

**THE IMPACT OF VISUAL AIDS ON STUDENTS' ACADEMIC
PERFORMANCE: A CASE OF MKURANGA DISTRICT SECONDARY
SCHOOLS**

HUMPHREY NGONYANI

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION IN
ADMINISTRATION, PLANNING AND POLICY STUDIES OF THE OPEN
UNIVERSITY OF TANZANIA**

2018

CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by The Open University of Tanzania the dissertation titled: **The Impact of Visual Aids on Students' Academic Performance: A case of Mkuranga District Secondary Schools** in partial fulfillment of the requirements for the Degree of Masters of Education in Administration, Planning and Policy Studies (MEDAPPS) of the Open University of Tanzania.

.....

Dr. Martina K. Rwegelera
(Supervisor)

.....

Date

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DECLARATION

I, **Humphrey Ngonyani**, do hereby declare that this dissertation is my own work and that it has not been and will not be presented to any other University for similar or any other degree award.

.....

Signature

.....

Date

DEDICATION

I dedicate this dissertation to my parents, my father Kaspar Joseph Ngonyani, my mother Clementina Christian Nyema for encouraging me to pursue education so I could achieve much in life.

ACKNOWLEDGEMENT

First and foremost, I extend my heartfelt gratitude to God for giving me energy, good health and protection during the whole period of my study. It is only because of grace, and strength bestowed upon me by Almighty God that I was able to go through this Maters Program. Secondly, I would like to thank all the precious people whose encouragement and immense contributions have led to the success of this work.

Special thanks should go to my supervisor Dr. Martina K. Rwegelera who despite her tight schedule found time to supervise my work, offering her tireless, assistance, guidance, support and encouragement. Next, I thank my family, especially my parents and siblings who encouraged and supported me during the whole period of my studies.

More thanks go to my dear friend Jacqueline Mrope who spared her time and assisted me in allocating relevant reading materials for this research and offering her invaluable advice. I greatly appreciate the help of the Head of Mdaula Secondary School, Mr. Melkisedeck Komba and fellow staff especially the members of English department for bearing additional work burden during my absence for this study. I also recognize the contribution of District Education Officer (DEO) of Mkuranga District, Mr. B. A. Majoya for granting me permission to carry out research in Mkuranga District.

Furthermore, my sincere thanks go to head teachers, academic masters/ mistresses, teachers, and students in Mkuranga District schools, particularly Vikiindu, Kiparang'anda, Mwarusembe, Mwinyi and Dundani Secondary Schools, who participated in this study. I appreciate their willingness, cooperation and time they spared to participate in interviews for this study. It was through them this study was able to achieve its objectives.

ABSTRACT

This study explored the impact of visual aids on students' academic performance in Mkuranga District secondary schools. The motive behind the study was to find out whether use of visual aids in teaching influences students' learning and academic performance. The study examined different visual aids used by teachers of Mkuranga district secondary schools and their effectiveness to students learning as well as challenges facing teachers in preparation and use of visual aids. Qualitative approach was used due to its nature and relevancy to this study. A sample of 90 participants was selected including students, teachers and heads of schools. Data was collected using interviews, focus group discussion, observation and documentary review. Thematic approach was used in data analysis. Findings of the study established that appropriate use of visual aids has influence on students' academic performance. Through study findings, it was revealed that many students in the schools studied performed poorly academically, as reflected in poor Form Four National Examinations results, because teachers mostly relied on chalkboard as their major visual aid. They failed to supplement it with other visual aids in order to increase students' understanding and retention of what they taught them. This was caused by absence of different visual aids at schools as well as lack of fund to purchase and repair available visual aids. The situation was worsened by lack of skills and experience among most teachers. Apart from pre service training, teachers in the schools visited had not received any other training on preparation and use of visual aids. The study recommended several ways in order to rectify the situation. Further research was also recommended on the topic using a larger sample by using a survey research approach in order to give room for generalization of data to a large sample.

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LIST OF ABBREVIATIONS

AV	Audio Visual
CBC	Competency -Based Curriculum
CCP	Child Centred pedagogy
CSEE	Certificate of Secondary Education Examination
DED	District Executive Director
DEO	District Education Officer
ESR	Education for Self-Reliance
FGD	Focused Group Discussion
MoEVT	Ministry of Education and Vocational Training
NECTA	National Examination Council of Tanzania
OECD	The Organisation for Economic Co-operation and Development
SEDP	Secondary Education Development Programme
TDV	Tanzania Development Vision
TETP	Tanzania Education and Training Policy
TIE	Tanzania Institute of Education
URT	United Republic of Tanzania
VCR	Videocassette Recorder

CHAPTER ONE

1.0 BACKGROUND INFORMATION

1.1 General Introduction

This chapter presents an overview of research background, statement of the problem, purpose, general and specific objectives of the research as well as research tasks and questions. It also provides theoretical framework, significance of the study and organization of the dissertation. Lastly, it gives the limitation of the study, definition of key terms and a brief summary of the chapter.

1.2 Background of the Problem

Education is defined as the aggregate of all the processes and means by which a person develops abilities, attitudes and other forms of positive behavior and value in the society in which he or she lives (Ikporukpo 2001). Developing country like Tanzania requires education to promote development of its people and facilitate country's economic transformation (URT 2016). In Tanzania Education and Training Policy (TETP) of 1995, it is stipulated that a good education system in any country must be effective in both quality and quantity (URT, 1995). Nonetheless, current education system in Tanzania is characterized by low students' achievement and performance as seen in poor national examination results one year after another (Omari, 2013 and David, 2014).

Students' academic performance is dependent on many variables. These include; teaching methods and approaches (Redza *et al*, 2013:), learning infrastructure and

facilities (Mushtaq and Khan, 2012), presence of quality teaching materials (Mhonyiwa, 2014), school environment and location, (Wilson, 2013), school peers (Zimmerman, 1999, 2001), teachers' commitment (Komba and Nkumbi, 2008), number of students in the class (Karue and Amukowa, 2013) as well as students' attitudes towards different subjects (Unameh, 2011). However, this research is interested in visual aids and how its use or non use affects students' learning and academic performance

According to Okeke (2013) visual aids are any visible materials or equipment employed while teaching to aid learning. Devries (2017) explains that visual aids such as pictures and photographs facilitate learning by supplementing teacher's verbal information. This underlies a well-founded theoretical underpinning that pictures, images and other visible aids promote better understanding to students than words alone (Mayer, 2005). Over generations, different kinds of visual aids have been used by teachers to enable meaningful learning. Some new forms constantly emerge as a result of improvements in educational science and technology (Krukru, 2015).

Preference for visual media is natural for human beings. Babies retain visual images long before they develop ability to interact with other people effectively (Boor, 2013). For example, they recall faces of close people such as parents and other siblings and associate things like fire with pain. As children grow up and mature cognitively, visuals become even more important. Jean Piaget's cognitive development theory describes the years between 2 to 7 as a pre-operational period

where the child learns to use and represent objects by images, words, and drawings (Mazhabin, 2013). According to Joubish and Khurram (2011) and Woolfolk (2014), the use of concrete objects and visual aids such as drawings and illustrations are crucial in teaching children at this stage.

Literature support that visual sense is a critical factor for learning. A study conducted by a psychologist and educator Jerome Bruner, cited by Lester (2012), showed that persons remember only 10 percent of what they hear, 30 percent of what they read, but about 80 percent of what they see and do. According to Gould and Roffey-Barentsen (2018) 83% of our learning is achieved through the sense of sight. 11% comes from the sense of hearing, 3.5% through the sense of smell, 1.5% through the sense of touch and another 1% through sense of taste. Emes and Velde (2005) suggest that most learners require visual content to learn. The preeminence of visual sense in learning further bears credence in famous Chinese proverb “one sighted is worth, a hundred words”.

The overall success of any lesson in the classroom relies to the teacher’s use of visual aids to enrich and supplement the subject matter taught (Stokes, 2002; Konomi, 2014). For every hour a teacher speaks, only about 8 – 10 minutes of the information given is retained in the students’ mind. The rest of the information is lost as learners tend to lose interest and attention to the content being presented especially when the lesson is dull and gloomy (Thomas, 2013). However, when visual aids are used interest and retention of the learners escalates and learning in general increases (Phillip, 2005).

Delving further, Gaikwad (2013) suggests that perception, understanding, transfer of training, recall and retention are enhanced when instructional materials are matched to the specific objectives of the lesson and learners' characteristics. Therefore, when instructional materials consist of visual aids which are properly utilized, they help to promote learning because majority of learners are visual learners and have preference for visual content (Emes and Velde, 2005). According to Klemm (2007), learning happens by associating new information with what one already knows and associations are most effective when they include visual materials such as pictures and real objects.

Visual aids are useful for behaviour and classroom management as well (Cardillo, 2017). Teachers using visual aids improve class discipline by increasing motivation, attention and interest of the learners (Burgess, 2011 and Aggarwal, 2014). In contrast, classes that lack attention cannot receive instructions properly. This may lead to poor comprehension and performance. For most students, visual aids lead to increase in levels of attention helping them to easily acquire different skills. In line with this, Eick and King (2012) assert that use of visual aids improves learners' attitude and interest to the subject which increases their motivation to learn taught material.

The mere use of visual aids, however, does not guarantee effective lesson delivery, or effective learning. It is teacher's careful and skillful handling of visual materials that increases the value of such aids in enabling learning. According to Vaugh and Wang (2009) teachers are often unsuccessful in using visual aids in real world

practice due to a range of factors such as failure to identify individual characteristics of the learners and develop visual aids congruent to learners learning styles. It is therefore critical for teachers to become familiar with different types of visual aids and how they can be used properly in a manner that students understanding can be improved.

The Government of United Republic of Tanzania (URT) recognizes the role of visual materials in enhancing students learning and performance. Since independence there has been an unprecedented effort to establish and consolidate the use of visual materials at schools and other learning institutions. In 1967, for example, Nyerere issued Education for Self-Reliance (ESR) paper on educational policy which, among other things, insisted that education should be practical, based on real life and provide opportunities for students to comprehend concepts from their prior knowledge and experiences (Mtitu, 2014). Through ESR policy implementation, students were to learn by observing and practicing various productive activities (Ahmad et al, 2014).

The revision of secondary school curricula by Tanzania Institute of Education (TIE) from content to competence-based curricula (CBC) in 2005 further highlighted the use of real life demonstrations and visual materials in order to develop learners' competence in different subjects and facilitate teaching of real life skills (Kiita and Tilya, 2010). The shift implied that classroom teaching had to integrate theory and practice and feature real life demonstrations such as role plays, class projects, study visits as well as extensive use of audio and visual content. However, despite these

efforts, not much has been achieved in terms of students learning and academic performance.

Like other public secondary schools in Tanzania, poor students' academic performance is noted in Mkuranga district. The situation is alarming and poses a serious threat to the achievement of highly aspired national industrial economy. If allowed to continue, it will discourage government initiatives to promote quality basic education. It will also hamper the success of Tanzania Development Vision (TDV) which intends for Tanzania to be an educated and learning society by 2025. Hence, this research finds it necessary to investigate the root cause of poor students' academic performance in Mkuranga District secondary schools by focusing on the contribution of visual aids.

1.3 Statement of the Problem

Like many other countries in the developing World, Tanzania is currently working towards improving the quality of secondary education (Saga, 2014). In relation to this, the government has taken various initiatives such as establishment of Secondary Education Development Programmes (SEDPs) which, among other things, aimed at improving access, equity as well as delivery of secondary education in Tanzania in order to increase students' learning and academic performance at secondary school level. Whereas the programmes succeeded in improving access in education, for instance, the number of secondary schools tripled between 2004 and 2009, a review of SEDPs show that substantial improvement has not been made in students' academic performance.

Literature upholds that students learning and performance is influenced by many things which students encounter in the process of learning at school. These may include: availability of textbooks, presence of adequate number of teachers, teachers motivation in teaching, conducive learning environment, manageable number of students in the class as well as efficient teaching practice due presence of use of relevant teaching methodology and proper instructional materials such as audio and visual aids.

