THE ROLE OF INFORMATION TECHNOLOGY ON EFFECTIVE COMMUNICATION BETWEEN SCHOOL HEADS AND DISTRICT EDUCATION OFFICER IN MUFINDI DISTRICT, TANZANIA

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A DISSERTATION SUBMMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION IN ADMINISTRATION, PLANNING AND POLICY STUDIES

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2022

CERTIFICATION

The undersigned certifies that she has read and hereby and recommends for the acceptance by the Open University of Tanzania dissertation entitled: ***"The Role of Information Technology on Effective Communication between School Heads and District Education Officer in Mufindi District, Tanzania"*** in partial fulfilment of the requirements for the Degree of Master of Education in Administration, Planning and Policy Studies (MED-APPS) of the Open University of Tanzania.

……

Dr. Coletha Ngirwa

(Supervisor)

……

Date

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DECLARATION

I, **Robert Raphael Msigwa**, declare that, the work presented in this dissertation is original. It has never been presented to any other university or institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirement for the Degree of Master of Education in Administration, Planning and Policy Studies (MED-APPS).

……

Signature

……..

Date

DEDICATION

Special dedication goes to my lovely wife Rachel Thomas Ngowi and beloved children Raphael Msigwa, Ruth Msigwa, Restina Msigwa, Reuben Msigwa and Rehoboth Msigwa.

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ABSTRACT

This study investigated the role of information technology on effective communication between school heads and District Education Officer in Mufindi, Tanzania. **I**t explored the accessibility of ICT infrastructure in communication among school heads and education Officers; examined the role of ICT infrastructure in communication among school heads and Education Officers; and assessed the challenges facing the communication processes among Heads of Schools and Education Officers. The study adopted a mixed research approach and descriptive research design. The sample comprised of 82 school Heads and Education Officers. The findings revealed that there is accessibility of ICT infrastructure such as ICT tools, network and power supply. It was also revealed that ICT plays a significant role in enhancing communication among Heads of Schools and Education Officers. It was also revealed that there are challenges related to ICT literacy in using ICT tools and services, high costs of buying and maintaining ICT tools and high cost of ICT services. Apart from that, findings unveiled that communication through ICT provides a feedback mechanism, which is very important in the communication process. The use of ICT in communication among heads of schools and education Officer is a crucial process towards improving the communication process in education sector. The study recommends that there should be frequent trainings and seminars to improve the usage levels of ICT services among educational managers.

Keywords: Information Technology, Effective Communication and Education Officers

TABLE OF CONTENTS

CERTIFICATION ..... **ii**

COPYRIGHT ..... **iii**

DECLARATION ..... **iv**

DEDICATION ..... **v**

ACKNOWLEDGEMENT ..... **vi**

ABSTRACT ..... **vii**

LIST OF TABLES ..... **xii**

LIST OF FIGURES ..... **xiii**

LIST OF ABBREVIATIONS ..... **xiv**

CHAPTER ONE **1**

INTRODUCTION AND BACKGROUND OF THE PROBLEM **1**

1.1 Introduction 1

1.2 Background to the Problem 1

1.3 Statement of the Problem 3

1.4 Objectives of the Study 4

1.4.1 General Objective 4

1.4.2 Specific Research Objective 4

1.5 Research Questions 4

1.6 Scope of the Study 5

1.7 Significance of the Study 5

1.8 Limitation of the Study 6

1.9 Definition of Key Terms 6

1.9.1 Information Technology 6

1.9.2 Communication 7

1.10 Organization of Research Report 7

CHAPTER TWO 9

LITERATURE REVIEW 9

2.1 Introduction 9

2.2 Theoretical Literature Review 9

2.2.1 Technological Acceptance Model 9

2.2.2 The Concept of Information Technology 10

2.2.3 Information Technology in Enhancing Communication 11

2.2.4 The Features of Effective Communication in Organizations 12

2.3 Empirical Literature Review 13

2.3.1 Accessibility of Information Technology in Tanzania 13

2.3.2 Communication among Education Managers in Tanzania 15

2.3.3 Information Technology and Communication Challenges in Tanzania 16

2.4 Research Gap 18

2.5 Conceptual Framework 18

CHAPTER THREE 21

RESEARCH METHODOLOGY 21

3.1 Introduction 21

3.2 Research Approaches 21

3.3 Research Design 22

3.4 Area of the Study 22

3.5 Population of the Study 23

3.6 Sample and Sampling Procedures 24

3.6.1 The Sample Size....24
3.6.2 Sampling Procedures....25
3.6.2.1 Convenience Sampling....25
3.6.2.2 Purposive Sampling....25
3.7 Instruments of Data Collection....26
3.7.1 Questionnaire Survey....26
3.7.2 Interview....27
3.8 Validity and Reliability....27
3.8.1 Validity....27
3.8.2 Reliability....28
3.9 Data Analysis Procedures....28
3.10 Ethical Consideration....29
CHAPTER FOUR....30
FINDINGS, ANALYSES AND DISCUSSION....30
4.1 Introduction....30
4.2 Respondents` Demographic Information....30
4.2.1 Respondents` Gender....31
4.2.2 Respondents` Age....31
4.2.3 Respondents` Education Level....32
4.2.4 Respondents` Work Experience....33
4.3 Accessibility of ICT Infrastructure in Communication among Heads of Schools and Education Officer....33
4.4 The Role of ICT Infrastructure in Communication among Heads of Schools and Education Officer....37

4.5 Challenges Facing the Communication Processes among Heads of Schools and Education Officer 39

4.6 Effective Communication Model among Heads of Schools and Education Officer 43

5.1 Introduction 46

5.2 Accessibility of ICT Infrastructure in Communication among Heads of Schools and Education Officer 46

5.3 The Role of ICT Infrastructure in Communication among Heads of Schools and Education Officer 47

5.4 The Challenges Facing the Communication Processes among Heads of Schools and Education Officer 48

5.5 Effective Communication Model among Heads of Schools and Education Officer 49

CHAPTER SIX 51

SUMMARY, CONCLUSION AND RECOMMENDATIONS 51

6.1 Introduction 51

6.2 Summary of the Study 51

6.3 Summary of the Findings 52

6.3 Conclusions 53

6.4 Recommendations 54

6.5 Areas for Further Study 54

REFERENCES 56

APPENDICES 59

LIST OF TABLES

Table 3.1: Composition of the Sample 25

Table 3.2: Range of Cronbach's Alpha Coefficients 28

Table 4.1: Respondents` Gender 31

Table 4.2: Respondents` Age 31

Table 4.3: Respondents` Education Level 32

Table 4.4: Respondents` Work Experience 33

Table 4.5: Responses on Accessibility of ICT Infrastructure 35

Table 4.6: The Role of ICT Infrastructure on Communication 38

Table 4.7: Challenges of Communication among Heads of Schools and Education Officer 41

Table 4.8: Effective Communication Model among Heads of Schools and Education Officer 44

LIST OF FIGURES

Figure 2.1: Conceptual Framework 19

LIST OF ABBREVIATIONS

COSTECH	Tanzania Commission for Science and Technology Development Cooperation Agency
HLIs	Higher Learning Institutions
ICT	Information and Communication Technology
IT	Information Technology
MoEVT	Ministry of Education and Vocational Training
MSTHE	Ministry of Science, Technology and Higher Education
SIDA	Swedish Government through the Swedish International

CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE PROBLEM

1.1 Introduction

Information and Communication Technology (ICT) has recently become crucial in the education sector. The use of technological tools such as mobile phones, computers and internet has enhanced communication and coordination of activities in education sector. The use of these technological tools has not only enhanced the learning process, but also smoothen the communication process in the education sector (Jolly, 2019). Thus, this current study investigates the important role of ICT on enhancing effective communication between the heads of schools and education Officer. Chapter one of this dissertation highlights the background of the study, defines the heart of the problem, and states the objective of the study, study questions, significance of the study and scope of the study.

1.2 Background to the Problem

The advancement and growth of technology integration in education in Tanzania started as early as 1980s, when the science and technology policy of Tanzania was formulated. This was followed by the formation of the Tanzania Commission for Science and Technology (COSTECH) in 1986 and the formation of the Ministry of Science, Technology and Higher Education (MSTHE) in 1990. There was also the development of ICT national policy in 2003, which mentioned education as one of the areas of its focus, but it was too vague to address specific components of ICT integration in education.

According to The ICT Policy was preceded by the programme of introducing ICT curriculum in all government teachers' colleges in August 2005, which was conducted by the government of the United Republic of Tanzania in collaboration with the Swedish Government through the Swedish International Development Cooperation Agency (SIDA). In 2007, the ICT policy for basic education was formulated. It considers issues of ICT infrastructure; curriculum and content; training and capacity development; planning; procurement and administration (Ndibalema, 2014).

The programme's main goal was to improve the quality of pre-service and in-service teachers' education by using ICT (MoEVT, 2007). In that programme; principals, tutors and student' teachers were trained in ICT to be able to use ICT as a tool for teaching and learning among other uses. The benefits of preparing teachers using ICT was expected to spill over to schools when implementing initiatives like e-school or e-learning. Moreover, educational international movement has established specific criteria which include effective communication to measure school improvement based on either quantitative or qualitative data concerning instructional programming as well as other identified factors (Wahed, 2012).

In order to attain quality education school heads and education Officer Establishing a co-operative team administration philosophy through effective communication and paying attention to utilizing human, physical, and financial resources competently to achieve the objectives of school development, student accomplishment, staff development, and resources management. Setting up quality assurance and responsibility systems in their school communities that provide feedback to students, teachers, and others through channels of effective communication with a view to

securing school improvement. Extending communication channels between the school and the surrounding and global communities to enable their school communities to contribute to the wider society and its development (Walker et al., 2000).

Due to rapid changes in technology, educational Officer are expected to play many roles and put into practice numerous tasks and responsibilities related to teaching and curriculum Changes. The survival of any organisation depends on effective communication. Effective communication is therefore a prerequisite for a school to achieve its objectives. (Odhiambo, 2005) Administrators need to be familiar with many different types of technology available for use in communication. Technology such as word processors, e-mail, local area networks (LANS), and FAX machines are all excellent means of communicating within a school and the like (Rowicki, 1999).

