr. John James,** a student of the University of Dodoma who is required to conduct research. Our students undertake research activities as part of their study programmes.

3. In accordance with the Government Circular Letter with Ref. No. MPEC/R/10/1 dated 4th July 1980, the Vice Chancellor of the University can issue research clearances to staff members and students of the University on behalf of the Government and the Tanzania Commission for Science and Technology (COSTECH). I am pleased to inform you that, I have granted a research clearance to **Mr. John James.**

4. In view of the above, I kindly request you to provide the assistance needed for him to conduct the research. Specifically, I request your permission for **Mr. John James,** to visit various units within Kigoma Region, to consult with relevant stakeholders in connection with his research.

5. The title of his research is **"Potentials of Using Information and Communication Technology in School Quality Assurers Activities: A Case of Kigoma District Council, Tanzania."** His research is from March to December 2024.

6. Should there be any restrictions, you are kindly requested to advise us accordingly. If you require further information, please do not hesitate to contact us through the Directorate of Research, Publications, and Consultancy, P.O. Box 259, Dodoma, Tel.+ (255) 262310301, Email: drpc@udom.ac.tz.

Yours Sincerely,

Prof. Razack B. Lokina
For. VICE CHANCELLOR

JAMHURI YA MUUNGANO WA TANZANIA
WIZARA YA ELIMU, SAYANSI NA TEKNOLOJIA

Anuani ya simu "ELIMU"
Simu: 026 296 35 33
Baruapepe: info@moe.go.tz
Tovuti: www.moe.go.tz
Unapojibu tafadhali taja

Mji wa Serikali,
Eneo la Mtumba,
Mtaa wa Afya,
S. L. P. 10,
40479 DODOMA.

Kumb. Na. JA.254/301/01A **02/05/2024**

Makamu Mkuu wa Chuo,
Chuo Kikuu cha Dodoma,
S. L. P. 259,
DODOMA.

Yah: OMBI LA KUFANYA UTAFITI WIZARANI

Tafadhali rejea barua yako yenye Kumb. Na.MA.84/261/02/"A"/72/170 ya tarehe 8th Aprili, 2024 kuhusu somo tajwa hapo juu.

2. Nakujulisha kuwa, mwajiri Wizara ya Elimu, Sayansi na Teknolojia ameridhia ombi la mwanafunzi John James kufanya utafiti wake katika Ofisi za Uthibiti Ubora wa Shule zilizopo Halmashauri ya Wilaya ya Kigoma. Utafiti huo utaanza mwezi Machi hadi Disemba, 2024 kama ulivyoomba.

3. Nashukuru kwa ushirikiano wako.

Grace A. Mbilinyi
Kny: KATIBU MKUU

Nakala: Mthibiti Mkuu Ubora wa Shule (K),
Kanda ya Ziwa Magharibi,
S. L. P. 1185,
KIGOMA. (***Tafadhali mpokee***)

" John James,
S. L. P. 259,
DODOMA. (***Kwa taarifa***)

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JAMHURI YA MUUNGANO WA TANZANIA
WIZARA YA ELIMU, SAYANSI NA TEKNOLOJIA

Anwani:
"UTHBITI UBORA WA SHULE (K)
Simu: 028 2802273
Fax:028- 2802448
E-mail:lakewesternsqa@moe.go.tz
Unapojibu tafadhali taja:
UKK/Z.MAG/Z.MAG/PS/MOEST/VOL.XI/139

Uthibiti Ubora wa Shule (K),
Kanda ya Ziwa Magharibi,
S.L.P 1185,
KIGOMA.

23 Mei, 2024

Mthibiti Mkuu Ubora wa Shule (W),
Kigoma Manispaa,
S.L.P. 1057,
KIGOMA.

YAH: KUMTAMBULISHA NDUGU JOHN JAMES AMBAYE NI MWANAFUNZI KATIKA CHUO KIKUU CHA DODOMA KUFANYA UTAFITI KATIKA OFISI YAKO

Rejea kichwa cha barua hapo juu.

2. Nimepokea utambulisho wa mtajwa hapo juu kutoka kwa Katibu Mkuu, Wizara ya Elimu, Sayansi na Teknolojia kuwa ameruhusiwa kufanya utafiti katika ofisi zetu zilizo katika Wilaya ya Kigoma.

3. Kwa barua hii namtambulisha kwako Ndugu John James ili uweze kumpatia ushirikiano unaotakiwa katika kukamilisha utafiti wake.

4. Nashukuru kwa ushirikiano wako.

G. LUGOLA
KNY. MTHIBITI MKUU UBORA WA SHULE (K)
KANDA ZIWA MAGHARIBI

JAMHURI YA MUUNGANO WA TANZANIA
WIZARA YA ELIMU, SAYANSI NA TEKNOLOJIA

Anwani:
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UKK/Z.MAG/Z.MAG/PS/MOEST/VOL.XI/140

Uthibiti Ubora wa Shule (K),
Kanda ya Ziwa Magharibi,
S.L.P 1185,
KIGOMA.

23 Mei, 2024

Mthibiti Mkuu Ubora wa Shule (W),
Halmashauri ya Wilaya ya Kigoma,
S.L.P. 234,
KIGOMA.

YAH: KUMTAMBULISHA NDUGU JOHN JAMES AMBAYE NI MWANAFUNZI KATIKA CHUO KIKUU CHA DODOMA KUFANYA UTAFITI KATIKA OFISI YAKO

Rejea kichwa cha barua hapo juu.

2. Nimepokea utambulisho wa mtajwa hapo juu kutoka kwa Katibu Mkuu, Wizara ya Elimu, Sayansi na Teknolojia kuwa ameruhusiwa kufanya utafiti katika ofisi zetu zilizo katika Wilaya ya Kigoma.

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G. LUGOLA
KNY. MTHIBITI MKUU UBORA WA SHULE (K)
KANDA ZIWA MAGHARIBI