However, this research is interested in how visual aids relate to students' learning and academic performance in secondary schools of Mkuranga district where most students get marginal pass of "Division IV" or fail completely. This can be noted in Form Four National Examination results of five community secondary schools of Mkuranga District namely; Mwarusembe, Mwinyi, Kiparang'anda, Vikindu, and Dundani as shown in the following tables:

Table 1.1: Students' Performance in Form Four National Examinations at Mwarusembe Secondary School, 2012-2016

Year	Division I	Division II	Division III	Division IV	Division 0
2012	0	0	1	11	64
2013	0	1	5	9	10
2014	0	2	4	12	19
2015	0	5	6	26	8
2016	0	3	8	21	16

Source: National Examination Council of Tanzania (NECTA). Examination Results

Statistics 2012-2016

Table 1.2: Students' Performance in Form Four National Examinations at Mwinyi secondary school, 2012-2016

Year	Division I	Division II	Division III	Division IV	Division 0
2012	0	0	5	29	102
2013	0	4	11	21	41
2014	0	2	10	17	20
2015	0	0	7	43	80
2016	0	6	7	65	58

Source: National Examination Council of Tanzania (NECTA). Examination Results Statistics 2012-2016

Table 1.3: Students' Performance in Form Four National Examinations at Kiparang'anda secondary school, 2012-2016

Year	Division I	Division II	Division III	Division IV	Division 0
2012	0	0	2	22	75
2013	0	0	0	18	32
2014	0	0	1	4	4
2015	0	1	3	18	14
2016	0	1	3	35	34

Source: National Examination Council of Tanzania (NECTA). Examination Results Statistics 2012-2016

Table 1.4: Students' Performance in Form Four National Examinations at Vikindu secondary school, 2012-2016

Year	Division I	Division II	Division III	Division IV	Division 0
2012	0	0	5	24	111
2013	0	3	5	18	50
2014	1	2	2	34	17
2015	0	0	7	47	40
2016	1	2	3	52	126

Source: National Examination Council of Tanzania (NECTA). Examination Results Statistics 2012-2016

Table 1.5: Students' Performance in Form Four National Examinations at Dundani secondary school, 2012-2016

Year	Division I	Division II	Division III	Division IV	Division 0
2012	0	0	0	10	73
2013	0	0	1	13	42
2014	0	2	3	5	3
2015	0	1	5	26	18
2016	0	3	1	19	38

Source: National Examination Council of Tanzania (NECTA). Examination Results Statistics 2012-2016

In all five consecutive years no research has been done on the factors influencing poor performance in those schools especially focusing on visual aids and their influence academic performance. This has attracted researcher's attention to prove Gould and Roffey-Barentsen (2018) hypothesis that 83% of our learning is achieved through the sense of sight. After identifying the factors embedded in poor student learning and academic performance in studied schools, the way forward will be suggested.

1.4 Purpose of the study

The purpose of the study was to investigate the impact of visual aids on students' academic performance in Mkuranga District Secondary School.

1.5 Research Objectives

The general objective of this study was to investigate the impact of visual aids on students' academic performance in Mkuranga District Secondary School. It sought to explain from the data collected, the impact of visual aids on students learning and

academic performance as well as making recommendations for improving students' academic performance.

1.5.1 Specific objectives

In the light of this wide aim, the specific objectives of this research were therefore:

- (i) To identify visual aids used by teachers and their effectiveness to students learning.
- (ii) To examine the challenges facing teachers in preparation and use of visual aids.

1.6 Research Tasks and Questions

The following research tasks and accompanying research questions guided the study.

Task 1: To identify visual aids used by teachers and their effectiveness to students learning

Questions:

- i). Do teachers use visual aids in teaching?
- ii). What kind of visual aids are used by teachers in teaching?
- iii). Are the visual aids used by teachers capable of motivating students to learn?
- iv). Do visual aids facilitate students understanding of the lesson?
- v). Are teachers trained in the preparation and use of visual aids?

Task 2: To examine the challenges faced by teachers in preparation and use of visual aids

Questions:

- i). Are visual aids bought or prepared by teachers?

ii). Are visual aids available at school?

iii). What problems do teachers face in preparation and use of visual aids?

1.7 Significance of the Study

The present study on the impact of visual aids on students' academic performance is expected to be of great significance to students, teachers, researchers and various government authorities from district, regional and national level. This study should serve as reference to teachers who wish to find out the impact of visual aids on students' academic achievement. From the findings, teachers will be able to understand the need of visual aids in teaching in order to enhance students' understanding and academic performance. It will also identify the appropriate visual aids that influence learners and arouse their interest to study and participate effectively in the classroom. From the findings, teachers will be able to understand the different ways in which students learn and how visual aids are important in student learning.

The study should encourage teachers, lecturers, and instructors who do not use visual aids to do so since it provides concrete evidence of the output experienced by fellow teachers who use visual materials in teaching. It is also expected that the study will be of substantial significance to researchers who wish to embark on further research on impact of visual aids on students' academic achievement and fill the research gaps. Finally, it is believed that the study will remind concerned authorities at district, regional and national level about the importance of visual aids in students learning.

1.8 Theoretical Framework for Visual Aids in Relation to Students Academic Performance

In this study, the researcher has adapted the cognitive theory of multimedia learning. The theory is based on Mayer's (2005) multimedia principle which basically posits that people learn more deeply from words and pictures than from words alone. It draws knowledge from Paivio's Dual coding theory (1990), Sweller's Cognitive load theory (1994) and Bruner Constructivist theory (1960) and was made popular by Richard E. Mayer and other cognitive researchers. The major argument of the cognitive theory of multimedia learning is that multimedia supports the way that human brain learns and process information and, therefore, students would learn, achieve and perform more if multimedia content such as images and objects were used with words to facilitate learning. The theory further posits that for meaningful learning to occur, a learner engages in three cognitive processes namely; selection, organization and integration of received information which consists of text and images.

1.8.1 Selection

In this cognitive process, learners select relevant words and pictures. Mayer's (2003) studies showed that learners' verbal and visual memory is limited. To overcome memory limitation, learners need to select only a portion of the presented words or pictorial material. The relevant words selected by the learner pass through auditory sensory memory while the relevant part of the presented pictorial information selected by the learner pass through visual channel though it is possible to convert

part of it to the auditory channel (for example, by mentally narrating an ongoing animation).

1.8.2 Organization

Relevant words and images selected by learner are then organized into a coherent representation. This process involves a learner building connections among pieces of verbal or pictorial knowledge. The process occurs in the auditory and visual channels respectively and is subjected to the same memory limitations that affect the selection process. In organizing, Mayer (2003) argues that learners do not build all possible connections among words or images, but rather they focus on building simple set of connections or a simple structure that makes sense to the learner such as a cause and effect chain.

Therefore, when a learner is presented with textual and pictorial content which is well organized in advance, it assists him/her to make connection with easy and helps to build one's own simple structure. Mayer (2005) stated that organization is crucial in learning since the learner increases the likelihood of remembering as he/she repeats well-organized verbal and pictorial information in his memory.

1.8.3 Integration

According to Mayer (2005), integration is the most significant stage in multimedia learning as it involves making connections between word-based and picture-based information. Studies conducted by Mayer (2003) have shown that meaningful learning occurs as a result of learner's attempts to combine verbal and visual

information. Cognitive multimedia theory upholds that linking the verbal and pictorial model helps the two to complement and assist each other. Therefore, the learner can understand effectively because the different models are processed simultaneously. Integration happens when a teacher presents the content using both words and visual aids such as images. Hence, textual and pictorial information complement each other in learning.

In this study, multimedia refers to different visual materials such as realia, models, specimens, charts, slides, and pictures. Meaningful learning implies the students' ability to understand the lesson taught and reflect such understanding with high performance in form four National examinations.

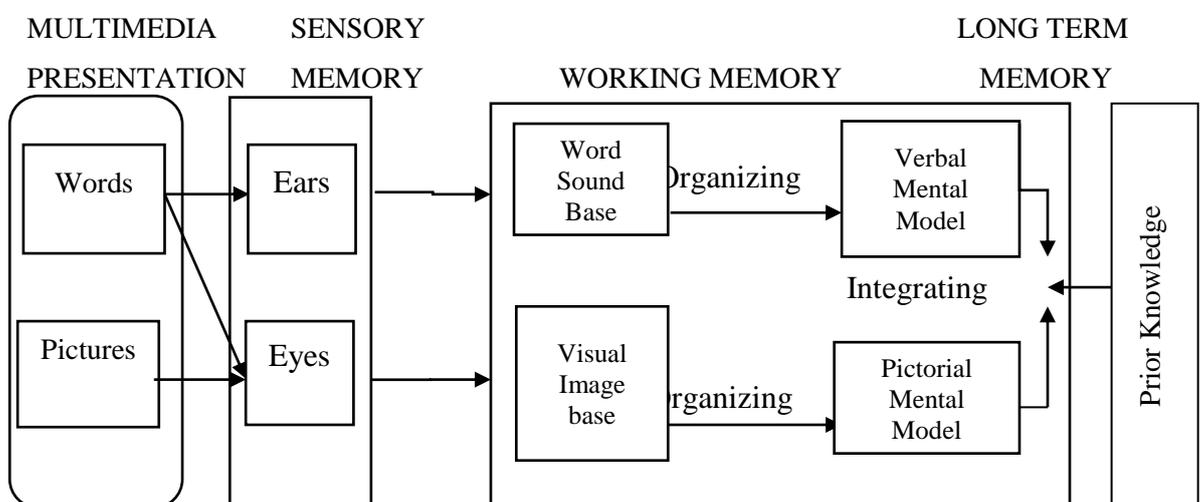


Figure1.1: Multimedia Theory of Learning

Source: Multimedia theory of learning adapted from Mayer (2003)

1.9 Limitation of the Study

Although every effort was made to ensure success of this research, the researcher was faced with the following limitations: Some heads of schools were not easily

available due to busy schedules and many responsibilities. To overcome this, the researcher had to visit some schools more often than anticipated in order to find convenient time for them to participate in the study. This added transport costs and prolonged field time. Subject teachers were also reluctant having a researcher in the class to observe their lessons. Some of them gave excuses when they had to be observed so they didn't attend their classes. To overcome this, teachers were assured that their identities would not be revealed in the report. Unwillingness of some participants to participate in the study was another limitation. However, the researcher made effort to interview willing participants at time they found convenient.

1.10 Definition of Key Terms

Form Four National Examination: This is an achievement test offered to candidates who have completed four years of secondary education. It is also known as Certificate of Secondary Education Examination (CSEE).

Realia: These refer to materials and objects from real life such as plants, stones, tools, artifacts, and specimens used by teachers in classroom to facilitate understanding of the lesson being taught.

Visual aid: It refers to a device through which the learning process may be encouraged or carried out through the sense of sight and touch. Visual aids include pictures, realia, maps, wall charts and photographs.

Community secondary schools: These are the post-primary educational institutions offering secondary education which are established and financed in partnership between government, community and other actors.

Audio-visual aid: This refers to a learning aid that uses both vision and sound to transmit information and promote learning. They include video tapes, films and demonstrations.

Models: In this study, models refer to replicas or copies of real objects with suitable change in size, complexity, timing, safety and cost factors. They are miniature representation of physical objects used by teachers in place of real objects particularly when it is inconvenient, dangerous or impossible for real objects to be brought in the class.

1.11 Organization of the Dissertation

The dissertation is divided into five chapters. Chapter one has given the background of the study, statement of the problem, research purpose, general as well as specific research objectives, significance of the study, theoretical framework and limitation of the study. Chapter two presents a review of relevant literature, synthesis of literature and the knowledge gap. Chapter three consists of research methodology, data collection methods, data analysis procedures and ethical considerations. Chapter four provides data presentation, analysis and discussion; whereas chapter five (the final chapter) deals with summary of the study, conclusion and recommendations. It also presents areas for further research.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of literature related to the impact of visual aids in relation to students' academic performance. It is organized to cover the general overview of visual aids, essence and development of visual aids in teaching as well as empirical literature review on visual aids focusing on both developed and developing countries. It also presents research knowledge gap and summary of the chapter.

2.2 General Overview of Visual Aids

The term visual aid has been defined by many scholars. Budinski (2005) views visual aids as any materials or demonstrations presented during an oral presentation to support or enhance verbal message. According to this view, well prepared visual aids are useful in complementing unclear and incomplete information communicated orally by the teacher. Dash and Dash (2007) conceptualize visual aids as devices that enable learning by appealing to the sense of vision or eyes of the learner. This line of thinking is supported by Bove'e (2003) who perceive visual aids as important tools for reinforcing teachers' ideas, building credibility, and conveying information more effectively while leaving less room for learners to misinterpret the information presented by the teacher.

On the other hand, Imogie and Agun (2008) see visual aids as any materials which are employed during teaching in order to facilitate learning by stimulating visual

senses. From this view, visual aids are more useful in enabling learning as they provide additional stimuli apart from oral information given by teachers. This implies that visual aids enable learners to obtain concrete realization of objects and phenomena. More recently, Hamilton (2014) has defined visual aids as anything presented to an audience in a form that listeners can see to supplement the information they hear. For the purpose of this study, visual aids refer to any instructional devices that appeal to the sense of sight used by teachers to facilitate meaningful learning. They include real objects (realia), models, specimens and pictures.