1.3 Statement of the Problem

According to Andersson et al. (2014) the use of ICT for learning is vital for enhancing effective learning in schools. There has also been an increasing concern on the use of ICT for communication between school administrators, which includes heads of schools and education managers. Communication through ICT devices involves the use of different technological tools such as mobile phones and personal computers through the internet. School heads normally use the mentioned tools for communication among themselves and with the education Officer. Similarly, the educational Officer use mobile phones and computers to foster communication with the heads of schools through calls, text messages as well emails. Thus, the use of ICT is inevitably important for modern school management (Syiem & Raj, 2015). Despite the importance of ICT in schools and the strategies developed by the government and

other stakeholders, as formulated in secondary education ICT policy of 2007, research has revealed that several schools were not efficiently implementing ICT to support teaching, learning and management in school. Swati and Wachira (2010) observed that despite the benefits of ICT, the school management had not fully implemented the policies developed by the Ministry of Education. This current study investigated the important role of ICT in enhancing communication between school heads and education Officer in Mufindi district.

1.4 Objectives of the Study

1.4.1 General Objective

The purpose of this study was to investigate in selected secondary schools the role of information technology on effective communication between school heads and District Education Officer in Mufindi, Tanzania.

1.4.2 Specific Research Objective

(i) To assess accessibility of ICT infrastructure in communication among heads of schools and education Officer in Mufindi District.

(ii) To examine the role of ICT infrastructure in communication among heads of schools and Education Officer in Mufindi District.

(iii) To assess the challenges facing the communication processes among head of schools and education Officer in Mufindi District.

1.5 Research Questions

(i) What is the impact of accessibility of ICT infrastructure in communication among head of schools and education Officer in Mufindi district, Tanzania?

(ii) To what extents the affordability of ICT infrastructure in communication among head of schools and education Officer in Mufindi district, Tanzania?

(iii) What is the reliability of ICT infrastructure in communication among head of schools and education Officer in Mufindi district, Tanzania?

1.6 Scope of the Study

The study assessed the role of ICT in enhancing effective communication between school heads and education Officer; specifically, the study explored the accessibility of ICT services, assess the ICT infrastructures, evaluate the affordability and reliability of ICT infrastructure in Mufindi district secondary schools. The study will be conducted by considering government secondary schools in Mufindi district only.

1.7 Significance of the Study

The study aimed at providing recommendations to curriculum developers, education stakeholders and Ministry of education, Science, Technology and vocational Training to adopt new ideas and directions about the use of information technology for easing communication especially between school heads and district Officer for quality education. Also, the study helps the government through Ministry of Education, Science, Technology and Vocational to think about training and equip teachers/heads of school to have enough knowledge and skills of using best information technology for effective communication.

Moreover, the government through this study is able to understand the challenges of information technology on enhancing effective communication between school heads and education Officer. This is through building infrastructures related to information

technology and so; enhance effective communication between school heads and education Officer.

1.8 Limitation of the Study

In the course of conducting this study, several limitations were encountered the researcher instituted different means for addressing them to make sure they do not affect the findings of the study.

First, the study faced the challenge for getting the respondents for the study on the account that heads of schools and educational Officer were busy with their daily duties and responsibilities and thus having no time to take part in the study. However, the researcher visited their offices several time to make sure a desired number of respondents is reached.

Second, respondents were reluctant to provide information concerning the study on the account of confidentiality. However, the researcher explained to them that the information provided will be used exclusively for academic purposes only, thus making them comfortable to take part in the study.

1.9 Definition of Key Terms

1.9.1 Information Technology

Information technology is the study or use of computers, telecommunication systems, and other devices for storing, retrieving, and transmitting information (Oxford dictionary, 2021). According to this study information technology is the use of computer to store, retrieve, transmit, and manipulate data or information.

1.9.2 Communication

Communication has its roots in Latin from the word communis, which means common. Therefore, there must be common understanding of the message between the sender or the source and receiver (Lunenberg, 2010).

1.10 Organization of Research Report

This study is organized into six chapter namely, introduction, literature review, methodology, presentation of findings, discussion of the findings as well as summary, conclusion and recommendations. Chapter one introduces the topic to the reader. The chapter explains the background of the study and statement of the problem giving a focus of the study. The Objective of the study and research questions are also identified. Scope of the study, its significance, definition of key terms, limitations of the study and organization of the study are also identified.

Chapter two gives the literature review, where theoretical and empirical analysis have been presented. After carefully analyzing various research studies conducted so far, research gap has been identified and conceptual framework developed as well as theoretical framework described.

Chapter three describes how the study was carried out, showing the measurement of the constructs, the way data were collected and coded. The purpose of this chapter is to present, discuss and argue for the choices made in designing the research framework of this study.

Chapter four has presented the findings of the study. The presentation has been done in accordance to the specific objectives of the study. Chapter five is on the discussion

of the findings, which has been conducted by comparing the findings with the results of other related studies carried elsewhere. Chapter six has summarized the findings of the study, giving the conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a reviewed literature on the study; it has a theoretical literature, which explains different related concepts related to the study. The chapter also has an empirical literature review where various studies previously conducted have been reviewed, presented and the research gap established. The conceptual framework indicating the relationship between variables has also been presented.

2.2 Theoretical Literature Review

2.2.1 Technological Acceptance Model (TAM)

TAM is a technological acceptance model found by Davis (1989); it is an information systems theory that describes how users of a new technological system accept and use it. According to the Technological Acceptance Model (TAM) users of a new technology accept a technology by considering first, the perceived usefulness of such technology and second, the perceived ease of use of the same. Additionally, the theory focuses on the technology end user's acceptance (Davis, 1989). TAM's core constructs include behavioural intention (BI), attitude toward using (AT), perceived use (PU), and perceived ease of use (PEOU). The most essential component that predicts one's actual behaviour is BI (Davis, 1986; Zhang et al., 2012).

TAM Model has been utilised, evaluated, and reviewed in several researches on technology adoption. TAM model has also been chosen as the primary theory to drive

this investigation since it provides the greatest grounds for characteristics such as perceived usefulness and perceived ease of use as part of the study. TAM has shown to be the most effective model for assessing technology adoption inside various sorts of businesses and individuals in fields ranging from business to psychology to information technology (Geffen and Straub, 2000).

Furthermore, TAM is the only information system (IS) theory that clearly describes information technology (Ajibade, 2018; Davis, 1989; Mehra et al., 2020). TAM's merits, on the other hand, include the ability to show benchmarks for external factors that might impact IS adoption (Ajibade, 2018; Davis, 1989; Mehra, et al., 2020). In this study, the model has been utilized in assessing the adoption of technology in the communication between school heads and education officer.

2.2.2 The Concept of Information Technology

Information technology (IT) is the use of computers to store, retrieve, transmit, and manipulate data or information. IT is typically used within the context of business operations as opposed to personal or entertainment technologies. IT is considered to be a subset of information and communications technology (ICT) (Mapunda et al., 2018). According to Webb and Cox (2004), Information Technology (IT) is concerned with managing and processing information using electronic tools such as computers and computer software to convert, store, protect, process, transmit and retrieve electronic information. Information Technology therefore, consists of study, design, advance development, accomplishment, support or administration of computer foundation information system, mostly software application and computer hardware. Information technology works with the use of electronic computers and computer

software to renovate, defend, development, and broadcast and other information (Katunze et al., 2017).

Therefore, in this study, information and communication technology includes all the technological tools and processes used by educational managers to convey, process and store information. Technological tools according to Ayere et al. (2010), includes ICT hardware, software, networks and media for collection, storage, processing, transmission and presentation of information. Moreover, technological processes include deploying the available ICT tools and skills for attaining a certain objective such as communication.

2.2.3 Information Technology in Enhancing Communication

The present era is of technology, and the most important among technology is information communication technology (ICT). It is a force, and it plays a crucial and vital role in all aspects of human life. It has integrated the world and altered the entire global scenario of economic, social, political, and education (Amutha, 2010).

Information and communication have always mattered in human development. Communicating has been a means of transferring data, knowledge, experience, etc. from one individual to another. The means of disseminating and communicating information range from traditional ones (i.e., use of word of mouth, radio broadcasts, visits to sources etc.) to more specialized means by using the recent Information and Communication Technologies (ICTs). With the recent development of ICTs, communications have been easy and have bridged the distance gap between the

communicating parties. Information and communication technology has turned the global into a single village (Beheraa et al., 2015).

Information communication technologies are influencing all aspects of life including communication in a significant way. They are promoting changes in handling and exchanging of information. One area in which the impacts of ICT is significant, is communication. ICTs are making major differences in the ways people used to communicate. ICT-enhanced communication facilitates active, collaborative, creative, integrative, and evaluative communication as an advantage over the traditional way of communication (Amutha, 2010).

Travelling to access information at distant sources is no longer necessary due to the evolution of ICTs. Thus, uses of ICTs assure the availability of information regardless of distance and time. Information and communication technology has revolutionized the way activities within different sectors are performed (Syiem & Raj, 2015).

2.2.4 The Features of Effective Communication in Organizations

Effective communication is a transaction of ideas, directory command or guide into oral or written words, or actions on the path of the communicator in such a way that the receiver gets the same message and reacts in manner envisaged by the communicator (Akam, 2011).

An effective communication results to notifying and educating employees at all levels and motivates them to support the organization strategies to achieve objectives (Barrett, 2002). Haiemann (2011) observes communication as the conveying of ideas

and making someone understood by others. It is also the process by which information is conceded among individuals and/or organizations by means of previously agreed words, symbols and signs. Communication is the process by which one party (a sender) transmits information (i.e. message). It is a continuous process between the two parties involved and it occurs in many levels, such as intra-individual communication level (Keith, 2014). Information is transmitted in two ways that is from a sensory organ to the brain and secondly, interpersonal level is a situation in which the transmission of information is just between two individuals. Communication can also occur within or between an individual and group. Effective communication is a process by which sender of message, received feedback from receiver in intended (Peter, 2015).

Communication is said to be effective when it starts from the sender to its decoding by the receiver. On the other hand, it is said to be ineffective when receiver of the message does not decode the intended of the sender. It is through feedback that information achieves its desired results (Berrels, 2010). Moreover, effective communication takes place when the person to whom it is intended, subsequently, the receiver understands the intended meaning and reacts to it accordingly. Similar meaning of effective communication was adopted in the course of conducting this study.