2.2.1 Categories of Visual Aids

Visual aids may be identified into two sub-categories: projected and non-projected (Pike, 2003; Rather, 2004; Mangal and Mangal, 2009). Let us start with projected visual aids.

2.2.1.1 Projected Visual Aids

Hussain *et al.* (2009) define projected visual aids as pictures shown upon a screen by use of a certain type of machine such as a filmstrip projector, slide projector, overhead projector or TV/VCR. On the same matter, Okaw (1995) asserts that projected visual materials are those instructional materials which require projection for viewing. Accordingly, Dash and Dash (2007) perceive that projected aids as those visual aids where a bright light is passed through a transparent picture by means of lens and enlarged picture is shown or projected on the screen or the white wall.

Projected visual aids include silent motion picture and filmstrips, computer graphics, epidiascope, magic lanterns, macro projections, and projection with the opaque and overhead projectors (Wilson and Brent, 2005). In relation to projected visual aids, Abdullahi (1998) surmise that a lighted screen has advantage of attracting student's attention and teachers should therefore select and project visuals for the sole purpose of sustaining the attention of their students. He further adds that projected visual aids may be used as substitutes for the real things, in particular, those that are either too far away, too dangerous or too big to be brought in to class room or too small to be seen by the human eye or inaccessible because of their cost or importance.

According to Aboyade (1981), projected visual aids are expensive, sophisticated and require light or power source such as electricity to be operated. They also significantly reduce influence of the teacher in the learning process as they are not flexible enough to allow extensive modification to reflect the lesson taught. Likewise, McArdle (2015) explains that projected visual aids are useful for large groups of people because everyone in the audience can see them properly.

On this matter, Barnes (2013) suggests that an advantage of projected visual aids over non visual aids is that they can be used to project any kind of materials that is written, drawn, or printed. He also adds that this type of projection can be used in a fairly well lit room, which facilitates easy note taking and teacher interaction with learners. In support of this, Boor (2013) explains that when projected media materials are used in teaching, they improve interaction between teacher and learners and give instructions a more scientific base through providing a framework for

systematic instructional planning. After learning about projected visual aids, let us dwell on non-projected visual aids.

2.2.1.2 Non-Projected Visual Aids

These are visual aids that do not require any form of projection before they can be used. Visual aids in this group do not require projector, projector screen and electricity (Anyanwu, 2003). Non-projected visual aids can be print or non-print materials (Sisiliya, 2013). Print materials are the journals, textbooks, newspapers, magazines, periodicals, and others while Non-print materials include chalkboard, felt board, bulletin board, photographs, posters, pictures, maps, graphs, wall charts, flip charts, globes, realia, models, specimens, and textbook illustrations.

According to Jurich (2001), the use of non-projected visual aids such as pictures in teaching provides individual students with a tool to connect new words to a known meaning. This facilitates understanding and memorization. In addition to that, Iwu *et al.* (2011) maintain that non-projected visual materials such as specimens are particularly useful in enabling effective teaching of science concepts as it makes the science teachers work easier. According to Akram *et al.* (2012) models present simplified form of abstract and complex concepts so that learners can easily understand.

Interestingly, Dash and Dash (2007) observe that non-projected visual aids are simple to use as they can be shown, hung on the wall, touched and handled by every child. They are usually easily available and can be procured from local environment

or produced by teachers in the staffroom. Moreover, Hilmi and Sim (1997) assert that, these aids can be of great variety of size, shape or color, with local interest or appeal. They can also be adapted to the needs of a variety of subjects. After going through the general overview of visual aids, let us see the essence and development of visual aids in teaching.

2.3 The Essence and Development of Visual Aids in Teaching

Visual methods of teaching are by far the oldest means of instruction in the World and, for many purposes are still the most effective (Curzon and Tummons, 2003). Early men learnt by direct experience before they could talk or write. Prior to development of written languages, the use of visual signs was common among primitive societies. An argument can be placed that the use of visual aids began as early as people thought there was a need to present their thoughts in the form of graphics or images. In his writing, Barbour (2001) quotes Plato as one of the earliest scholars who used concrete items such as “the cave” in explaining his most abstract ideas.

Literature documents the first visual aids used by prehistoric man as crude but plain drawings made on the walls of the caves and rocks either to warn his fellow-man of approaching danger or depicting events in his life which he wanted portrayed. Similar forms of visual aids have been observed in historical sites found in different parts of the World. In Tanzania, many such drawings and paintings are found near the village of Kolo at Kondoa Irangi and Amboni caves in Tanga (URT, 2016).

According to Recto (2005), before reaching the period of puberty, primitive children, were able to learn by doing and by observing daily social practices. Boys were taught how to hunt, fish and dig while girls learned to do home chores by watching their mothers. In many cases real objects were preferred for teaching children. For example, arrows, bows and spears were common tools that the boys were taught how to use. Since the purpose of education was to teach practical skills, children learned visually by participating and imitating adult activities (Kerubo, 2016). In the same vein, adults preferred to impart knowledge to young learners through real objects and visual demonstrations.

During initiation, particularly in local African societies, the boys and girls underwent sustained period of instruction which was made possible with extensive use of sculptural figures and artworks, most of which were made of wood and metal. Many concepts were explained visually and the children learned by practicing and observing their trainers. Although visual representation of ideas varied from one society to another, they all served as a media to facilitate comprehension (Kerubo, 2016).

In addition, early men used visual signs like arranging stones in a certain way to convey message and drawing sand in the seashore. Maps drawn on the surface also served as a visual tool for providing instructions. On the other hand, Borowski et al. (1998) points to the use of fire and smoke signals as a form of long distance visual communication between people. In general, expressing things visually has been a common practice among generations of people for a long period of time.

Developments in the field of science and technology particularly in the 21st century have contributed greatly to increase in availability of visual materials (Sisiliya, 2013). For instance, invention of computers has simplified the design and making of visual media (Costley, 2014). New projection instruments and materials that appear every year have revolutionized ways of displaying visual content. Digital video technology provides teachers with ability to produce their own videos or search for those which match in the best way with the students' needs and interests (Shrosbree 2008). The widespread use of mobile devices in accessing internet services further makes it possible for teachers across the world to share visual content for their learners.

After seeing the essence and development of visual materials in teaching, now let us see the empirical literature review related to visual aids and learners' performance in developed and developing countries.

2.4 Empirical Literature Review

Quite a number of studies have been conducted by various researchers in the area of visual aids and students' performance. This speaks of the value of visual aids in education and teaching process in particular. In this part of dissertation, a few of the findings related to visual aids and its impact to students' achievement and performance are going to be reviewed. The focus is on studies carried out in both developed and developing countries. Let us start with studies from developed countries.

2.4.1 Visual Aids and Learners Performance in Developed Countries

According to Hussain and Safdar (2008) development of educational technology especially with the use of audio-visual aids increasingly substitutes the burden of teaching. This is particularly the case for developed countries where visual aids are strongly integrated with teaching curriculums in order to complement students' learning. In developed countries, studies related to the use of visual aids and students' performance have been carried out in Unites States of America, United Kingdom, Australia and Japan. Let us begin by reviewing the empirical studies related to the use of visual aids in USA.

2.4.1.1 United States of America

Harwood and McMahon (1997) carried out a study to explore the effects of integrated video media on students' achievement in Chemistry. The researchers used treatment-control experimental design where 450 students in grades 9-12 were sampled. Among the findings was that treatment students who experienced chemistry course enhanced with structured chemistry video series showed significant higher achievement than control group. It was also found out that students enjoyed learning through videos and recommended more of that kind of visual instruction in the future. However, the researchers noticed that teachers need to be well equipped in instructional technology in order to design effective visual video-enhanced instruction and exploit technology available in their schools.

Bui and McDaniel (2015) investigated the influence of outlines and illustrative diagrams in enhancing learning. In a study which involved 144 undergraduate

students carried out at Washington University in St. Louis, the researchers made students listen to a 12-minute lecture about car brakes and pumps after dividing them into groups and expose them to either skeletal outline, an outline diagram, or no learning aid at all. When students' understanding and retention of the taught concept was tested at the end of the lecture, it was found that illustrative diagrams were instrumental in bringing better performance among students. Bui and McDaniel (2015) concluded that illustrative diagrams describe components in close details are very efficient in helping students build coherent mental representations which leads to better students' performance.

Likewise, Vaughn and Wang (2009) researched the influence of user-controlled visual aid for improving students' understanding in introductory statistics. The study exposed 18 students of the University of Texas at Austin to animated visual aid. Findings showed that the particular animated visual aid significantly improved student's academic performance and confidence in applying-level knowledge. However, the researchers noted that students' improvement was limited to applying-level knowledge while students remembering, understanding and analyzing level knowledge did not significantly improve. They recommended that more success in students learning could be achieved by optimizing the use of animated visual aid to cover all levels of knowledge.

Carpenter and Olson (2011) study examined the effect of teaching new vocabularies through pictures in a research which comprised a total of 116 undergraduate students from Iowa State University. The researchers explored whether new words in a

foreign language are learned better from pictures than from native language translations. The sample population was divided into two groups where one group was given Swahili words paired with pictures and others were given Swahili words paired with English translation. Four experiments were conducted in the study and it was found that there was significant advantage in the recall of Swahili words from pictures compared with English translations. However, learners' overconfidence on the power of pictures to help them in learning new words seemed to negatively affect their ability to recall Swahili words.

On the same issue of visual aids, Perry (2013) conducted a research on rural high schools in Southeast Ohio. She hoped to examine the effects of visual media on achievement and attitude in biology classroom. Through the study, it was revealed that teachers in the schools continuously use visual aids at varying degrees which was linked to improvement of students' engagement, attention and attitudes to the subject. On the other hand, the researcher found no positive correlation between the use of videos and students' performance. However, she suggested if students can pay attention and focus better in class, then videos could be a positive and useful teaching strategy. This is because increase in students' attention positively affects lesson delivery and students learning.

Related studies in USA also demonstrates that various factors such as access to technological facilities like computers and projectors account for the extensive use of visual aids in schools and colleges (Perry, 2013). According to the U.S. Department of Education's National Center for Education Statistics (2009) 97% of teachers in

USA have access to computers for their students and use projectors for almost 72% of their teaching. In a different study, Stigler and Hiebert (2009) reports that many teachers in US have replaced the chalkboard with overhead projectors in teaching. After looking at the use of visual aids in teaching in United States of America, let us now dwell on studies related to use of visual aids in United Kingdom.

2.4.1.2 United Kingdom

Barmby et al (2013) carried out a research to examine the influence of visual representations in primary mathematics in the schools from North East of England. The researchers sought to examine how visual representations can be applied in teaching multiplication and fractions for primary classrooms and the effect it would have on students learning. Experimental design was used and eight primary schools' coordinators implemented a teaching programme using visual representations. The impact of the teaching programme as measured through observations of teaching, pupils' tests, interviews with teachers and interview with pupils showed positive impact on pupils in the respective schools. Findings showed that understanding and performance in multiplications and fractions increased when these areas were taught using visual representations.

In his doctoral dissertation, Napper (2014) made an attempt to investigate the impact of visual aids in post-compulsory education in United Kingdom by focusing on teachers practice with regards to visual aids and the effectiveness of text, images and imagery in enhancing understanding of lectures. The investigation into lecturers' practice found that many post-compulsory teachers and lecturers had received no

training in the preparation and use of visual aids during their initial teacher training. The researcher also found out that carefully designed images led to increase in learner engagement to the lesson. On the other hand, no additional benefit was noted when teachers used text alone in teaching students.

Apart from United Kingdom, the following studies were conducted to investigate the impact of visual aids in students learning in Australia.

2.4.1.3 Australia

Nooriafshar (2005) of Australia carried out a research on the effectiveness of practical and visual aids in teaching mathematics principles focusing on a group of twenty first-year undergraduate students from different mathematical background who were selected for the purpose of the experiment. In a study, the researcher presented mathematical concepts using visual methods and employed questionnaire to collect information from students on the aspect of lesson they found beneficial. His findings showed 65% of the students who participated in the study preferred seeing relationships and patterns demonstrated to them visually. These findings were similar to other studies carried out by Nooriafshar *et al* in 2004.

On the other hand, Moore and Scevak (1997) investigated the ways in which students in primary and secondary schools process texts and accompanying visual aids. They targeted 119 students from Grade 5, 7 and 9 who were exposed to history and science materials containing both visual text and visual aids (tables, diagrams). From the study, it was found that older students were able to apply different strategies and

tactics to enable their concept comprehension. The researchers attributed this achievement to the presence of metacognitive awareness among older learners which make them capable of not only questioning but imaging and relating information to prior knowledge. The study concluded that visual aids are much useful for enabling learning for older than younger children. Apart from Australia, also let us view the use of visual aids in Singapore

2.4.1.4 Singapore

As one of the country with fastest growing economy in the World, Singapore is well invested in education. The country's main subjects that every learner must take are science and mathematics. The two subjects are well taught with the help of visual presentations and visual aids. According to Teng (2014) Singapore has achieved much success through its unique approach to teaching mathematics and science by using visual means such as objects, pictures, and diagrams. The visual teaching approach, also known as 'model method' has been in use in Singapore since 1980s and is based on American psychologist Jerome Bruner's theory that people learn in three basic stages. It begins with learners handling "concrete" objects, to drawing "pictorial" representations of them, and eventually understanding and using "abstract" mathematics symbols. For many years, this approach to using visual aids has led to improvement in learners' achievement in Singapore (OECD 2010).

According to the 1995, 1999, 2003 and 2007 Trends in International Mathematics and Science study, Singaporean students ranked first in the world mainly due to its mathematics curriculum which emphasizes extensive use of visual aids (OECD,

2010). A series of mathematics textbooks titled 'My pals are here' which uses pictorial representations of numbers are used all over Singapore and many other countries including South Africa and Netherlands are using customized textbooks based on Singapore mathematics. Rocha (2012) explains that, more than 2,500 schools in America are currently using the Singapore picture based Mathematics textbooks and visual aids in teaching.

After seeing the studies related to the visual aids and learners performance in Singapore, we now move on to Japan.

2.4.1.5 Japan

In Japan, Addison (2013) investigated the effectiveness of visual materials in scaffolding students' awareness to cultural content and vocabulary. The researcher used sample population of 18 university students from Japan University and employed both qualitative and quantitative questionnaires in collecting data. Results indicated that students' acquisition of vocabulary increased when visual aids such as videos were used. It was found out that cultural content conveyed by visual materials was comprehensible to almost everyone in language class and stimulated students' participation in speaking and writing activities. Findings from the study suggested that videos helped to improve student understanding of content specific cultural ideas, whilst also serving the students as a way of improving their critically thinking about cultural content.

Another research by Ikeuchi (2003) that involved students in general courses at Takamatsu First High School in Kagawa Prefecture found out that visual aids had

remarkable influence in students learning. In a study which attempted to establish a link between visual aids and students learning, the researcher noted that audio-visual aids were present at school and positively affected students' achievement. However, it was discovered that the time allocated for using audio-visual aids was not enough. The researcher suggested that students could cover that gap by observing audio visual aids off campus, or at home under guidance of the teacher. More specifically, it was revealed that students with access to television at home achieved more learning.

Ikeuchi (2003) further reported that there are many kinds of visual aids being manufactured in Japan and the quality of such instruments improves in almost a regular six-month cycle. The motive behind such improvement is rapid development of technology and increased demand for products of high quality in educational arena. Such visual aids were being used by schools to serve various educational purposes such as enhancing understanding, engagement and motivation among students.

Apart from developed countries, let us now dwell on studies on the impact of visual aids in learning in developing countries.

2.4.2 Visual Aids and Learners performance in Developing Countries

Various studies have been carried out in developing countries such as Pakistan, Nigeria, Ghana, Uganda and Tanzania in relation to the impact of visual aids in

enhancing students learning and performance. Let us begin by reviewing studies related to visual aids and students' performance in Pakistan.

2.4.2.1 Pakistan

A study conducted by Shabiralyani et al, (2015) to investigate the impact of visual aids in enhancing the learning process in District Dera Ghazi Khan in Pakistan showed a positive correlation between visual aids and students learning. The findings revealed that using visual aids as a teaching method stimulated students thinking and improved learning environment in classroom. Researchers observed that effective use of visual aids substituted monotonous learning environments. It was also established that students develop and increase personal understanding of the areas of learning when they experience a successful and pleasant learning in the schools particularly when visual aids are involved. However, the sampled schools investigated by researchers in the district were found lacking adequate teaching and learning resources.

Gul et al, (2014) investigated the role of Audio-visual aids on the cognition of students at a secondary level. In an experimental study which involved government girls secondary schools in Pakistan, it was found out that the experimental group of students who were taught using audio-visual aids achieved better than control group. The findings suggested that students' cognition benefited from the use of audio-visual aids. It was also discovered that audio-visual aids can lead to higher learning outcomes if they are integrated into the curriculum to complement traditional method.

In another study, Ali et al, (2011) examined the use of instructional technology in private schools in Pakistan. The findings showed that audio-visual aids are used in all private schools in some form. However, it was found out that there is no system to give formal training to the teachers to use audio-visual aids even though teachers have positive attitude to the use of such aids. As a result, visual aids are not effectively used in the classroom. The researchers also highlighted the weakness of operating National Educational Policy 2009 in its failure to include areas on effective use of audio-visual aids. In general, the study found out that private schools in Pakistan are characterized with high use of visual aids and delivery of quality education (Ali et al, 2011). This finding is supported by the results of a study carried out by Rehman et al. (2010) which showed that parents had preference for private schools due to availability of teaching facilities and materials. After seeing empirical studies on the use of visual aids in Pakistan, the following are studies related to visual aids in teaching in Nigeria.

2.4.2.2 Nigeria

In Nigeria some studies have been carried out in relation to the use of visual aids in schools and students performance. Oladejo *et al*, (2011) investigated the effect of using improvised instructional materials on academic achievement of secondary school physics students in Oyo state. In an experimental study which involved treating some students to improvised instructional materials, it was found out that students exposed to instructional materials with some elements of audio-visual aids achieved better than students taught with standard instructional materials. It was discovered that using improvised instructional materials such as visual aids assists

the teacher economically and also allows students' interaction which make students achieve better in their lessons.

Also, Ode (2014) carried out a study on the impact of audio-visual resources on teaching and learning in private secondary schools in Makurdi metropolis. It was found out that all the selected private schools in Makurdi were using various types of audiovisual materials ranging from filmstrips, microforms, slides, transparencies, tape recordings, flashcards, projected opaque materials, photographs, discs, arts and study prints, charts, atlases, maps, posters and billboards and realia for teaching and learning. The findings from the study suggested that the use of audio-visual resources significantly affected teaching and learning as they promoted better understanding and expanded students' learning experience.

On the same issue, Nwankwo (2004) carried out a study on the use of audio-visual aids in the teaching of English in secondary schools in Anambra state. It was found out that teachers required audio-visual material to facilitate teaching of English and improve job effectiveness in general. It was observed that there was a relationship between the English teachers' use of audio-visual aids in the classroom and their teaching experience as well as previous training in the use of audiovisual materials.

Data from the study revealed that many teachers had no experience at all on the use of audio-visual materials which made it impossible to achieve expected educational results. The selected secondary schools were found to be adequately equipped with textbooks and chalkboards which were used very well. However, software materials

such as charts, tapes, slides and transparencies were not found in the schools and few visual aids that existed were not used effectively. Lack of adequate funds, electricity supply and high costs of equipment on the supply of instructional materials were among the problems that hindered availability of audio-visual aids in Anambra schools. All these problems affected students' learning and academic achievement in general. On the other hand, the following studies related to visual aids and students performance were also conducted in Ghana.

2.4.2.3 Ghana

A research conducted by Quarcoo-Nelson et al, (2012) to investigate the impact of visual aided instruction on students' achievement in Physics showed that when appropriate audio-visuals are integrated into the curriculum to complement the traditional method, higher learning outcomes in terms of achievement scores would probably result. In a study, senior high school students taught with the audio-visual aided instruction achieved better than students taught with the traditional method. To improve teaching in Ghana schools Quarcoo-Nelson et al, (2011) suggested that teachers need to explore different varieties of audiovisual aids to use in their teaching. After Ghana, the following are empirical studies related to visual aids and students learning in Uganda.

2.4.2.4 Uganda

In his study, Altinyelken (2010) found that visual aids were equally important in Uganda education system particularly to facilitate its move away from teacher-centred instruction to child-centred pedagogy which began as early as 1990's in

Uganda and other Sub-Saharan African countries. The adoption of child-centred pedagogy in Uganda has speeded up the demand for learning aids including visual aids among schools in order to improve students' involvement in the lessons and enhance learning process. Therefore visual aids were regarded by policymakers as a tool for improvement of learning.

Another Altinyelken (2012) study on the implementation of child-centred pedagogy (CCP) in Uganda also revealed that visual aids are important in enabling students understanding. However, the study indicated that there was lack of visual aids in their schools which was attributed to the high cost of materials and inadequacy of the school budget allocation for the purchase of learning aids. This affected students understanding of the lesson and performance in general.

On the other hand, a study carried out by Lakot (2014) in Uganda revealed that visual aids have strong influence in improving performance of history subject. The study recommended that adequacy and accessibility of visual aids should be highly regarded in order for the core value of history to be passed from generation to generation. The study also revealed that although there is a library and the syllabus coverage is adequate other visual aids are inadequate to meet the demands of the students and it is important for the school to source for more learning materials.

After seeing the role of visual aids in enabling learners' understanding and performance in Pakistan, Nigeria, Ghana and Uganda, let us now review empirical studies related to the use of visual aids in Tanzania.

2.4.3 Visual Aids Empirical Research with Direct Bearing on Tanzania

In Tanzania, Kaswa (2015) investigated the contribution of visual learning aids to students' academic performance. In a study which was carried out in Magu District in Tanzania, it was discovered that visual learning aids were effective in enabling students learning compared to presentations by words alone. It was observed that secondary schools in Magu district which used visual aids generally performed better in the National form four examinations than those which did not. Moreover, the researcher explained that teachers interviewed showed general awareness of visual aids and its impact in students learning. However they were not using visual aids because they were not available.

Another study conducted by Fentiman et al, (2013) found that visual aids affect students' achievement and interest in lesson. It further discovered that presence of murals, pictures and visual aids with descriptions on the school walls help to liven up school environment and educate children simultaneously. In a two-year study which involved observing and videotaping teaching in selected schools of Manzese ward in Kinondoni municipality, it was found out that visual aids were important in enhancing students learning.

The researchers observed that most teachers in the studied schools were ready to use visual aids with their lessons. However, they lacked skills on preparing and using visual aids. Apart from teachers' lack of skills, the researchers noticed that the selected schools of Manzese municipality did not have adequate visual aids to facilitate students learning.

On the same issue, Makewa et al, (2012) carried out a study among Adventist secondary schools in Shinyanga, Mwanza, Mara, Arusha and Kilimanjaro regions to investigate the usefulness of media resources in teaching English. It was found out that the audio-visual aids were helpful in making learners recall and remember information easily. Teachers reported that planned and imaginative use of visual aids in lessons increases students' interest because it gives them something practical to see and do, and at the same time helping to train them to think things out themselves. However, lack of media resources such as visual aids was noted among the schools.

The absence of visual aids in Tanzanian secondary schools is also mentioned in a study conducted by HakiElimu (2014) which reported that textbooks, exercise books and chalkboard and related facilities are available in most schools. However, teaching aids including visual aids are missing. This prevents learners from such schools from performing well in their national examinations. The situation is worse for public schools than private schools. Lack of teaching materials such as teaching aids and other media resources in Tanzania is also reported in other studies carried out by Makombe et al (2010), Komba and Nkumbi (2008) and Hakielimu (2007).

A study by Benell and Mukyanuzi (2005) revealed that poverty is one of the major factor contributing to absence of adequate fund to purchase teaching aids in Tanzania and developing world in general. The increased number of enrollment and schools further worsens the situation as it has created additional need for teaching facilities which were previously not needed. Speaking on the same matter, Coombs *et al*, (1974) remarks that, education system in Tanzania overemphasizes on lecturing

method. This has led to much funds being allocated for paying teaching staff while other facilities of learning such as visual aids are ignored leading to absence of such aids in schools.

2.5 Research Knowledge Gap

Generally, the surveyed literature gave information on the use of visual aids, problems facing teachers in relation to visual aids as well as impact of visual aids in students learning. However, in all the literature surveyed there is no study on the impact of visual aids in relation to students' academic performance in Mkuranga District. Therefore, this study anticipated to fill that gap.

2.6 Summary of Literature Review

This chapter captured literature review of impact of visual aids on learners' achievement and subsequent performance under the following themes; general overview of visual aids, categories of visual aids, essence and development of visual aids in teaching, empirical literature to the use of visual aids in developed and developing countries as well as empirical studies related to visual aids in Tanzania. It also presented the research knowledge gap. The next chapter provides research methodology for this study.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research methodology which is qualitative, elaboration and justification of research approach, limitation of qualitative research approach, study area, target population, sample size, sampling procedures and techniques; and methods of data collection which are interview, observation and documentary review. The chapter also gives reliability and validity of research instruments, data presentation and analysis procedures, ethical considerations and concluding remarks.