2.3 Empirical Literature Review

2.3.1 Accessibility of Information Technology in Tanzania

In assessing the accessibility of ICT, Nihuka (2011) discovered that in the Tanzanian context, the accessibility of ICT tools such as computers is still low. The study also

argued that access to ICT depends on their use of ICT as well as the cost of owning computer and network connectivity. Large numbers of people in developing countries, Tanzania in particular, have less access to internet due to factors such as ICT illiteracy, computer viruses and sufficiency of internet cafes.

The findings were in line with those revealed by a study conducted by Mbwette (2009) where it was discovered that less developed countries, have problems of poor supply of power, lack of internet connectivity, the most affected places are the rural areas. Learners in remote areas where they have no access to ICT tools, have to travel long distances for the services. Similarly, Chirwa (2018) in the study on access and use of internet in in Tanzania, found that there is limited access to internet and ICT facilities in Tanzania.

Malekani (2018) conducted to establish current status of ICTs in terms of access, use and challenges of ICTs in selected secondary schools in Morogoro municipality. The study was a cross section survey and used self-administered questionnaires that were given to teachers and students in selected schools. This was supplemented by observations and secondary data review. 20 teachers and 60 students were involved in the study. The findings indicated that the status of ICTs is not good in secondary schools. Though students and teachers seem to be aware of ICTs, but the schools have no enough facilities for ICTs and the facilities available are not adequately utilized. Moreover, the teachers reported that they have no in-service training related to ICTs in teaching and learning. It was also reported that low band width (resulting into poor internet connectivity or slow speed), lack of standby power, and lack of a policy and training schedule hindered the utilization of ICTs in the selected schools.

Pima et al., (2016) assessed the available ICT infrastructure for collaborative web technologies in a blended learning environment in Tanzania: A mixed methods research. The study used questionnaires to collect information about available ICT infrastructure from a sample of 1,068 respondents in six different higher education institutions in Tanzania. The sample was made up of students, faculty, and ICT staff in these institutions. Interviews were then used to either clarify some points from the completed questionnaires or to seek in-depth information. Data were also collected from observations and review of documents from the Government of Tanzania. Findings revealed that the accessibility of ICT infrastructure is still a challenge in Tanzanian educational sector.

2.3.2 Communication among Education Managers in Tanzania

Massawe (2014) assessed leadership practices at school level in community secondary schools: a case of selected schools in Kinondoni municipality, Tanzania. The study employed a case study design to assess leadership practices of heads of schools as a factor affecting students' academic performance in community secondary schools. The major findings were that heads of schools in sampled community secondary schools failed to articulate and involve teachers and students in realizing the school goals and mission. Also, it was noted that they failed to supervise teaching and learning activities effectively. Furthermore, as leaders, the heads of schools were gradually losing their symbolic traits because they have withdrawn from teaching and curriculum related responsibilities.

Ndibalema (2014) assessed and reported low usage of ICTs among secondary school teachers for communication purposes in Tanzania that were attributed to the ease of

use, teachers‟ background in formal training and teachers‟ attitudes towards technology. In most cases, the use of ICTs among teachers and heads of schools in secondary schools in Tanzania has been perceived as general practices. In teacher training practices, ICTS have often being assumed to mean only internet and computers, while there are many teacher trainings needs that ICTs could offer as a solution to deliver e-learning models to pre-service teachers (Baker et al., 2013).

Also, the ICT Policy for Basic Education (United Republic of Tanzania, 2007) recognized the use of ICT devices in education (such as personal computers, digital cameras, scanners, projectors, telecommunications equipment, Internet resources, radio and TV) as potential for improving quality and effectiveness of teaching and learning. However, few teachers use ICTs in classrooms irrespective to the investments made in the ICT supportive infrastructures in teachers training colleges and few secondary schools (Andersson et al., 2014).

2.3.3 Information Technology and Communication Challenges in Tanzania

Yonaz (2012) studied the challenges facing ICT in Tanzania. Findings of the study revealed that, in the Tanzanian context, issues that facilitate ICT usage include but not limited to affordability, availability of technologies, supportive infrastructure and government commitment to ICT initiatives. The study also revealed several challenges on the use of ICT; the challenges were such as inadequate connectivity, inadequate content quality, unsupportive organisational issues and people-related issues.

Ngimi (2013) studied “Opportunities and Challenges of Integrating ICTs in Education Delivery in the Institute of Continuing Education at the Open University of Tanzania.

The study came up with findings that unsuccessful integration of ICT was due to factors such as lack of pedagogical competences by majority of lecturers, lack of ICT technical support at the institute level and access to ICTs due to inadequate infrastructure in the institute.

Siddiquah and Salim (2017) also assessed the ICT facilities, skills, usage, and the challenges encountered by the students of higher education. Findings of the study unveiled that slow speed of computers, signal problem in Internet, virus threat, poor working condition of computers, load shedding, and lack of access of Internet are the problems faced by the majority of the students.

Rumanyika and Galan (2015) assessed the challenges for teaching and learning information and communication technology courses in Higher Learning Institutions in Tanzania. Variables including limited access of ICT hardware and software, weak government policies, poor ICT infrastructure, lack of competent ICT staff, poor institutions' coordination and curriculum variation, high cost imposed on ICT tools, little government funding, reluctance to use ICT tools in teaching and learning, lack of practical training, limited capacity of ICT hardware and software were studies using quantitative approach. Thirteen (13) current papers (2010-2014) related to the study were reviewed to extract the challenges, which appear most frequently. Percentages and frequencies of ten (10) studied variables were computed and presented using a table and bar graph.

The findings show that limited access of ICT hardware and software, poor ICT infrastructure, lack of competent ICT staff, little government funding, lack of practical

training and poor institutions' coordination are significant challenges hindering teaching and learning of ICT courses in HLIs in Tanzania.

2.4 Research Gap

Several studies such as Nihuka (2011); Ndibalema (2014); Massawe (2014); Siddiquah and Salim (2017); Chirwa (2018) & Malekani (2018) have been conducted to assess the use of ICT in communication among educational stakeholders. However, majority of the studies have focused on assessing the impact ICT on learning. They have focused on how students and teachers/lecturers use ICT in teaching and learning processes (see, Nihuka, 2011; Yonaz, 2012; Ngimi, 2013; Siddiquah and Salim, 2017; Chirwa, 2018).

Apart from the fact that majority of these studies have not touched the aspect of how ICT influence communication among educational managers in Tanzania; also, majority of them have been conducted out of the Tanzanian context. Therefore, this study filled the gap by exploring the impact of ICT in promoting effective communication among educational managers in Tanzania.

2.5 Conceptual Framework

A conceptual framework below indicates the relationship existing between the variables of the study. The framework indicates that the study will have independent variables and the dependent variable. From the framework it is indicated that the predictor variables (independent variables) are ICTs Accessibility and ICTs challenges and the outcome variable (dependent variable) is Effective communication. Their relationship is indicated in the Figure 2.1.

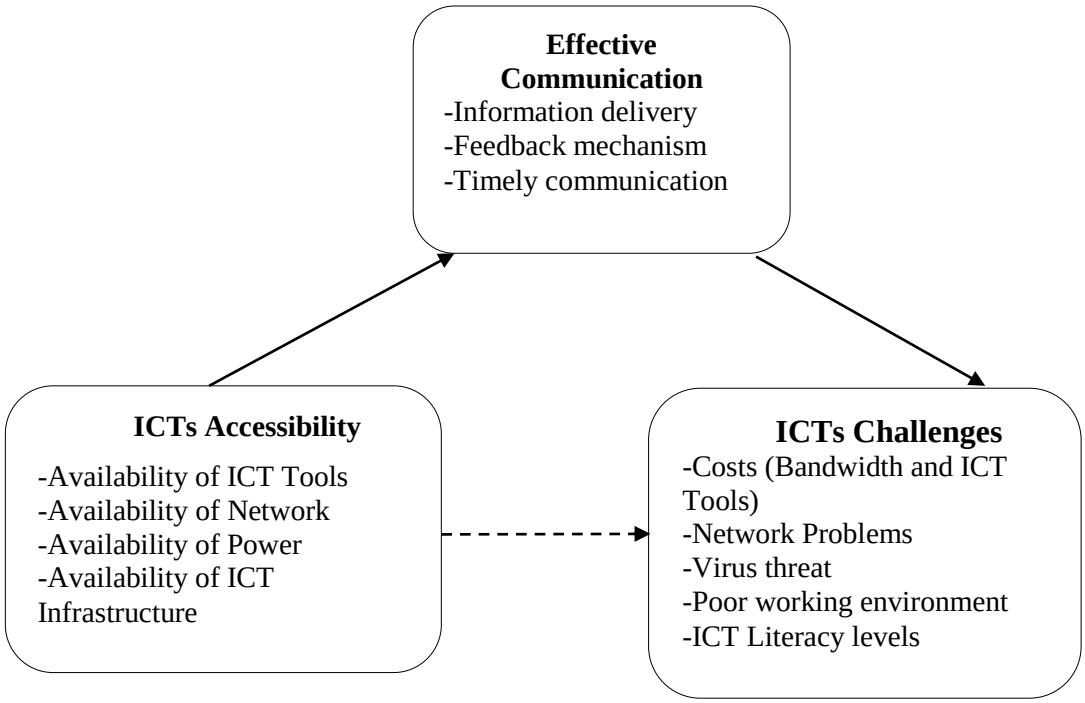

Figure 2.1: Conceptual Framework

Source: Researcher (2021)

The conceptual framework above indicates the existing relationship between the variables; the framework has two independent variables (ICT Accessibility and Challenges) and the dependent variable effective communication. Literature indicates that for communication to be effective through the use of ICT there has to be good accessibility of ICT infrastructure such as ICT tools, network, uninterrupted power and all other supporting infrastructure supporting the use of ICT (Mbwete, 2009 & Nihuka, 2011).