3.2 Research Approach

Research approach is defined as an arrangement of appropriate conditions for collecting and analysing data in a way that affects the research purpose (Kothari, 2004; Kombo and Tromp, 2006). According to Cresswell (2014), it refers to a set of plans and procedures for research that spans the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. Each researchable problem has its own research approach because the choice of the approach depends on what the researcher is trying to find out (Silverman, 2001). A research can therefore be qualitative or quantitative depending on the nature of particular study (Kothari, 2004).

This study mainly employed qualitative methodology. The use of this research approach was largely influenced by the nature of this study which specifically aimed at studying the impact of visual aids in relation to national form four examination

performance and explore more knowledge about the subject. Denzin and Lincoln (2005) view qualitative methodology as an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world. Kothari (2009), on the other hand, defines qualitative approach as the use of descriptions, observations and impressions to gain a holistic picture and in-depth understanding of a situation or events.

The approach was preferred by the researcher because of several reasons such as structural flexibility in data collection and reporting. For instance, through qualitative methodology the researcher was able to collect data in natural settings of the participants and was in a position to emulate methods and techniques of inquiry according to the settings and characteristics of the participants. Qualitative approach also enabled the researcher to probe in the person's inner issues which cannot be discovered by quantitative research approach. Furthermore, Cohen, Manion, and Morrison (2007) credits qualitative approach for being highly exhaustive and reliable in making deep exploration of information from participants' responses. Therefore, its use in this study enabled the researcher to obtain detailed information about the problem being studied. Nonetheless, qualitative approach has some limitations.

3.2.1 Limitations of Qualitative Approach and How They Were Accommodated

Despite the fact that qualitative methods can examine social processes at work in particular contexts in considerable depth, it is not without limitations. Griffin (2004) points out that the collection and especially the analysis of qualitative information

can be time-consuming and therefore expensive. The researcher was able to overcome this by reducing sample size and use cost efficient methods such as self-administered interviews. According to Hughes (2006), another problem has to do with ensuring adequate validity and reliability. Since qualitative data is subjective in nature and originates in single contexts, it is difficult to apply conventional standards of reliability and validity. To minimize subjectivity, the study employed triangulation where interviews, observation and documentary review were used to influence data credibility. In addition, qualitative research usually involves small number of participants and this can mean that it cannot be used to for generalization. Nevertheless, the researcher strived to avoid personal biasness and idiosyncrasies.

3.3 Study Area

Kombo and Tromp (2006) assert that it is important to be careful in selecting the study area as it is likely to influence the usefulness of the information produced. This research covered Mkuranga District in Coastal region. Although there are many public and private secondary schools in Mkuranga District, the study specifically confined itself to five (5) government secondary schools namely, Vikindu, Dundani, Mwarusembe, Kiparang'anda and Mwinyi.

The reasons that influenced selection of these schools are limitation of resources and time. The schools also have most students failing at form four national examinations, therefore, the researcher felt that they deserved more attention compared to others. Moreover, no research has been done on the area before especially on the impact of visual aids on students academic performance.

3.4 Population, Sample and Sampling Procedures

3.4.1 Population

According to Kombo and Tromp (2006), population is the group of individuals, objects or items from which samples are taken for measurement. Cohen et al (2007) define population as a group of individuals who have one or more characteristic in common which are of interest to the researcher. Econ (1998), adds that population are the people that researcher has in mind from whom he/she can obtain information. The targeted population in the present study included ordinary level students, teachers, academic masters /mistresses and heads of schools in selected secondary schools of Mkuranga District. Participants from target population were selected because they were appropriate to provide data relating to the impact of visual aids on students academic performance.

Teachers: This category of participants involved teachers of different subjects from sample schools. Their selection was based on the assumption that they are the ones who are involved in teaching students and are therefore more knowledgeable on visual aids. These participants were expected to provide data on the impact of visual aids in relation to students learning.

Students: This category included sample of students from sample schools. Their selection mainly based on the assumption that they are the ones influenced by the use of visual aids in learning process. Students were to provide data on teachers' use of visual aids the impact of such aids in improving their understanding and performance in examinations.

Academic Masters/Mistresses: This category of participants was purposeful selected because they work closely with subject teachers and students. Academic masters/ mistresses helped the researcher to find out whether teachers prepare and use visual aids in teaching and challenges they face.

Heads of Schools: These participants were selected because they are responsible for overseeing and supervising all activities in the school. Heads of school were expected to give information on the visual aids available at school and support they receive from District Education Officers (DEO's) and government with regards to presence of seminars and training of teachers on visual aids.

3.4.2 Sample

Fraenkel and Wallen (2000) define sample as a smaller group of subjects drawn from the population in which a researcher is interested in gaining information and drawing conclusions. A sample is a subset of a population selected to participate in the study. The number of secondary schools owned by government in Mkuranga District is 22. However, this study used only five (5) schools with a total of ninety (90) participants. The sample size of the study and its composition is as shown in the table 2.1.

3.4.3 Sampling Procedures

Sampling procedure is the procedure used to select people, place, or things to study in the targeted area (Kombo and Tromp, 2006). It refers to strategies used in selecting a sub-group from a larger population with elements necessary to provide

information for the study. This study employed both probability and non-probability sampling techniques to obtain sample of the study. Probability sampling involved simple random sampling techniques and for non-probability sampling, purposive sampling techniques were used.

Table 2:1 Composition of Participants of the Sample Size

S/N	Participants	Male	Female	Total
1	Heads of schools	05	0	05
2	Teachers	15	15	30
3	Academic masters/ Mistresses	03	02	05
4	Students			
	School A	05	05	10
	School B	05	05	10
	School C	05	05	10
	School D	05	05	10
	School E	05	05	10
	Total	48	42	90

Source: Field Data (2017)

3.4.3.1 Random Sampling

In random sampling, subjects in the population are sampled by a random process, using either a random number generator or a random number table, so that each person remaining in the population has the same probability of being selected for the sample (Frerichs, 2008). Simple random method is useful if the sample obtained obeys the criteria of randomness. The researcher applied random sampling in selecting students from different schools involved in the study because of the presumption that all (students) have same experience of visual aids and their impact in performance.

3.4.3.2 Purposeful Sampling

This technique involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Creswell and Plano Clark, 2011). It involves studying information rich cases from a given population to make analytical inferences about the population (Peersman, 2014).

In purposive sampling, sample elements judged to be typical or representative are chosen from the population. The technique was used to select heads of schools, academic teachers and subject teachers. Purposeful sampling enabled the researcher to select individuals who have the same characteristics and knowledge as they relate to research questions.

3.5 Methods of Data Collection

Several techniques were used for collecting data in this research since there is no single technique that is adequate in itself. Behera (2012) defines data collection as the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions and evaluate outcomes. It involves gathering data and evidence related to the research problem. To collect data, social scientists make use of a number of different data collection strategies. The organization and summarizing of the data differ considerably because of costs, time and other resources at the disposal of the researcher (Luambano, 2014). This study employed interviews, questionnaire, observation and document review in order to ensure reliability.

3.5.1 Interview

Interviews are one of the prevalent methods for collecting data in qualitative research. Easwaramoorthy and Zarinpoush (2006) define interview as a conversation for gathering information. They also add that research interview involves an interviewer, who coordinates the process of the conversation and asks questions, and an interviewee, who responds to those questions. Hornby (1989) as quoted in Rwegelera (2010) defines an interview as the meeting in which a researcher asks somebody questions in order to find out his or her views. On the other hand, Enon (1995) views an interview as the oral or vocal discussion between the researcher and participants. This study is largely used unstructured, semi-structured and, in few cases, in-depth interviews.

The choice for interview is influenced by a number of factors. For example, interviews are an appropriate method when there is a need to collect in-depth information on people's opinions, thoughts, experiences, and feelings. They are also useful when the topic of inquiry relates to issues that require complex questioning and considerable probing.

Therefore, with the use of semi-structured interviews, the researcher was able to probe, monitor and guide responses from the participants. Semi structured interviews were selected because, unlike structured interview, it allows the researcher to obtain rich information beyond what is anticipated from the beginning. It also makes it possible for researcher to clarify, reshape and ask follow-up questions as well as request for additional information.

Therefore, the researcher conducted one-to-one interviews to collect data from five (5) heads of secondary schools, thirty (30) subject teachers, (6) from each school, five (5) academic master/mistress(s), one (1) from each school and fifty (50) students, ten (10) from each selected community secondary school in Mkuranga district. During face to face interview, the researcher was able to develop friendly environment with the research participants using simple and polite language with short and clear interview questions. The researcher used note taking techniques and an audio recorder to keep records of the information provided by participants. The interview guides for students, subject teachers, academic masters/mistress and heads of schools are found in appendices A, B, C and D respectively.

3.5.2 Observation

Gorman and Clayton (2005) define observation as the systematic recording of observable phenomena or behaviour in a natural setting. Kombo and Tromp (2006) conceptualize observation as a tool that provides information about actual behavior and offers a researcher an opportunity to obtain first-hand information. Use of resources and equipment require observational research. Observation involves the researcher experiencing natural environment of the phenomena and using his/her five senses to collect data. The information obtained during observation relates to what is currently happening and is not complicated by either the past behaviour or future intentions or attitudes of participants (Kothari, 2004).

In the present study, non-participatory observation method with the aid of an observation checklist was used to elicit data from teachers teaching and how they

used visual aids to influence students learning. Observation focused on whether teachers used visual aids in teaching, how visual aids were presented in the class, relevancy between visual aids and the concepts taught as well as success of visual aids in influencing students understanding and performance. The researcher observed each class for either 40 or 80 minutes depending on the duration of a given lesson. Observation was made possible with checklist which helped in recording all information related to the teachers' use of visual aids in the class. The checklist is attached in appendix E. Apart from observation, documentary analysis was also used.

3.5.3 Documentary Analysis

Atkinson and Coffey (1997) refer to documents as 'social facts', which are produced, shared, and used in socially organised ways. Bowen (2009) sees documents as "any materials which contain text (words) and images that have been recorded without a researcher's intervention". Documents provide more insights into the problem being studied by cross validating and augmenting evidence obtained from other sources (Yin, 1994). Guba and Linkolin (1998) point out that documents are not prepared for the purpose of the inquirer. They are usually prepared for other purposes but researchers may use them to complement their studies. Document analysis involves skimming (superficial examination), reading (thorough examination), and interpretation of documents (Bowen, 2009).

In this study, documentary analysis involved a review of policy documents, personal files, syllabuses, and government educational records. Also articles, books, journals, dissertations, seminar papers, workshop papers and project reports. Policy documents

were used to show the country's standpoint with regards to education. Dissertations, both published and unpublished, enabled the researcher to identify the gap in literature of visual aids that has not been covered.

3.6 Data Analysis Plan

3.6.1 Qualitative Data Analysis

Skinner et al (2015) define qualitative data analysis as the range of processes and procedures whereby we move from the qualitative data that have been collected, into some form of explanation, understanding or interpretation of the people and situations we are investigating. According to Bogdan and Birklen (1982), it involves using qualitative data to discover what is important and what is to be learned, and deciding what you will tell others. Marshall and Rossman (1999) describe it as a process of data reduction and interpretation. Because qualitative data is mostly in form of words derived from field observations, interview recordings and reflective notes of the researcher, this kind of information has to be summarized, organized, described and interpreted.

Analysis of data in this study was done as follows:

- i). First of all, after every field visit, data collected from interview was transcribed and labeled according to the date collected.
- ii). Transcripts were read over carefully to correct semantic and grammatical inconsistencies and to get sense of the totality of data.
- iii). Then the raw data was sorted and coded and the research questions were used to produce a framework for the category.

Finally, data analysis involved sorting and examining data assembled under specific categories in search for main themes. Then the researcher employed a descriptive framework in analyzing quantitative data whereby data was interpreted and explained. Qualitative data was organized into themes which were described and analyzed in light of issues raised in theoretical framework and literature review. In this stage, large amounts of unorganized data were reduced into manageable and analytical meaningful body of data. According to Miles and Huberman (1994) data reduction is a logical part of data analysis in qualitative research because processing large amount of data is difficult and time consuming.

3.6.2 Documentary Data Analysis

This was done by re-reading and reviewing data collected from documents for precision, accurateness, completeness and relevancy to ensure credibility of the information. The researcher also established the meaning of the documents and its contribution to the issues being explored especially how it addresses the issue of visual aids and students' performance. Relevant issues found in the documents were organized into categories related to the central questions of the research. Specifically, documents were analysed along the following lines:

3.6.2.1 Periodisation of Documents

In this study, the researcher periodised the documents chronologically to ensure relevancy and representativeness of documents data to the study.

3.6.2.2 Theoretical Stance

The theoretical position in the document helped the researcher to understand the

orientation of the document in relation to the study in order to avoid biasness and derailment.

3.6.2.2.1 The Principle of Collaboration

This has its origin in the court of law. It refers to how many times the same issue has been said or written by different people. Collaboration was used in order in order to be sure of reliability of the arguments.

3.7 Validity and Reliability of Data

Drost (2011) defines reliability as the extent to which measurements are repeatable – when different persons perform the measurements, on different occasions, under different conditions, with supposedly alternative instruments which measure the same thing. Joppe (2000) adds that any research instrument that can be used to produce similar results is considered to be reliable. Validity, on the other hand is the extent to which an instrument measures what is intended. According to Kothari (2004) validity and reliability of data depend on the instruments used in the research.

This study ensured reliability by using triangulation method of data collection whereas one to one interviews, focus group discussion, observation and documentary analysis were used. Also the supervisor assisted in refining the instruments focusing on study, research tasks and questions. Moreover, validation of research instruments continued during the field work by correcting, restructuring and modifying parts or whole questions whenever the needs arose as the study continued. Therefore, data trustworthiness was ensured,

3.8 Research Ethical Considerations

In conducting any research, ethical considerations are critical. Researchers, therefore, have a clear responsibility to ensure that they recognize and protect the rights and general well-being of their participants (Cohen et al., 2007). During the course of this study, the researcher secured permission from relevant authorities, obtained informed consent from research participants and ensured that respondents' participation is voluntary. Confidentiality and anonymity was also ensured to the participants.

The researcher sought a clearance letter from the Open University of Tanzania to carry out the study according to the set principles of carrying out a research. The researcher also sought permission from the Ministry of Education and Vocational Training (MoEVT) through its representative in the District Executive Officer (DED) of Mkuranga District to carry out research in their institutions. This gave the researcher authority to work with the selected schools and the community within the area.

Before interview sessions, the researcher met with the participants individually to explain the nature and purpose of the study. The participants were also informed that participation in the study is voluntary and everyone has the right to withdraw at any time, or to decide not to answer any of the questions when they did not feel comfortable to do so. The importance of obtaining informed consent from the participants is well described by Denscombe (2003) who maintains that participation in research must always be voluntary and participants must have sufficient

information about the research to arrive at a reasoned judgment about whether or not they want to participate.

To ensure confidentiality and anonymity the researcher emulated Cohen et al (2000) standpoint that although as a researcher knows who has provided the information or is able to identify participants from the information given, the study made no attempt in getting them to be known publicly. The study, therefore, kept the identity of those who have helped to get the relevant information.

3.9 Chapter Summary

This chapter has presented the research methodology. Specifically, the chapter has provided the research approach, research site and population of the study. It has also given sample size and sampling procedures, data collection methods, instruments for data collection, validation of the instruments, data analysis procedures as well as ethical issues considered in conducting research. The following chapter includes data presentation, analysis and discussion of the findings.

CHAPTER FOUR

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This study investigated the impact of visual aids on students' academic performance in Mkuranga District secondary schools. Two specific research objectives guided the study. Data was collected from five (5) sample schools. Participants included fifty (50) students, thirty (30) subject teachers, five (5) academic teachers and five (5) heads of schools. The findings from the study are presented and analysed critically according to the themes derived from research objectives developed in chapter one.

Data was collected using both structured and semi structured, in depth interview, documentary analysis as well as observation. Data presentation was selective because it was not possible to present all stories from participants. This is in line with Stake (1995), as cited in Rwegelera (2010), who maintains that choice is necessary although many researchers would like to tell the whole story. Hence, in this study, choice was inevitable as a researcher had to select what to tell others according to the study purpose.

In order to ensure confidentiality and research ethics, names of the participants and secondary schools involved in the study are not mentioned. In data collection, the researcher used tape recorder and notebooks. Data was transcribed and sorted according to the two specific objectives of this study as cited here below;

- i) Visual aids used by teachers and their effectiveness to students learning

- ii) Challenges facing teachers in preparation and use of visual aids

These objectives are going to be analysed and discussed according to participants' responses and researcher's observation in the field. Let us start with visual aids used by teachers and their effectiveness to students learning.

4.2 Visual Aids Used By Teachers and Their Effectiveness to Students Learning

Visual aids used by teachers in schools are chosen basing on many factors. These include availability of materials at school which makes it easy for teachers to prepare them. Some visual aids like plants, fruits and stones can be easily obtained around the schools while others such as manila sheets and wall charts can be bought if the school can afford to buy them. Apart from materials, time should also allow preparation of those teaching aids. Under this objective, four sub-themes were identified.

- i) Visual aids used by teachers in classroom
- ii) Effectiveness of visual aids in enhancing students learning
- iii) Teachers use of visual aids in teaching
- iv) Teachers teaching experience in relation to the use of visual aids in teaching.

4.2.1 Visual Aids Used by Teachers in Classroom

There are many kinds of visual aids that can be used to support learning. For example, the chalkboard, realia (real objects), photographs, wall charts as well as globes. However, researcher's observation revealed that many teachers preferred the

chalkboard as opposed to other visual aids mentioned above. In this research, varied reasons for teachers' preference for the chalkboard were identified. Among them was the absence of other visual aids at school. During an interview, a researcher asked one of the teachers from school C on why they use only chalkboard instead of other visual aids in teaching. The teacher narrated:

I prefer to use the chalkboard due to scarcity of other visual aids which I can use to support my lesson. Here at school, there are no other visual aids other than chalkboard. Even though I am not comfortable teaching without any visual aids, there is no other alternative.

On this issue, Ashaver and Igyuve (2013) in their research found that chalkboard was the only visual aid material frequently used by teachers due to lack of other visual aids. Chalkboard is fundamental teaching aid but it needs to be supported by other teaching aids in order to enhance effective teaching. Also a similar study by Okobia (2011) discovered that all secondary schools in Edo state had chalkboards while other visual aids such as video tapes were grossly lacking. This study found that many teachers use the chalkboard due to unavailability of other visual aids.

Also teachers admitted that they prefer chalkboard because it helps to simplify teaching task and makes demonstration of concepts easier. In an interview, another teacher from school C had this to say:

Sir, most of us teachers prefer the chalkboard because it is easy to use than other visual aids. Also chalkboard integrates well with teaching process. For example, while using the chalkboard, I can easily teach and at the same time demonstrate what I want my students to grasp.

In line with the above narration, it was observed by the researcher that teachers find the chalkboard as a “multipurpose” visual aid where different kinds of concepts can

be demonstrated. This misconception has caused many teachers to neglect other visual aids like real objects, specimens and photographs which may explain some concepts more clearly than the chalkboard.

On the other hand, the study found that mathematics teachers preferred the chalkboard because of the belief that it is the most appropriate visual aid for the subject they are teaching compared to other visual aids such as wall charts. Interviewed mathematics teachers were of the opinion that using the chalkboard was the only logical means to teach the subject. In a focus group discussion, one mathematics teacher from school E commented:

It is no secret that students fear mathematics. As a teacher, I could come up with other visual aids but I fear that it will complicate the subject and confuse the students. Hence, I prefer chalkboard because it allows my students to follow the lesson more clearly. I find that it is difficult teaching students mathematics with other visual aids other than the chalkboard.

This misconception was found among mathematics teachers in the schools visited. Although teachers support chalkboard as their main technology aid in mathematics, it does not accomplish the role of visual aids in teaching. This situation is likely to affect students' academic performance of the subject. This is a true fact because students learn effectively when different kinds of visual aids are used to support the lesson. On this matter, Nooriafshar (2005) experience shows that students prefer and benefit when mathematics is taught using visually rich methods of teaching.

On the issue of the chalkboard, teachers were also of the opinion that using the chalkboard was crucial in ensuring that students are active in the learning process by

increasing their interest to the lesson. In a follow up question, the researcher asked a teacher from school D on why she thought the chalkboard was important than real objects or pictures in teaching. She asserted:

I think the chalkboard makes learning process active and interesting. For example, during teaching, occasionally I pick up students to answer some questions on the chalkboard. Other students normally become interested to see what their fellow students are going to write on the asked questions. This encourages class participation and makes learning process active. I do not think that I need any other visual aid to make my class active.

While the teacher's remarks may be true to some extent, studies have shown that students benefit more when different visual aids are used during the lesson. In a study carried out by Cardillo (2017), six teachers who were interviewed admitted that visual aids were very important for creating interest and engaging students in learning. Another experimental study conducted by Jain and Billaiya (2017) has shown that different visual aids stimulate students' interest in learning because students are able to see clearly what is happening and are capable of forming a realistic perception of items that cannot be presented in the chalkboard. It follows, therefore, learners engagement improves when varieties of visual aids are used by teachers to support the lesson.

Apart from teachers' contribution on visual aids, students had something to contribute. The researcher asked students if teachers used different kinds of visual aids in teaching and what kind of visual aids were preferred. They revealed that they used chalkboard as the main visual aid during the lesson. During a focus group discussion with students from school C, one schoolgirl said:

Our teachers mainly use the chalkboard in teaching. They use the chalkboard for writing and drawing different things that they want us to learn. They rarely use any other kind of visual aid.

On the same issue, another student from school B explained:

Chalkboard is mostly used by teachers in our school. Every subject is taught using the chalkboard as a teaching aid. However, in few occasions teachers appear with objects or wall charts.

According to the above response from students and teachers, the researcher established that teachers highly depend on chalkboards as a main visual teaching aid. This situation likely prohibits students' effective learning as they are only exposed to one type of visual aid. When the researcher asked students from school D on whether they understand effectively when the chalkboard is used. One of them responded:

Some things we are taught can be easily understood from the chalkboard alone but there are some concepts that can be very difficult to understand from the chalkboard. Therefore, other forms of visual aids may be helpful for us to understand things clearly.

From this view of students, it is clear that there is a need of using variety of visual aids in teaching to help students grasp concepts easily during the lesson. Therefore, chalkboards should be assisted by other visual aids during the lesson. In this case, visual aids should not be ignored in teaching because they enhance students understanding of the subject matter which leads to good students' performance. After learning the visual aid preferred by teachers in teaching, let us now dwell on effectiveness of visual aids in students' learning.

4.2.2 Effectiveness of Visual Aids in Enhancing Students Learning

Studies have shown that students understand when visual aids are used in teaching process. Moreover, Felder and Soloman (2001) maintain that people find it easier to

learn and remember knowledge which is communicated visually. In this sub-theme, the researcher assessed the effectiveness of different visual aids used to support students learning in the sampled secondary schools of Mkuranga District. The results showed that visual aids such as wall charts, pictures, photographs, real objects and globes which were used by few teachers during the lesson in the visited schools led to improvement in understanding, recall and retention of learned information.

According to Coe *et al.* (2014) understanding taught information as well as being able to recall it when needed is an important aspect of learning. During a focus group discussion with students from school A, the researcher asked students if they understand more and recall information easily when teachers use different visual aids such as real objects, wall charts pictures and photographs in teaching. They admitted that visual aids help to improve their understanding as one schoolgirl narrated:

Pictures and photographs help me to understand things very quickly as well as remembering and retaining the concepts I learn for a long period of time. For instance, Items such as plants or other unfamiliar objects can be easily understood and retained from pictures for a long time and cannot be forgotten.

On the same issue another student from the same school had this to tell:

Pictures are easy to understand. Hence, they help us to learn easily. Many concepts that seem difficult at first glance can be well understood from pictures.

Hence, pictures lead to deeper understanding of the concepts as asserted by McBride and Doshier (2002). In this study, it was revealed that pictures and photographs, like other visual aids, enable students to formulate meaning of objects which one has little or no experience. This explains why students taught with visual aids understand

more and achieve higher levels of recall and retention of concepts compared to those taught using the chalkboard alone.

Although many teachers preferred the chalkboard in teaching, others believe that visual aids are important in enhancing students understanding as well as recall and retention of learned material. On this subject, one English teacher from school D said:

I find that visual aids such as real objects are very important instruments in learning. Students learn better when they put words to the objects or concepts they are learning. For example, when I teach vocabularies, I always show students the real objects. In this case, the students become interested to connect vocabularies to real items. This helps them to remember vocabularies easily..