The framework also shows that there are several challenges, which face the use of ICT for communication purposes; according to literature, these challenges reduce the effectiveness of ICT for enhancing effective communication. Challenges such as the cost of buying ICT tools and their enhancements, ICT literacy levels, network

challenges and poor ICT infrastructure have been reported to be challenging the effectiveness of ICT for improving effective communication (Yonaz, 2012; Ngimi, 2013; Siddiquah and Salim, 2017).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology, which was adopted in conducting this study. It gives the details of the type of research design, which was adopted, the research approach, the study area and why it is chosen. Furthermore, the chapter details the population, which was involved in the study as well as the size of the sample to be employed. The chapter also discusses the techniques, which was adopted in selecting the sample size, the types of data to be collected as well as their collection methods. Finally, the chapter explains how data was analysed and the ethical procedures, which will be adhered to in the process.

3.2 Research Approaches

As far as this study is concerned, two approaches were employed, that is qualitative and quantitative research approaches. The two mixed approach (Quantitative and Qualitative) was used to collect data and useful information from the selected heads of schools and education Officer (Gray, 2000). The quantitative approach was used because it explains the relationship of variables in terms of numbers; the extent of how one variable relates to the other is expressed in numbers.

In this study the extent at which each independent variable relates to the dependent variable was established through quantitative approach. The qualitative approach was used to obtain qualitative data for triangulation purposes. The qualitative approach was employed because it explains the phenomenon with a mere analytical approach.

The adoption of a mixed research approach is derived from Miles & Huberman (1994) who noted that the use of a mixed research approach expands the coverage and improves the value of the study as both qualitative and quantitative information is involved to address the specific objectives of the study. Thus, through a mixed approach, a mixture of techniques will be employed to gather all the available information on the study interest.

3.3 Research Design

Research design refers to a plan through which a research is conducted; it involves the ways through which the study was planned and conducted. Research design further entails methodologies applied in data collection and data analysis (Kothari, 2007). This study adopted a descriptive research design; the design focuses on analysing and telling the features and characteristics of a certain element of the population which could be a group of elements or individual elements. The descriptive research design was chosen because it aims at describing a population, situation or phenomenon. In the case of this study the design was used to describe the role of ICT in communication between school heads and district education Officer.

3.4 Area of the Study

The study was carried out at Mufindi district council, which is among the five districts of Iringa region. Iringa Region is located at the southern highland part of Tanzania. Mufindi district is bordered to the north by Kilolo District and Iringa Urban District, to the south by the Njombe Region, to the east by the Morogoro Region and to the west by the Singida and Mbeya Region. As of 2012 census, the population of Mufindi District was 283,032.

Mufindi District is mountainous; it is one of the coolest and rainiest places in Tanzania. Among other things, the district is known for its tea, maize production and timber industries. Mufindi district has got 34 government secondary schools and 11 private secondary schools. This study focused on all 34 government schools in Mufindi district. However, the study also included education Officer from Mufindi District.

3.5 Population of the Study

Population is defined by Kombo & Tromb (2006) as a universe comprising of elements from where some of them are selected as a sample to represent the universe in the study. Therefore, the population of this study involved two groups where the first one will be comprised of all heads of schools from the 34 government secondary schools in Mufindi District.

This group was useful in providing useful information on the adoption of ICT, the available ICT infrastructures, and the ICT challenges as far as effective communication is concerned. Since the school heads are working closely and helped by their assistants and academic teachers; this group of population also included the school heads assistants and academic teachers. Therefore, this population group had 102 members.

The second population group involved the district education Officer; these were useful in triangulating the information provided by the school heads and their assistants regarding the role of ICT in enhancing effective communication between heads of schools and district education Officer.

3.6 Sample and Sampling Procedures

3.6.1 The Sample Size

A sample refers to the elements of the population, which are drawn for the purpose of the study (Kothari, 2007). Therefore, the sample size for the study was from the two population groups, which are school heads and district education Officer.

The sample size from the heads of schools and their assistants was 82 as computed in accordance to the sample size formula by (Cochran, 1963) as follows;

$n = N/ (1+Ne^2)$

Where; N = Population Size = 102

n = Sample Size

e = Error term = 5% (0.05)

Substituting in the Formula

$n = 102/ (1+102 \times 0.05^2)$

$= 102/1.255$

$= 82$

Therefore, the sample size was 82. This involves educational officers, heads of schools and their assistants. This sample size led to a confidence interval of 95% with a margin of error $\pm$ 5%. District Education Officers were selected because this group was responsible for providing qualitative information for the study. Their sample size was determined during data collection and in accordance to the saturation theory. The saturation theory requires that data collection should stop when the new collected data resembles the already collected data.

Table 3.1: Composition of the Sample

S/N	Respondents	Sample	Percentage
1.	Education Officers	04	100%
2.	Heads of Schools	34	100%
3.	Assistants of School Heads	44	64.7%
	TOTAL	**82**	

Source: Researcher's Insight (2021)

3.6.2 Sampling Procedures

This study employed two sampling techniques, which are convenience and purposive sampling techniques as discussed hereunder.

3.6.2.1 Convenience Sampling

This sampling method involves selecting the sample elements by considering the easy accessibility of the said elements. Therefore, the method was adopted since it selects only those respondents who were available for the purpose of the study. This technique was employed to select 82 heads of school and their assistants as respondents this study. This group of respondents provided the quantitative data for the purpose of the study. The rationale for adopting this sampling technique is due to the fact that school heads and their assistants at the study area had different responsibilities and thus were busy fulfilling their responsibilities; this made others not to be available for the study. Therefore, only those who were available and willing to take part in the study were included.

3.6.2.2 Purposive Sampling

Purposive sampling refers to the sampling method in which elements of the sample are selected based on what characteristics they possess or based on the information

they know or based on the position they hold (Kothari , 2004). Through purposive sampling, the study chose respondents based on the study judgement that they had desirable characteristics and can provide the required information about the study problem. The study used this sampling technique because it provides a room to collect crucial information from party related to the study. Purposive sampling was used to select district education Officer as key informants.

3.7 Instruments of Data Collection

Two data collection instruments, which are survey and interview, were employed in collecting data to answer research questions for this study. The two instruments were employed as expressed below:

3.7.1 Questionnaire Survey

Survey questionnaire is an instrument that was used in collecting quantitative primary data. This instrument was used because the study needs primary quantitative data to answer the research questions as well as fulfilling the research objectives. A questionnaire was structured based on the variable measurements where there were questions addressing each variable of the study.

A total of 82 questionnaires were distributed to 82 heads of school and their assistants with a list of questions for the respondents to provide information regarding the study objectives. The researcher administered the filling of questionnaires and collect them after they have been properly filled for data presentation and analysis procedures. This ensured that all the required quantitative information is obtained from the respondents.

3.7.2 Interview

Interview refers to the data collection method, which is used for collecting qualitative information from respondents. It involves the interview asking questions verbally to the interviewee, and the interviewee responds to the same. The method allows the researcher to provide clarification where necessary (Leedy & Ormrod, 2001).

This method was involved because the study needs primary qualitative data to supplement the quantitative data. Since the district has few educations Officer, then interview was be a suitable method compared to other methods such as questionnaire survey and Focus Group Discussions.

In this study, the interview guide was prepared based on all the objectives of the study. The essence is to supplement the quantitative data, which were collected through the survey method for triangulation purposes. Questions on each independent variable were asked to District education Officer to seek their opinion and compare with what were found from the heads of schools and their assistants.

3.8 Validity and Reliability

3.8.1 Validity

To ensure validity, 10 questionnaires were pre-tested by distributing them to respondents, statisticians and colleagues, their opinions were positively considered and the instruments reviewed to see if they bring the intended results. The instruments brought the intended results and therefore the researcher was then confident to apply them in data collection.

3.8.2 Reliability

Reliability refers to the consistency and stability of the findings that enables the findings to be replicated (Burns & Burns, 2008). A reliability analysis using Cronbach's alpha (α) was conducted to estimate the reliability of the predictor variables. Cronbach's α analysis is a useful way of determining internal consistency and homogeneity of groups of items in tests and questionnaires (Burns & Burns, 2008). The generally agreed upon lower limit for Cronbach's α is 0.70 (Table 3.1).

Table 3.2: Range of Cronbach's Alpha Coefficients

Reliability	**Range**
Unreliable	$\alpha \leqq 0.30$
Barely reliable	$0.30 < \alpha \leqq 0.40$
Slightly reliable	$0.40 < \alpha \leqq 0.50$
Reliable (Most common range)	$0.50 < \alpha \leqq 0.70$
Very reliable (Second most common range)	$0.70 < \alpha \leqq 0.90$
Strongly reliable	$\alpha > 0.90$

Source: Wu, Yu, & Weng (2012)

Internal reliability of the 20 items' scale was assessed and all the items had a cronbach`s alpha above to the required Cronbach's α of 0.70. This indicates that the research instrument and therefore the data collected were reliable.

3.9 Data Analysis Procedures

The quantitative data was analyzed through the quantitative techniques. The responses from the questionnaires will be cleaned and the useful data will then be entered in the SPSS program where the frequency tables were produced, edited and presented.

Therefore, descriptive statistics were employed to analyse the quantitative data obtained through questionnaires.

The qualitative data collected through interviews were analyzed through thematic analysis where common themes were identified from the specific objectives of the study and results from the qualitative data were then analyzed and presented in accordance to the key themes of the study. Through thematic analysis technique, the exact words of some of the respondents were presented in some cases to validate the findings.

3.10 Ethical Consideration

Various ethical issues were considered in conducting this study. Consent was obtained from respondents before they are involved in data collection (consent forms will be signed); and during the data collection exercise, high degree of freedom was involved; the respondents were not forced to respond, but they were free to respond to what they want to. Apart from that confidentiality was observed in a sense that the responses provided by respondents were kept and processed confidentially. In providing feedback, the researcher will share the findings of this study to the schools and district for further actions.

CHAPTER FOUR

FINDINGS, ANALYSES AND DISCUSSION

4.1 Introduction

This chapter is about the presentation, analysis and discussion of findings gathered through interview and questionnaires. The study assessed the role of information technology on effective communication between school heads and District Education Officer in Mufindi, Tanzania. Specifically it explored the accessibility of ICT infrastructure in communication among heads of schools and education Officer in Mufindi District; examined the role of ICT infrastructure in communication among heads of schools and Education Officer in Mufindi District; assessed the challenges facing the communication processes among head of schools and education Officer in Mufindi District and determined an effective communication model among heads of schools and education Officer in Mufindi district.

Both qualitative and quantitative data were collected. The analysis and presentation of findings was done by considering the specific objectives as outline above. The qualitative data gathered through interview was analyzed through Theme Content Analysis (TCA) technique while the quantitative data gathered through questionnaires were presented and analyzed by the use of Statistical Package for Social Sciences (SPSS) program through descriptive statistical methods and presented by using frequency tables for easy understanding and interpretation by readers.

4.2 Respondents` Demographic Information

The study involved school heads and their assistants as the main respondents to generate data for research findings. The respondents' profile in terms of gender, age,

education level and work experience were assessed and the results presented in the Table 4.1.

4.2.1 Respondents` Gender

Table 4.1: Respondents` Gender

Gender	Frequency	Percentage
Male	44	53.7
Female	38	46.3
Total	**82**	**100**

Source: Research Findings (2021)

Findings from the study revealed that majority of the respondents are male (53.7%) while the rest were female (46.3%). However, there was no significant difference between the two gender groups. This indicates that the secondary schools in Mufindi District are headed by a fair number of both male and female. Apart from that, it indicates that the study had collected data from a fair number of male and female respondents, thus having more diverse opinions from male and female. Table 4.1 above shows the respondents distribution by gender.

4.2.2 Respondents` Age

Table 4.2: Respondents` Age

Age	Frequency	Percentage
18 – 27 Years	17	20.7%
28 – 37 Years	34	41.5%
38 – 47 Years	20	24.4%
48 Years and Above	11	13.4%
Total	**82**	**100%**

Source: Research Findings (2021)

Respondents were also distributed by age category so as to get useful information in all age groups. Findings revealed that most of the respondents were aged between 28 - 37 years (41.5%) followed by those aged 38 – 47 years (24.4%), others were aged between 18 – 27 years (20.7%) and 48 and above years (13.4%). The age category shows to include majority of the age groups, indicating that the senior positions as heads of schools as well as their assistants are covered by all the age groups. Also, the findings of the study are a result of opinions provided by all the age groups as indicated in the Table 4.2.

4.2.3 Respondents` Education Level

Table 4.3: Respondents` Education Level

Education Level	Frequency	Percentage
Secondary Education	0	0.0%
Certificate	0	0.0%
Diploma	24	29.2%
Bachelor`s Degree	49	59.8%
Master`s Degree and Above	9	11.0%
Total	**82**	**100%**

Source: Research Findings (2021)

The education level of respondents was also believed to influence the use of ICT in communication and therefore the study assessed education levels of respondents. Findings revealed that majority of the respondents had Bachelor`s degree level (59.8%) followed by Diploma (29.2%). The rest had Master`s degree (11.0%). The education level of respondents shows a good sign as majority of them are educated to the bachelor`s degree level and therefore a good indication to the validity of their judgment as shown in the Table 4.3 portrays the findings.

4.2.4 Respondents` Work Experience

Table 4.4: Respondents` Work Experience

Education Level	Frequency	Percentage
Less than a Years	3	3.7%
1 – 3 Years	20	24.4%
4 – 6 Years	34	41.5%
7 Years and Above	25	30.5%
Total	**82**	**100%**

Source: Research Findings (2021)

The study also examined the experience of the respondents have as school heads and assistants in terms of years; as it shows how respondents can be reliable and can provide an informed judgment as far as the study was concerned and therefore provide reliable findings. Majority of them had an experience of 4 – 6 years (41.5%) followed by those having an experience of 7 years and above (30.5%); the rest had 1 – 3 years (24.4%) and less than a year (3.7%). It is vivid that most of them had enough experience to provide reliable opinions as far as the study is concerned. Table 4.4 above indicates the respondents` work experience.

4.3 Accessibility of ICT Infrastructure in Communication among Heads of Schools and Education Officer

The first objective of the study was to assess the accessibility of ICT infrastructure in communication among heads of schools and education Officer. Respondents (the school heads (n= 41) and their assistants (n=41) were asked to respond to questionnaires as far as ICT infrastructure is concerned. Moreover, interview sessions were conducted with district educational Officer (n=4) on all the specific objectives to

establish the extent at which technology has influenced communication among school heads and educational Officer.

When they were asked about the availability of ICT tools in their work environment, majority of the respondents (48.8%) strongly agreed followed by those who agreed (24.4%) that ICT tools for communications are available at their working environment. On the other hand, 3.7% disagreed and 8.5% strongly disagreed and the remaining 14.6% were neutral on the same proposition. The results also indicated a mean value of 4.01 and a standard deviation of 1.252 implying that there is a minimum deviation between the responses as majority lies on the agreeing side. Findings also discovered that there is availability of network around the study area for enhancing communication among school heads and education Officer. This was evidenced by majority of the respondents who strongly agreed (54.9%) followed by those who agreed (19.5%), while others disagreed (11%), strongly disagreed (3.7%) and neutral (11%). The results revealed a low standard deviation of 1.197 indicating that majority of the data fall closer to the mean of 4.11.

Additionally, the study assessed the availability and reliability of power supply at the study area for enhancing communication through ICT tools, it was discovered that there is reliable power supply in the area. Most of the respondents (62.2%) strongly agreed and 20.7% agreed on the fact while 11% disagreed and 6.1% strongly disagreed. This resulted to low standard deviation of 1.257 from a mean of 4.22. Moreover, it was discovered that the general ICT infrastructure are supportive for communication among school heads and education Officer. This was supported by

53.7% of the respondents who strongly agreed and 31.7% who agreed; however, the same fact was opposed by only 3.7% who strongly disagreed and 4.9% who disagreed while the rest were indifferent (6.1%). Despite having respondents who disagreed, still the results had a mean of 4.27 indicating that majority agreed and a standard deviation of 1.031 implying minimum deviations from the mean.

On assessing the development of ICT infrastructure, findings of the study revealed that the government continues to develop different ICT infrastructure to support the use of ICT for communication purposes (46.3% strongly agreed, 45.1% agreed). However, few others strongly disagreed (2.4%), disagreed (2.4%) and undecided (3.7%). The mean value of 4.30 and a standard deviation of 0.856 were produced. The responses on the accessibility of ICT infrastructure are as displayed in the Table 4.5.

Table 4.5: Responses on Accessibility of ICT Infrastructure

S/N	Statement	SD	D	N	A	SA	Mean	Std. Dev
1.	There are available ICT tools in my working environment	7 8.5%	3 3.7%	12 14.6%	20 24.4%	40 48.8%	4.01	1.252
2.	The network is available for use of ICT equipment	3 3.7%	9 11%	9 11%	16 19.5%	45 54.9%	4.11	1.197
3.	There is reliable power for working with ICT tools	5 6.1%	9 11%	0 0.0%	17 20.7%	51 62.2%	4.22	1.257
4.	The general ICT infrastructures are supportive for use of ICT	3 3.7%	4 4.9%	5 6.1%	26 31.7%	44 53.7%	4.27	1.031
5.	The government continues to build ICT infrastructure in the country	2 2.4%	2 2.4%	3 3.7%	37 45.1%	38 46.3%	4.30	0.856

Source: Research Findings (2021)

The findings above were not far from those obtained from the education Officer during interviews. It was revealed that there are available ICT infrastructures for

communication among heads of schools and education Officer. However, they further noted that the available ICT tools and services are in most cases private and not owned by the government. As one of the respondents noted:

> *"…. there are available ICT tools such as mobile phones and personal computers, however majority of them are personal owned and not owned by the government…."* (Interviews with Mufindi District Education Officer, November, 2021).

Apart from the ICT tools, findings from interviews also revealed that there are easily available and accessible ICT services such as the internet. They argued that the internet is supporting for enhancing communication among heads of schools and education Officer. One of the interviewees remarked:

> *"The network and other ICT services are available and easily accessible; we can easily send emails and text messages through. However, there are very few places in rural areas where the network is a problem. Nevertheless, the government continues to improve the situation through the service providers…."* (Interviews with Mufindi District Education Officer, November, 2021).

Thus, interview findings were not far from questionnaire findings on the accessibility of information technology for communication among school heads and education Officer. As pointed out on the quote from the education Officer above, it is vivid that education Officer agree with the school heads on the accessibility of Information technology on communication among heads of schools and education Officer.

Based on the findings from both heads of schools and education Officer; it is vivid that the accessibility of ICT infrastructures in communication among school heads and education Officer is good. The school heads and education Officer have good internet access, good ICT infrastructure and ICT tools which used for communication

purposes. Apart from that the reliable power supply is supportive of ICT tools for communication.

4.4 The Role of ICT Infrastructure in Communication among Heads of Schools and Education Officer

On the second specific objective, the study examined the role of ICT infrastructure in communication among heads of schools and education Officer in Mufindi District. Data was collected from 41 heads of schools and their 41 assistants at through questionnaires administered by the researcher. Also, interviews were conducted with the education Officer to collect qualitative data on the same objective. As key respondents, school heads and their assistants revealed that the ICT tools enhances communication among heads of school and education Officer. Most of the respondents strongly agreed (59.8%) and agreed (17.1%) that communication has been improved as a result of ICT; on contrary few respondents disagreed (9.8%) and strongly disagreed (6.1%) while 7.3% only were neutral. The responses were also not far from the mean (4.14) with a standard deviation of 1.1268.

Apart from that, it was exposed that the use of mobile phones makes communication more convenient. This was evident from most of the respondents who strongly agreed (56.1%) and those who agreed (28%); others disagreed (8.5%), strongly disagreed (3.7%) and the rest (3.7%) were undecided. Thus, majority of the respondents were in support of the argument to the extent that standard deviation was as minimum as 1.106 from the mean of 4.24.

The study also assessed the use of ICT in relation to the physical meetings and findings revealed that the use of ICT has to the large extent reduced the physical

meetings as the findings were supported by 59.8% of the respondents who strongly agreed and 23.2% who agreed. Others were against the fact, 8.5% disagreed, 6.1% strongly disagreed and 2.4% were neutral. A standard deviation of 1.217 from a mean of 4.22 was also obtained.