On the same issue of retention and recall of information, it was revealed that the chalkboard was not very effective in improving students understanding of the taught concepts as well as recall of taught material. In a focus group interview with students from school B, one student had this to narrate:

Sometimes I find it difficult to understand concepts when they are written on the chalkboard. Some of the teachers write very quickly such that we don't have adequate time to understand and write the taught concepts. This prevents us from learning effectively.

From the above assertion, it is clear that students in visited schools are not performing well because it is difficult for them to retain concepts since there are no other visual aids that are used to support learning apart from the chalkboard. Hence, this non use of visual aids prohibits students from understanding effectively.

Apart from improving understanding and recall, this study revealed that visual aids help increasing students' interest and engagement to the lesson. During interviews with teachers from school C, one teacher had this to say:

Students' interest increases when they understand what is being taught. This happens when they learn something they are familiar with or they can observe it visually. From my experience, when I use real things to teach, students' interest and engagement to the lesson increases.

This finding is supported by Cardillo (2017) who found that the use of different visual aids increases students' interest and engagement in learning. In this study, researcher's classroom observation confirmed that students become more interested and engaged in learning when visual aids are presented during the lesson. This was noted through increase in students' participation in classroom discussion as well as response to teachers' questions. This style of teaching increased students' interest and encouraged participation during the lesson. On the other hand, the researcher revealed that the use of chalkboard alone in teaching had no impact in increasing students' interest and participation in the lesson. In an interview, a teacher from school D commented:

The chalkboards simplify teaching task but negatively affects students' interest and understanding of the lesson. For example, it is quite common to find students talking to each other or sleeping as you write on the chalkboard. This is because they get bored after copying from the chalkboard for a long time.

From such remarks, it is obvious that the use of chalkboards has no impact in terms of students' interest and participation in learning. This leads to lack of students' attention during the lesson. This situation was observed by the researcher in form three class at school D. During the lesson, some students were doing other activities instead of focusing on the lesson being delivered by the teacher.

Students also explained that visual aids provide them with an alternate way of understanding information particularly when the language used in explaining

concepts is complex or incomprehensible to the students. When answering researcher's question on whether they found visual aids effective in enabling learning, one student from school B commented:

Some things can be difficult to understand. The language used by teachers may not be well understood. However when something like a picture or an object is used it helps me to understand because I can look at it and observe the information it contains.

The student's remark was supported by a teacher who explained that visual aids help to promote understanding to students who are not capable of fully comprehending the medium of instruction. He explained:

Most of the students I teach in this school do not understand English language very well. Sometimes, this may result to loss of students' concentration during lesson delivery. However, when I use different visual aids it gives them a glimpse of what is being taught.

On this issue Yunus *et al* (2013) explain that visual aids assist students to cope with complexity of the language because in addition to listening where they might lose their concentration, visual aids give them an opportunity to see what is actually happening. In addition, students exposed to visual aids may be able to overcome other language barriers in classroom such as low teacher's voice especially in crowded classes.

In general, the study found out that visual aids such as wall charts, globes, photographs, pictures as well as realia (real objects) are effective in enhancing students learning as they increase their ability to understand, remember and recall learned concepts. Teachers' use of these items could, therefore, contribute

significantly to better students' performance. Apart from the effectiveness of visual aids in students learning, this study also observed teachers' use of visual aids during teaching.

4.2.3 Teachers Use of Visual Aids in Teaching

Research has shown that students understanding, retention and motivation to learn improves when visual aids are used to supplement oral material (Emes and Velde, 2005). It is therefore important to examine teachers' use of visual aids in classroom. In this sub-theme, the researcher made an observation of thirty (30) teachers, six (06) from each sampled school as they taught their lessons. The focus was on whether teachers used any kind of visual aids in class in support of their lesson. It was discovered that visual aids were not used by majority of teachers as shown in Table 4.1 below:

Table 4.1 Teachers Who Used Visual Aids in Teaching in Five Secondary Schools visited.

S/N	School Codes	Teachers used visual aids	Teachers used chalkboard only	Total
1.	A	02	04	6
2.	B	01	05	6
3.	C	02	04	6
4.	D	01	05	6
5.	E	00	06	6
	Total	06	24	30

Source: Field Data (2017)

From the table above, majority of subject teachers did not use visual aids in teaching. 24 teachers out of 30 did not use visual aids in teaching; they depended on

chalkboard as their visual aid in teaching. Only six (6) teachers in those schools used visual aids. The situation varied from one school to another. In school A and C at least two (2) teachers from each school used visual aids in teaching. Also these schools do not deserve credit because majority taught without visual aids. In school E, it was worse as no teacher used visual aids; they all depended on the chalkboard. This correlates with the work done by HakiElimu (2014) from the study based on “Teaching Effectiveness in Primary and Secondary Schools in Tanzania”. It was found that wall charts and other visual teaching aids were not commonly used by teachers in the teaching and learning processes. The study also revealed that only about a quarter (23.6%) of the classrooms observed were using wall charts in teaching while teachers in 7.3% of the classes did not use any visual aids to facilitate learning.

This non-use of visual materials in teaching could explain why students were failing tremendously in form four national examinations in five (5) secondary schools visited by the researcher; namely Mwarusembe, Mwinyi, Kiparang’anda, Vikindu, and Dundani. Results of these schools are shown in chapter 1 page 6.

Analysis of results from these schools indicates that most students got marginal pass of “division IV” or failed completely. This could be partially attributed to ineffective teaching as a result of non-use of visual aids. When students are not well taught with the help of different kinds of visual aids, it may result to lack of understanding which may reflect in poor national examination performance.

4.2.4 Teachers Teaching Experience in relation to the Use of Visual Aids in Teaching

On the other hand, the researcher examined the teaching experience of the teachers who used visual aids in teaching and those who did not. The results are summarized in table 4.7 as shown below:

Table 4.7 Distribution of Teachers by Working Experience

Teaching Experience	Teachers who had visual aids	Teachers without visual aids	Total
3-10 yrs.	06	10	16
11-15yrs.	02	09	11
16 – above	01	02	03
Total	09	21	30

Source: field data (2017)

The findings in table 4.7 show that few teachers who used visual aids in teaching had little teaching experience. This was confirmed by researcher's observation whereby teachers who used visual aids had experience ranging from 3-10 years and only two (2) out of nine (9) teachers with experience ranging from 11 to 15 years used visual aids. This study showed that as teachers become more experienced their use of visual aids decreases. May be they become overconfident and believe they can teach without the aid of visual aids due to their long teaching experience. These findings are supported by Phillip (2005) who discovered that the use of visual aids and teaching in general declined as teachers became more experienced.

In this study, the researcher asked one experienced teacher from school E on why he did not use visual aids in teaching, he responded:

Sir, I have many years of experience in teaching. I don't need teaching aids. Students can easily understand my lesson as I teach on the chalkboard. Hence, I don't need visual aids. This is from my experience. Fresh teachers from colleges need visual aids because they have no teaching experience.

From this response, it is clear that teachers with many years in teaching experience become overconfident. This affects their ability to work effectively as they don't see the need of visual aids in teaching. On this issue, Sidhu (1996) emphasizes that even after a long experience of decades of teaching; teachers should not develop over confidence and choose to go to class without prior study and plan for the use of visual aids.

This study found that most experienced teachers do not have updated knowledge on the importance of visual aids because they do not attend seminars to brush up their old experience. They continue using college experience which leads them to identify themselves as experts in teaching. During an interview with another experienced teacher from school B, she narrated:

I have been teaching this subject for ten years now. The knowledge I received from the teaching college and my long teaching experience has made me an expert of the subject. I know all techniques and methods to teach the subject. Therefore, I can make my lesson understandable to the students without using visual aids.

From such remarks, it is obvious that experienced teachers are less motivated to use visual aids in teaching because they believe that they have mastered the subjects they are teaching. In a situation like this, students' performance is likely to suffer because experienced teachers do not act as role models for fresh teachers to prepare visual aids. This could likely result into students performance. After seeing the use of visual

aids during teaching, let us now look at the challenges facing teachers in preparation and use of visual aids.

4.3 Challenges Facing Teachers in Preparation and Use of Visual Aids

According to Maduna (2002) access to wide variety of teaching aids assist individual teachers in finding ways of modifying their instructions to fit the diversified needs of their students. Teachers are therefore responsible to ensure that varieties of visual aids are available so that students' needs are met. In this objective, teachers, academic masters/mistresses and heads of schools were asked to identify challenges encountered in the preparation and use of visual aids. The findings of this study indicated that teachers of different subjects face various difficulties making them unable to impart knowledge effectively. The challenges are organized in the following sub-themes:

- i). Absence of Adequate visual Aids at School
- ii). Lack of Enough Fund to Purchase Visual Aids
- iii). Lack of Skills in Preparation and Use of Visual Aids
- iv). Scarcity of Time to Prepare Visual Aids

4.3.1 Absence of Adequate Visual Aids at School

In this study, lack of adequate visual aids was one of the challenges facing teachers. Schools visited had only few visual aids which were not enough to facilitate teaching in all the classes. This situation has been discouraging teachers from using visual aids in teaching. This has led many teachers to depend on chalkboard as principal visual aid in teaching. A teacher from school E had this to say on this issue:

Teaching aids are not available in this school. There are no wall charts or models. Sometimes when I feel that my lesson needs teaching aid for my students to understand the concept, I try to make it at home or if possible I use my own money to purchase it. I cannot do this always because I don't have money. As a result, I have to use chalkboard as my main teaching aid.

In school B, another biology teacher narrated:

As you can see, we do not always use visual aids at this school because they are not present. I use a lot of efforts to teach but without visual aids I cannot enhance students understanding of the lesson. Due to lack of visual aids I teach using only textbooks and chalkboard.

This was justified by researcher's observation in school E where a teacher used only chalkboard as a main teaching aid. The only visual aids available at the school were two globes and one biology wall chart. In an interview with academic master of the same school, he had this to say:

This school lacks visual aids. Some of my teachers would like to use visual aids in teaching to enhance students understanding of their lessons but the school has no fund to purchase them. The head of the school already knows this issue. We hope in the future visual aids will be made available.

Although some teachers showed general awareness on the importance of visual aids, unavailability of such aids prevents them from teaching effectively as they rely only on chalkboard as a major tool in teaching. In relation to this issue, an academic master of school C commented:

I know some teachers like to use teaching aids but those available are not adequate, they are old and outdated, new ones are needed. I think if we get fresh and modern new visual aids; they will motivate teachers to change their minds which make them see chalkboard as important visual aid in teaching.

Inadequacy of visual aids is also mentioned in the study done in Kenya by Wagura (2015). She found out that 72% of the teachers interviewed from Nairobi County in Kenya admitted that there was non-availability and inadequacy of instructional resources including visual aids in their schools. This is a challenge, especially lack of fund allocated for such important facilities in teaching. The school administration would have found out a way of generating some funds at their schools in order to buy visual aids to help students while waiting for government funding. Apart, from lacking visual aids in teaching, schools also lacked enough fund to purchase visual aids as we shall learn below:

4.3.2 Lack of Enough Fund to Purchase Visual Aids

Inadequate fund was also mentioned as one of the problem facing teachers at the sampled schools. This study established that schools visited lacked the necessary fund to purchase teaching materials such as visual aids. Heads of schools revealed that they do not get enough fund to purchase visual aids and as a result teachers end up teaching relying on only books and chalkboards. Responding to the issue of fund at school, a head of school D narrated:

The school does not receive adequate money to support purchase of teaching materials like visual aids. Therefore, when teachers need certain visual materials they have to purchase them using their own money. Most teachers cannot afford and therefore they end up teaching without visual aids.

Teachers also blamed on the lack of fund as an obstacle towards successful preparation and use of visual aids. In an interview, an English teacher from school A commented:

Sir, I prefer to use visual aids in teaching but we are not given any money to purchase such items. Even when we report about the visual aids we need, the school does not purchase them. We are often told that the fund available is enough to afford just chalks and other stationeries.

As observed in the teacher's comment, lack of fund prevents most motivated teachers to utilize visual aids when teaching. When the fund available is not adequate to support purchase of visual aids, students' learning suffers and so is their academic performance.

On the other hand, students confirmed that because schools cannot afford to purchase visual materials, some teachers ask them to buy maps and make copies of pictures using their own money. Since most students in the schools visited come from poor families, more often they cannot afford and hence they end up not procuring such items which negatively affects their learning. In a focus group discussion, one student from school C narrated:

Our teachers sometimes ask us to make copies of maps and pictures. There is no electricity at the school so we have to go to the main road to find a photocopy machine. Making copies is also expensive; sometimes they charge up two hundred shillings per page. This amount of money is too much for us to be able to afford.