Additionally, it was revealed that communication is less distorted by the use of ICT tools (64.6% strongly agreed and 14.6% agreed while 1.2% strongly disagreed and 13.4% disagreed while the remaining 6.1% were indifferent). The responses were close to each other with a small standard deviation of 1.136 and a mean value of 4.28. Furthermore, findings revealed that there is timely delivery of information when ICT tools are used. This was evidenced from majority of respondents who strongly agreed (54.9%) and agreed (45.1%). A mean value of 4.55 and standard deviation of 0.501 were also obtained. The responses are tabulated in the Table 4.6.

Table 4.6: The Role of ICT Infrastructure on Communication

Statement	SD	D	N	A	SA	Mean	Std. Dev
The ICT tools enhances communication among heads of school and education Officer	5	8	6	14	49	4.15	1.268
	6.1%	9.8%	7.3%	17.1%	59.8%		
The use of mobile phones makes communication more convenient	3	7	3	23	46	4.24	1.106
	3.7%	8.5%	3.7%	28%	56.1%		
The use of ICT tools has reduced frequent physical meetings	5	7	2	19	49	4.22	1.217
	6.1%	8.5%	2.4%	23.2%	59.8%		
Communication is less distorted by the use of ICT tools	1	11	5	12	53	4.28	1.136
	1.2%	13.4%	6.1%	14.6%	64.6%		
There is timely delivery of information when ICT tools are used	0	0	0	37	45	4.55	0.501
	0%	0%	0%	45.1%	54.9%		

Source: Research Findings (2021)

Similar findings were revealed during the interviews with education Officer. Majority of the respondents indicated that ICT has played a very significant role in enhancing

communication. They also noted that the communication is now timely and effective compared to the old days where ICT tools and services were limited. One of the respondents remarked:

> *"..... there is huge improvement in the communication process, for example, we can now call urgent meetings where it's necessary, we can also convey a message in the morning and its implemented in the afternoon. In general, the communication process has become timely and effective...."* (Interviews with Mufindi District Education Officer, November, 2021).

Therefore, from the education Officer` perspective, ICT was found to have improved the communication process among school heads as well as education Officer themselves. From their point of view, the presence of ICT infrastructure such as mobile phones and internet is a boost for enhancing the communication process among them.

Therefore, from the second specific objective, it is obvious that the available ICT infrastructure has played a positive role in enhancing the communication process among school heads and education Officer. This is also to say that the presence of ICT infrastructure is crucial for enhancing communication given the current world of technology. Thus, enhancing the ICT infrastructure at work place would mean enhancing the communication process among the staff such as heads of schools as well as education Officer.

4.5 Challenges Facing the Communication Processes among Heads of Schools and Education Officer

The third specific objective of the study was to assess the challenges of communication encountered by heads of school and education Officer as far as ICT is

concerned. In fulfilling this objective, data was collected from two groups, which are heads of schools (n=41) and their assistants (n=41) through a questionnaire survey and education Officer (n=4) through interviews.

As far as this specific objective is concerned, the study revealed that the cost of ICT tools and services are high; when asked about this majority of the respondents supported by strongly agreeing (50%) and agreeing (25.6%), on the other hand few opposed by strongly disagreeing (9.8%) and disagreeing (4.9%) while the remaining group were indifferent (9.8%). The responses were close since the standard deviation was 1.3 from the mean value of 4.01.

Apart from that it was also revealed that there are frequent network problems around the study area; the fact was supported by majority of the respondents who strongly agreed (42.7%) and those who agreed (34.1%); however, few strongly disagreed (8.5%) and disagreed (11%) while the rest were neutral (3.7%). A standard deviation of 1.241 from a mean value of 3.91 was also obtained.

As far as internet viruses are concerned, the study found out that the presence of virus in the internet poses a threat for ICT usage. When asked about this, majority of the respondents strongly agreed (54.9%) and agreed (18.3%) while few others strongly disagreed (2.4%), disagreed (17.1%) while the rest were undecided (7.3%). The findings resulted to a mean value of 4.06 and a standard deviation of 1.241. Furthermore, the study revealed that there are poor working environment making it difficult using ICT; most of the respondents strongly agreed (59.8%) followed by those who agreed (19.5%) while very few strongly disagreed (2.4%) and disagreed

(12.4%) while the remaining were undecided (6.1%). The results gave a mean value of 4.22 and a standard deviation of 1.155.

The study also assessed if the users of ICT tools and services have a good literacy level; findings revealed that the levels of ICT literacy are poor for some of the users (65.9% strongly agreed, 31.7% agreed while 2.4% were neutral). The responses were close to each other to the extent of having a mean value of 4.64 and low standard deviation of 0.464. the findings are as displayed in the Table 4.7

Table 4.7: Challenges of Communication among Heads of Schools and Education Officer

Statement	SD	D	N	A	SA	Mean	Std. Dev
The costs of ICT tools and services are high	8	4	8	21	41	4.01	1.300
	9.8%	4.9%	9.8%	25.6%	50%		
There are frequent network problems around our area	7	9	3	28	35	3.91	1.298
	8.5%	11%	3.7%	34.1%	42.7%		
The presence of virus in the internet poses a threat for ICT usage	2	14	6	15	45	4.06	1.241
	2.4%	17.1%	7.3%	18.3%	54.9%		
There are poor working environment making it difficult using ICT	2	10	5	16	49	4.22	1.155
	2.4%	12.2%	6.1%	19.5%	59.8%		
The levels of ICT literacy are poor for some of the users	0	0	2	26	54	4.64	0.464
	0%	0%	2.4%	31.7%	65.9%		

Source: Research Findings (2021)

The reported challenges by the heads of schools and their assistants were also observed during interviews, the educational Officer came up with different challenges which were encountered when ICT in used in the communication process. It was revealed that there are challenges in the cost of buying and maintenance of ICT tools, also, there was a challenge in the affordability of ICT services since the government doesn’t provide for the accessibility of all the services at all time.

One of the respondents observed

> *"The cost of buying ICT tools such as personal computers are high and therefore some of the people can't afford it. Apart from that maintain the ICT tools is also costly and there are some of the users who can't access the ICT services all the time as a result of cost…."* (Interviews with Mufindi District Education Officer, November, 2021).

Network challenge was also one of the observed challenges; respondents indicated that, apart from the fact that the largest part of Mufindi district has network and internet, there are some few areas where the network challenge is still experienced.

It was noted from one of them;

> *"Despite that there is network in majority of the areas, there are still few areas where there are network problems and therefore distorting the communication process*…." (Interviews with Mufindi District Education Officer, November, 2021).

Therefore, the education Officer acknowledged the presence of communication challenges as far as ICT is concerned. They also noted that the presence of communication challenges in ICT result to the communication problems among school heads and education Officer. The delay of information and miscommunications result from the ICT communication challenges.

Therefore, the study assessed the communication challenges arising from using ICT in the communication among heads of schools and education Officer. It was vivid from them that there are network problems in some of the areas, poor working environment, virus threat for using computers as well as poor ICT literacy among the users. The presence of these challenges brings communication problems among them.

4.6 Effective Communication Model among Heads of Schools and Education Officer

The fourth objective of the study was to find out the effective communication model among heads of schools and education Officer. Since the study assessed the communication process among school heads and education Officer, thus data was collected from both, heads of schools and their assistants where a total of 41 heads of schools and 41 assistants were used to provide quantitative data through filling of questionnaires. Also, education Officer (n=4) were involved in the provision of qualitative data on the same.

The study revealed that information delivery is made easy through the use of ICT (56.1% strongly agreed, 24.4% agreed, 3.7% strongly disagreed, 11% disagreed and 3.7% undecided). A mean value of 4.18 and standard deviation of 1.167 were produced.

The study also revealed that ICT provides a feedback mechanism for people communicating, when asked about this, majority of them strongly agreed (56.1%) and agreed (28%) while few of them strongly disagreed (2.4%) and disagreed (4.9%) and the rest were on the neutral ground (8.5%). A mean value of 4.3 and a standard deviation of 0.990 were obtained indicating that the values of were close to each other with minimum deviations.

In addition to that, it was discovered that there is timely communication when ICT is involved. This phrase was strongly supported by respondents by strongly agreeing (63.4%) and agreeing (20.7%); however, it was opposed by few who strongly

disagreed (2.4%) and those who disagreed (12.2%). A mean value of 4.30 and a standard deviation of 1.130 were obtained.

Again, the study found out that timely decision making is enhanced when ICT is incorporated. This fact was proven by respondents themselves where majority of them supported it by strongly agreeing (65.9%) and agreeing (14.6%); few of them were against it by strongly disagreeing (1.2%) and disagreeing (11%) while the rest were neutral (7.3%). A standard deviation of 1.089 and mean value of 4.33 were also produced.

Findings also, unveiled that ICT enhances the timely implementation of decisions as majority of respondents strongly agreed (48.8%) and agreed (24.4%) while few strongly disagreed (8.5%), disagreed (3.7%) and the rest were neutral (14.7%). Data were not much dispersed from the mean (4.01) since the standard deviation was 1.252. the findings are as displayed in the Table 4.8.

Table 4.8: Effective Communication Model among Heads of Schools and Education Officer

Statement	SD	D	N	A	SA	Mean	Std. Dev
Information delivery is made easy through the use of ICT	3	9	4	20	46	4.18	1.167
	3.7%	11%	4.9%	24.4%	56.1%		
ICT provides a feedback mechanism for people communicating	2	4	7	23	46	4.30	0.990
	2.4%	4.9%	8.5%	28%	56.1%		
There is timely communication when ICT is involved	2	10	1	17	52	4.30	1.130
	2.4%	12.2%	1.2%	20.7%	63.4%		
Timely decision making is enhanced when ICT is incorporated	1	9	6	12	54	4.33	1.089
	1.2%	11%	7.3%	14.6%	65.9%		
ICT enhances timely implementation of decisions	7	3	12	20	40	4.01	1.252
	8.5%	3.7%	14.7%	24.4%	48.8%		

Source: Research Findings (2021)

The findings were parallel with those obtained from interviews where it was discovered that ICT has brought effectiveness in the communication process among heads of schools and education Officer. It was further unveiled that the effectiveness comes from the fact that is provides timely delivery of messages and hence timely decision making.

This was noted from one of the respondents.

> *"…we are experiencing effective communication since the intended message is delivered on time and thus, enhancing timely decision making"* (Interviews with Mufindi District Education Officer, November, 2021).

Similarly, the findings indicated that, communication through ICT provides a feedback mechanism, which is very important in the communication process. The respondents argued that it is easy to get a feedback and be assured that the intended message has been delivered, and this is what entails an effective communication.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

This section discusses the findings obtained above; the discussion was conducted in relation to the specific objectives. Moreover, the findings obtained have been compared with the findings of other researchers.

5.2 Accessibility of ICT Infrastructure in Communication among Heads of Schools and Education Officer

On this, the study assessed the accessibility of ICT infrastructure such as ICT tools and ICT services among school heads. The findings of the study revealed that the ICT infrastructures are available at the study area. It was revealed that there are ICT tools and services to support the communication process. Furthermore, the study revealed that there are available network services in support of the communication among school heads and education Officer.

However, the results are different from those obtained by Nihuka (2011) who discovered that in the Tanzanian context, the accessibility of ICT tools such as computers is still low. Nevertheless, this study argued that access to ICT depends on their use of ICT as well as the cost of owning computer and network connectivity.

Also, Nihuka (2011) was supported by a study conducted by Mbwette (2009) who discovered that less developed countries, have problems of poor supply of power, lack of internet connectivity, the most affected places are the rural areas. Similarly, Chirwa

(2018) in the study on access and use of internet in in Tanzania, found that there is limited access to internet and ICT facilities in Tanzania.

Apart from the heads of schools and education managers also, a study by Malekani (2018) in Morogoro indicated that the status of ICTs is not good in secondary schools. Also, Pima et al., (2016) assessed the available ICT infrastructure for collaborative web technologies in a blended learning environment in Tanzania: Findings revealed that the accessibility of ICT infrastructure is still a challenge in Tanzanian educational sector.

5.3 The Role of ICT Infrastructure in Communication among Heads of Schools and Education Officer

The findings of the study revealed that ICT infrastructure plays a significant role in enhancing communication among heads of schools and education Officer. It was discovered that the presence of ICT tools and services has improved the timely communication among heads of schools and education Officer. Also, it was discovered that communication is made more convenient when using ICT. Also, the use of ICT reduces the distortions of messages during communication.

The findings were parallel with those obtained by Massawe (2014) who argued that the use of ICT reduces communication fatigue as it smoothens the communication process. He also added that when ICT is incorporated in the communication process, the message travels faster and with less distortions. This was also the case with Ndibalema (2014) who had similar findings as far as the role of ICT in

communication is concerned. The use of ICT in communication is a step up for the whole communication process.

5.4 The Challenges Facing the Communication Processes among Heads of Schools and Education Officer

Different challenges were observed when using ICT in the communication process. As far as this study is concerned, it was revealed that the cost of ICT tools is high to the extent that not all the users can afford. Apart from the tools, the services are also costly. Similarly, it was discovered that there are frequent network problems, which affect the communication channel. Moreover, it was unveiled that there are poor ICT tools as well as low level of literacy among ICT users.

The obtained challenges were not new as Yonaz (2012) studied the challenges facing ICT in Tanzania and found that, in the Tanzanian context, ICT faces challenges such as inadequate connectivity, inadequate content quality, unsupportive organisational issues and people-related issues. Similarly, Ngimi (2013) studied "Opportunities and Challenges of Integrating ICTs in Education Delivery in the Institute of Continuing Education at the Open University of Tanzania. The study came up with findings that unsuccessful integration of ICT was due to factors such as lack of pedagogical competences by majority of lecturers, lack of ICT technical support at the institute level and access to ICTs due to inadequate infrastructure in the institute.

Moreover, Siddiquah and Salim (2017) assessed the ICT facilities, skills, usage, and the challenges encountered by the students of higher education. Findings of the study unveiled that slow speed of computers, signal problem in Internet, virus threat, poor

working condition of computers, load shedding, and lack of access of Internet are the problems faced by the majority of the students.

Also, Rumanyika and Galan (2015) assessed the challenges for teaching and learning information and communication technology courses in Higher Learning Institutions in Tanzania. The findings show that limited access of ICT hardware and software, poor ICT infrastructure, lack of competent ICT staff, little government funding, lack of practical training and poor institutions' coordination are significant challenges hindering teaching and learning of ICT courses in HLIs in Tanzania.

5.5 Effective Communication Model among Heads of Schools and Education Officer

On assessing an effective communication model among heads of schools and education Officer, the study revealed that an effective communication model is that which would enhance communication between the heads of schools and education Officer. Similarly, an effective communication model is the one, which provides a feedback mechanism (e.g. delivery report and corresponding actions towards the communicated course of action) to make sure the message is delivered.

It also, ensures timely communication, timely delivery of message and timely decision making from the intended communication. The communication system in education thus, is an effective communication model since it ensures timely communication, feedback mechanism and timely decision making despite the presence of communication challenges.

This is similar to Beheraa et al. (2015) who observed that ccommunicating has been a means of transferring data, knowledge, experience, etc. from one individual to another. The means of disseminating and communicating information range from traditional ones to more specialized means by using the recent Information and Communication Technologies (ICTs).

Moreover, Haiemann (2011) observes communication is effective as a means of conveying of ideas and making someone understood by others. It is also the process by which information is conceded among individuals and/or organizations by means of previously agreed words, symbols and signs. Communication is the process by which one party (a sender) transmits information.

Also, according to Barrels (2010) communication is said to be effective when it starts from the sender to its decoding by the receiver. On the other hand, it is said to be ineffective when receiver of the message does not decode the intended of the sender. It is through feedback that information achieves its desired results (Berrels, 2010).

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter winds up the study by providing the summary of key findings in accordance to the specific objectives. The chapter also provides a conclusion of the study as well as the recommendations thereof. Apart from that, the study recommends some areas for further study.

6.2 Summary of the Study

This study assessed the role of ICT in enhancing communication among heads of schools and education managers in Mufindi district. The study also focused the public secondary schools in Mufindi district. The study was guided by four specific objectives where the first one explored accessibility of ICT infrastructure in communication among heads of schools and education Officer in Mufindi District.

The second specific objective examined the role of ICT infrastructure in communication among heads of schools and Education Officer in Mufindi District. The third one assessed the challenges facing the communication processes among head of schools and education Officer in Mufindi District and the fourth one determines an effective communication model among heads of schools and education Officer in Mufindi district.

The study adopted a mixed research approach and a descriptive research design. A mixed approach was employed through collecting quantitative data from heads of

schools (n=41) and their assistants (n=41) and qualitative data from education Officer (n=4). The heads of schools and their assistants were sampled through convenience sampling technique while the education Officer were sampled through purposive sampling. The collected quantitative data were analyzed through descriptive statistics while the qualitative data were analysed through thematic analysis.

6.3 Summary of the Findings

The findings of this study are grouped into four main parts based on the objectives of the study. On assessing the accessibility of ICT infrastructure such as ICT tools and ICT services among school heads, the findings of the study revealed that the ICT infrastructure are available at the study area. It was revealed that there are ICT tools and services to support the communication process. Furthermore, the study revealed that there are available network services in support of the communication among school heads and education Officer.

Regarding the role of ICT infrastructure in communication, the findings of the study revealed that ICT infrastructure plays a significant role in enhancing communication among heads of schools and education Officer. It was discovered that the presence of ICT tools and services has improved the timely communication among heads of schools when sending and receiving academic and work information from education Officer. It was discovered that communication is made more convenient when using ICT as a communication tool among heads of schools and education Officer. Also, the use of ICT reduces the distortions of messages during communication since it enhances timely communication, timely delivery of the intended message, and provides feedback mechanism.

On assessing the challenges of communication among heads of schools and education Officer, it was revealed that the cost of ICT tools is high to the extent that not all the users can afford. Apart from the tools, the services are also costly. Similarly, it was discovered that there are frequent network problems, which affect the communication channel among the educational managers. Moreover, it was unveiled that there are poor ICT tools as well as low level of literacy among ICT users.

On assessing an effective communication model among heads of schools and education Officer, the study revealed that an effective communication model is that which would enhance communication between the heads of schools and education Officer. The communication model should embrace timely communication, timely delivery of the intended message, and provides feedback mechanism. Similarly, an effective communication model is the one, which provides a feedback mechanism to make sure the message is delivered. It also ensures timely communication, timely delivery of message and timely decision making from the intended communication.

6.3 Conclusions

The use of ICT in communication among heads of schools and education Officer is a crucial process towards improving the communication process. Enhancing ICT improves the communication process through providing a reliable and important channel through which heads of schools and education Officer communicate. The use of ICT has seen communication becoming timely and useful for delivering timely information for timely decision making.

However, ICT has been found to go through different challenges since the users find the ICT tools and services to be expensive. Apart from that, the literacy levels on

using ICT are low for some of the users. Despite all these challenges, the use of ICT in communication makes the communication process effective.

6.4 Recommendations

From the findings discussed above, the study came up with different recommendations for improving the communication process among heads of schools and educational Officer; the recommendations are such as;

(i) Improving the ICT infrastructure; Since it has been found that majority of the people use their personal ICT tools such as mobile phones and personal computers for communication. It is recommended that the government provides ICT tools for enhancing communication among heads of schools and education Officer.

(ii) ICT Trainings; The study has found that there are low literacy levels among the users of ICT tools and services, then it is recommended that there should be frequent trainings and seminars on the use of ICT tools and services. This will enhance the communication process and improve the productivity of heads of schools and education Officer.

6.5 Areas for Further Study

The study assessed the role of ICT in enhancing communication among heads of schools and education managers in Mufindi district. Therefore, the study examined how ICT influences the communication process among heads of schools and education managers. However, since ICT has currently been used widely in the teaching process, the study recommends that future studies should look into the role of

ICT on enhancing the teaching and academic activities as far as students are concerned. Thus, the focus should be how ICT influence the teaching activities in the secondary school levels.

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APPENDICES

Appendix 1: Questionnaires for School Heads and their Assistants

Dear Respondents, I am a student from the College of Business Education pursuing **Master of Education in Administration, Planning and Policy Studies at The Open University of Tanzania.** This questionnaire aims at collecting data that will enable the assessment of "**THE ROLE OF INFORMATION TECHNOLOGY ON EFFECTIVE COMMUNICATION BETWEEN SCHOOL HEADS AND DISTRICT EDUCATION OFFICER IN MUFINDI DISTRICT, TANZANIA."** The study is for the purpose of academic as partial fulfillment of the requirement for the award mentioned above. I kindly request you to take a few minutes to answer the questions below. I would like to assure you that your answers will be kept completely confidential.

PART A: RESPONDENT`S PROFILE

Please circle the right answer

1. What is your Gender?

   a. Male b. Female

2. What is your Age?

a. 18 – 27 years b. 28 – 37 years c. 38 – 47 years d. 48 and above

3. What is your highest education level?

   a. Secondary Education b. Certificate c. Diploma

   d. Bachelor`s Degree  e. Master`s Degree and Above

4. Please indicate your work experience?

   a. Less than a year b. 1 – 3 Years c. 4 – 6 Years d. 7 years and above

B. THE ROLE OF INFORMATION TECHNOLOGY ON EFFECTIVE COMMUNICATION BETWEEN SCHOOL HEADS AND DISTRICT EDUCATION OFFICER IN MUFINDI DISTRICT, TANZANIA

Please circle a number from the scale below to show how you Agree/Disagree with each of the following statements in relation to your knowledge. Whereby, 1= *Strong Disagree* (SD) 2= *Disagree (D)* 3= *undecided* (U) 4= *Agree* (A) and 5= *Strongly Agree* (SA).

ITEM **SCALE**

	SD	**D**	**U**	**A**	**SA**
Accessibility of ICT infrastructure in communication among heads of schools and education Officer.	*	*		*	*
1. There are available ICT tools in my working environment	**1**	**2**	**3**	**4**	**5**
2. The network is available for use of ICT equipment	**1**	**2**	**3**	**4**	**5**
3. There is reliable power for working with ICT tools	**1**	**2**	**3**	**4**	**5**
4. The general ICT infrastructures are supportive for use of ICT	**1**	**2**	**3**	**4**	**5**
5. The government continues to build ICT infrastructure in the country	**1**	**2**	**3**	**4**	**5**
The role of ICT infrastructure in communication among heads of schools and Education Officer	*	*	*	*	*
1. The ICT tools enhances communication among heads of school and education Officer	**1**	**2**	**3**	**4**	**5**
2. The use of mobile phones makes communication more convenient	**1**	**2**	**3**	**4**	**5**
3. The use of ICT tools has reduced frequent physical meetings	**1**	**2**	**3**	**4**	**5**
4. Communication is less distorted by the use of ICT tools	**1**	**2**	**3**	**4**	**5**
5. There is timely delivery of information when ICT tools are used	**1**	**2**	**3**	**4**	**5**
Challenges facing the communication processes among head of schools and education Officer	*	*	*	*	*
1. The costs of ICT tools and services are high	**1**	**2**	**3**	**4**	**5**
2. There are frequent network problems around our area	**1**	**2**	**3**	**4**	**5**

3. The presence of virus in the internet poses a threat for ICT usage	**1**	**2**	**3**	**4**	**5**
4. There are poor working environment making it difficult using ICT	**1**	**2**	**3**	**4**	**5**
5. The levels of ICT literacy are poor for some of the users	**1**	**2**	**3**	**4**	**5**
Effective communication model among heads of schools and education Officer	*****	*****	*****	*****	*****
1. Information delivery is made easy through the use of ICT	**1**	**2**	**3**	**4**	**5**
2. ICT provides a feedback mechanism for people communicating	**1**	**2**	**3**	**4**	**5**
3. There is timely communication when ICT is involved	**1**	**2**	**3**	**4**	**5**
4. Timely decision making is enhanced when ICT is incorporated	**1**	**2**	**3**	**4**	**5**
5. ICT enhances timely implementation of decisions	**1**	**2**	**3**	**4**	**5**

Thanks for your cooperation.

Appendix 2: Interview Guide for District Education Officer

Dear Respondents, I am a student from the College of Business Education pursuing **Master of Education in Administration, Planning and Policy Studies at The Open University of Tanzania.** This questionnaire aims at collecting data that will enable the assessment of "**THE ROLE OF INFORMATION TECHNOLOGY ON EFFECTIVE COMMUNICATION BETWEEN SCHOOL HEADS AND DISTRICT EDUCATION OFFICER IN MUFINDI DISTRICT, TANZANIA."** The study is for the purpose of academic as partial fulfillment of the requirement for the award mentioned above. I kindly request you to take a few minutes to answer the questions below. I would like to assure you that your answers will be kept completely confidential.

PART A: RESPONDENT`S PROFILE

1. What is your Gender?

   a. Male b. Female

2. What is your Age?

a. 18 – 27 years b. 28 – 37 years c. 38 – 47 years d. 48 and above

3. What is your highest education level?

   a. Secondary Education b. Certificate c. Diploma

   d. Bachelor`s Degree e. Master`s Degree and Above

4. Please indicate your work experience?

   a. Less than a year b. 1 – 3 Years c. 4 – 6 Years d. 7 years and above

B. THE ROLE OF INFORMATION TECHNOLOGY ON EFFECTIVE COMMUNICATION BETWEEN SCHOOL HEADS AND DISTRICT EDUCATION OFFICER IN MUFINDI DISTRICT, TANZANIA

Accessibility of ICT infrastructure in communication among heads of schools and education Officer

1. What can you comment on the adoption of ICT for communication among heads of schools and education Officer?
2. What is the level of accessibility of the ICT tools such as mobile phones, computers etc.?
3. How are the ICT services available and accessible?
4. Is there a reliable power supply for using ICT tools?
5. What can you say on the reliability of the available network in relation to using ICT tools and services?

The role of ICT infrastructure in communication among heads of schools and Education Officer

1. Do you agree that ICT has enhanced communication among heads of schools and education Officer? Why?
2. What can you say on the frequency of meetings in the presence of ICT tools and services?
3. Has the presence of ICT tools and services improved the communication process? Please explain how?
4. What your observation on the frequency of miscommunication in the presence of ICT services?

5. Has the timing of delivering a message improved? Explain how?

Challenges facing the communication processes among head of schools and education Officer

1. Do you consider ICT tools as expensive? Why?
2. What's your observation on the network problems around the area?
3. Do you think all the heads of schools and education Officer are conversant with the ICT tools? What about the educational Officer? If No how do you think this affects the communication process?
4. Is the working environment supportive of the use of ICT tools and services? How?
5. Are there any other challenges on using ICT tools and services? Please mention them

Effective communication model among heads of schools and education Officer

1. Do you normally make decisions from the information provided via the ICT services such as email, phone calls or text messages? How is that convenient?
2. What can you comment on the overall communication convenient in the presence of ICT services?
3. Do you consider ICT to be effective in communication? Please explain
4. Are you saving any time for using ICT tools for communication? If yes, to what extent?
5. What's your suggestions for improvement of the use of ICT for communication among heads of schools and education Officer?

Thanks for your cooperation.

Appendix 3: Research Clearance Letter

THE OPEN UNIVERSITY OF TANZANIA

DIRECTORATE OF POSTGRADUATE STUDIES

P.O. Box 23409
Dar es Salaam, Tanzania
http://www.out.ac.tz

Tel: 255-22-2668992/2668445
ext.2101
Fax: 255-22-2668759
E-mail: dpgs@out.ac.tz

REF: PG201705413

23rd October, 2021

District Executive Director,
Mufundi District,
P. O. Box 223,
IRINGA.

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007. In line with the Charter, the Open University mission is to generate and apply knowledge through research.

To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you Mr. Robert Raphael Msigwa No: PG201705413 pursuing Masters of Education in Administration, Planning and Policy Studies M. Ed (APPS). We here by grant this clearance to conduct a research titled "Mediation of Information Technology on Effective Communication between School Heads and District Education Officers in Mufindi District, Tanzania". He will collect his data in your district between 25th October to 15th November, 2021.

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O. Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly, thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours Sincerely,

Prof. Magreth S. Bushesha
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA

JAMHURI YA MUUNGANO WA TANZANIA

OFISI YA RAIS

TAWALA ZA MIKOA NA SERIKALI ZA MITAA

HALMASHAURI YA WILAYA YA MUFINDI

Unapojibu tafadhali taja:

Ref.No.HW/MUF/S.50/17/VOL.II/221 24/10/ 2021

The Head of Secondary Schools,
Mufindi District Council,
MUFINDI

RE: PERMIT TO CONDUCT RESEARCH FOR MR. ROBERT RAPHAEL MSIGWA

Reference is made to above captioned subject.

The above mentioned is the bona fide student from Open University of Tanzania. The student is now preparing a research report as part of his academic requirements. The title of research is 'Mediation of Information Technology on Effective Communication between School Heads and District Education Officers in Mufindi District, Tanzania' He will collect his data in your school between 25th October to 15th November, 2021.

Therefore, you are requested to give support so as he could accomplish his research at right time.

Thanks for your cooperation.

Salima Kadinde
For, District Executive Director
Mufindi

FOR DISTRICT EXECUTIVE DIRECTOR
MUFINDI DISTRICT

Copy:

1. District Executive Director
   Mufindi
2. Robert Raphael Msigwa
   Dodoma

Ofisi ya Mkurugenzi Mtendaji S.L.P 223, Mafinga. Simu: +255262772614, Nukushi: +255263772070
Barua Pepe: ded@mufindidc.go.tz, Tovuti: http://www.mufindidc.go.tz

Appendix 4: Plagiarism Report

MEDIATION OF INFORMATION TECHNOLOGY ON EFFECTIVE COMMUNICATION BETWEEN SCHOOL HEADS AND DISTRICT EDUCATION OFFICERS IN MUFINDI DISTRICT, TANZANIA

ORIGINALITY REPORT

23%	19%	6%	14%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.ajol.info Internet Source	1%
2	dspace.cbe.ac.tz:8080 Internet Source	1%
3	ir.jkuat.ac.ke Internet Source	1%
4	www.ijern.com Internet Source	1%
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7	Www.ejmste.com Internet Source	1%
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