Despite consistent poor results in the schools visited, it was observed that no effort has been given to ensuring availability of visual aids at the schools. The fund available has been allocated to other school services and needs. Shifting such financial burden to students has not worked very well either because most students in the schools studied come from economically disadvantaged parents who can barely

manage to buy exercise books for their children. Therefore, students' learning continues to suffer.

The issue of fund was also raised in a study carried out by Kaswa (2015) who found out that at the schools of Magu district, visual aids were considered of secondary importance because the schools even lacked adequate finance to facilitate purchase of important materials such as desks, books, office equipment and sometimes even chalks for chalkboard writing. In a similar study, Omariba (2012) revealed that one of the challenges facing teachers and students in Kisii County was that the schools lacked funds to purchase visual aids and build proper storage facilities for storing such aids.

Mwalyego (2014) found that government funding provided to primary schools in Morogoro Municipality was only limited to purchasing manila sheets, marker pens and several books. All other instructional materials used in teaching pre-primary schools such as flash cards with letters, numbers, pictures, words, letter charts, number charts, and simple counting equipment are all financed by teachers themselves. Similar findings were reported in this study where some teachers mentioned that sometimes they have to buy visual aids using their own money. In a situation like this, students' learning is affected because teachers cannot afford to buy visual aids regularly for all the classes he/she teaches. After looking at the problem of inadequate fund, let us now move on to the lack of skills in the preparation and use of visual aids.

4.3.3 Lack of Skills in Preparation and Use of Visual Aids

Teachers need up to date knowledge and skills in order to prepare and use visual aids that enable students learning. In order to learn effectively, students need visual aids to promote their understanding. However, teachers in the schools visited had no skills in preparation and use of visual aids. They commented that changes in science and technology did not fit in their old technologies of visual aids preparation methods they acquired in colleges. In an interview with one English teacher from school D, she narrated:

I have been teaching for twelve years now. When I attended teachers college, I was trained on how to prepare and use visual aids. But due to development of new technology, my old methods are out of date. That is why I do not trouble myself with making visual aids.

While it is true that skills are important in making visual aids, teachers could improvise by using items available in their environment. In school D, the researcher found out that there were two projectors but teachers were unable to use them. When teachers were asked why they were not using projectors available at the school, one teacher commented:

I do not have any knowledge on how to operate projectors. At University, we were not taught on how to use them. And I have never attended any training concerning projectors.

From above statement, it is clear that teachers need to refresh their minds to add on the gained knowledge from colleges. In this case they need seminars occasionally in order to become up to date and go with the changes in the syllabus which include using technology in classroom teaching. Hence, in this study it was established that lack of skills prevents teachers from using even few available visual aids due to

ignorance. Therefore, seminars and in-service training are important for teachers in order to make them cope with new technologies in teaching. On this issue, a study carried out by Fentiman et al (2013) in selected schools of Manzese ward in Kinondoni municipality found that when teachers are trained on using visual aids, their ability in using visual aids improves which, in turn improves students understanding of the lesson and performance. Apart from lack of skills among teachers, scarcity of time also contributes to teachers' inability to prepare and use visual aids.

4.3.4 Scarcity of Time to Prepare Visual Aids

Preparation of visual aids requires that teachers have enough time. However, in the schools visited, some teachers explained that they are not able to prepare visual aids because of time limitation. During a focus group interview with teachers of school A, it was found that teachers have many periods and have to oversee extracurricular activities as well. This takes up most of their time which could alternatively be used in preparing visual aids. When asked about the issue, one Biology teacher from school B narrated:

I am the only biology teacher in this school; I have to teach more than 6 periods every day. Therefore, I prefer to use the blackboard because it is already available and does not need much preparation.

Supporting this idea, an academic master from school D also added:

Science teachers at this school have high teaching load, most of them have to teach periods from form one to form four every day. They are not capable of preparing visual aids because they lack time to do so.

Although this claim was more for science teachers, it shows that lack of time prevents some teachers from preparing visual aids. As a result, they are forced to rely on chalkboards alone. This finding was also noted by Gaudence (2000) who discovered that many teachers with high teaching load prefer chalkboards because they can be used spontaneously and do not require additional preparation before teaching. Hence they help serve time which is used by teachers to perform teaching activity.

From researchers' observation, it was noted that some teachers had big teaching load. For example, school B had one science teacher who had to teach 40 periods per week. Hence this teacher had no time to think about visual preparation for his students. All his time was spent preparing lesson notes. In such situation learning cannot be effectively achieved because learners are missing important element of the lesson. This study found out that poor academic performance of students in Mkuranga district is a result of ineffective teaching caused by lack of visual aids because most teachers have high teaching load making them unable to prepare such aids.

4.3.2 Chapter Summary

This chapter has provided data presentation, analysis and discussion of findings from participants' interviews, researcher's observation and documentary analysis. The chapter has identified visual aid preferred by the teachers of Mkuranga District secondary schools as well as effectiveness of different visual aids such as

photographs and pictures, wall charts and realia (real objects) in enhancing learning. Furthermore, the chapter has examined challenges facing teachers of Mkuranga District secondary schools with regards to preparation and use of visual aids to support learning.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study. It also makes some conclusions in relation to the findings. Finally, recommendations are made both for action and for further studies on the impact of visual aids on students' academic performance in Mkuranga district, coastal region, Tanzania.

5.2 Summary of the study

The purpose of this study was to find out the impact of visual aids in relation to students' academic performance in secondary schools of Mkuranga district, coastal region, Tanzania. The study was conducted in five (5) purposely selected schools in the district. Participants in this study were heads of secondary schools, academic masters/mistresses and teachers who were selected purposely and students who were randomly selected.

In chapter one, background of the problem, statement of the study, purpose, general and specific objectives of the study, research tasks and questions were identified. The chapter has discussed significance of the study and organization of the study. Theoretical framework was also provided where the researcher adapted the Multimedia theory of learning advanced by Richard E. Mayer in 2003 and 2005.

The objectives of the study were:

- i). To identify the visual aids used by teachers and their effectiveness to students learning.
- ii). To examine the challenges facing teachers in preparing and using visual aids.

Chapter two has provided literature review on the impact of visual aids in relation to students' performance and achievement focusing on the general overview of visual aids, categories of visual aids, essence and development of visual aids in teaching as well as empirical studies on visual aids on both developing and developed countries. Through literature review, it was shown that the use of visual aids to facilitate teaching was practiced even from our ancestry. Primitive societies communicated using visual aids as a means of communication. In early African societies, children learned by observing and imitating adults. Empirical studies cited in literature review have shown that when visual aids are used in teaching they improve students understanding, recall and retention of information as well as motivation, engagement and interest to the lesson. It was shown that students' performance and achievement depends on proper use of visual aids in facilitating teaching.

In chapter three, research methodology which was qualitative was discussed. The area of the study was Mkuranga District, coastal region, Tanzania. Five (5) secondary schools were studied, namely; Vikindu, Mwarusembe, Kiparang'anda, Dundani and Mwinyi. Qualitative research approach was found suitable for the present study because it enables the researcher to collect data in natural settings of heads of schools, academic masters/ mistresses, subject teachers and students and

explore their experiences on the impact of visual aids on students academic performance.

Data for the study was collected from ninety (90) participants, thirty (30) subject teachers, (50) students, five (5) heads of schools and five (5) academic masters/mistresses. Both semi structured and structured interviews, focus group discussion, observation as well as documentary review were used to collect data from research participants in order to increase reliability of the study findings. Collected data was sorted, transcribed, and grouped together on the basis of their themes. Qualitative data was organized into themes which were transcribed and analyzed in light of issues raised in theoretical framework and literature review. Descriptive framework was applied in analyzing quantitative data.

5.2.1 Major Findings

The major findings in this study on the impact of visual aids in relation to form four national examinations performance were visual aids used by teachers of Mkuranga district secondary schools and challenges facing teachers in preparing and using visual aids. A detailed account of the findings is provided in Chapter 4 of this study.

The summary of the findings is as described below:

5.2.1.1 Visual Aids Used by Teachers and their Effectiveness to Students

Learning

The study sought information on visual aids used by teachers in Mkuranga district and how such aids were effective in facilitating students learning. Findings revealed

that teachers at Mkuranga District secondary schools mostly use chalkboard in teaching and only few of them use different visual aids such as pictures and photographs, realia (real things), wall charts and globes. This overdependence on chalkboard was caused by absence of other visual aids at schools and lack of skills to use available visual aids.

In this study, it was discovered that when varieties of visual aids are used in teaching, students understanding of the lesson improves as well as interest and engagement to the lesson. Teachers reported that teaching task becomes easier when they use visual aids to complement teaching activity. Therefore, absence of visual aids at these schools directly affects students understanding and teachers' ability to teach effectively. This negatively affects students' academic performance. However, it was noted that most teachers were willing to use visual aids if they were made available at schools.

In this objective, teachers of different subjects were also observed on whether they use any visual aids in teaching. The findings showed that majority of subject teachers did not use any visual aid in teaching as they relied on the chalkboard as a major tool in teaching. It was also discovered that teachers lacked skills on the preparation and use of visual aids. Hence, they are not able to prepare and use visual aids properly.

5.2.1.2 Challenges Facing Teachers in Preparation and Use of Visual Aids

The findings of the study revealed challenges facing teachers in preparation and use of visual aids. One of the challenges mentioned was absence of adequate visual aids. In the schools visited, visual aids were lacking because the schools had no fund to

purchase visual aids. Some old visual aids could also not be repaired because schools lacked money. Absence of visual aids in these schools likely affected students' learning and performance.

Lack of skills was another problem revealed. Most teachers were not able to prepare and use visual aids due to lack of up to date skills on preparation and use of visual aids in classroom to support learning. It was found that most teachers were not able to use visual aids such as projectors in teaching. This was because they had not attended any training on the use of projectors.

5.3 Conclusion

The findings of this study indicate that visual aids have impact on students' academic performance in Mkuranga District secondary schools. The study managed to discover that there was teachers' overdependence on the use of chalkboards during teaching as opposed to other visual aids. As a consequence, students in these schools were not able to perform better in form four national examinations. This is because they were not well taught with the help of different visual aids which could increase recall and retention of learned information as well as interest and engagement to the lesson. In order for students to learn effectively and perform better, different kind of visual aids are important.

Skills and knowledge in preparation and use of visual aids is also very important for teachers to be able to make visual aids that complement learning. Skilled and trained teachers will be able to use their knowledge and creativity in creating meaningful

visual aids. In this study, most teachers did not have adequate skills on the preparation and use of visual aids. They had not attended any seminar or workshop on using visual aids or any other teaching aids. Surprisingly, teachers had attended many other seminars and training but none of those had anything to do with visual aids. This prevents teachers from teaching effectively and affects students understanding of lessons. If the situation is not taken care immediately, government initiatives in providing free basic education will face a wall as the quality of education in secondary schools in Mkuranga District continues to decline.

5.4 Recommendations

The following recommendations are made on the bases of the discussion of the findings and conclusions.

- i). The Ministry of Education and Vocational Training (MOEVT) should review the school expenditure guidelines issued with the Circular No. 6 of 2015 in order to increase the budget allocated for academic expenses and teaching materials including visual aids and, if possible, allocate a specific budget for visual aids in order to make sure they are available in all secondary schools.
- ii). Tanzania Institute of Education (TIE) should review and redesign subjects' syllabuses to emphasize on visual aids and incorporate information about different visual aids which should be used in particular topics and sub-topics.
- iii). MOEVT in collaboration with District Education Officers (DEOs) should work together to establish seminars and training for teachers on the preparation and use of visual aids.

- iv). Heads of schools should make sure that the budget allocated for the purchase of teaching materials such as visual aids is fully spent on purchasing those items.
- v). Heads of schools, academic masters/ mistresses and heads of subjects' departments should ensure that the visual aids available at schools are effectively used by teachers in teaching and are well stored after use.

5.4.1 Areas of Further Research

This study focused on the impact of visual aids in relation to form four national examination performance in Mkuranga District secondary schools. Qualitative approach was used and only five (5) secondary schools in the District were sampled. The study findings are therefore a reflection of the visited schools and they cannot be generalized or claim to be inclusive. Given the sensitive nature of visual aids and the link established between them and form four national examination performance, it would be reasonable to conduct another study using survey design that will involve a large sample in order to establish the magnitude of the problem and be able to generalize the research findings.

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APPENDICES

APPENDIX A: Detailed Fieldwork Interview Questions for Students

This study is conducted in order to find out the impact of visual aids on students academic performance. Your contributions to this study are therefore very important. You are kindly requested to be cooperative and free to give your views. Before we start our interview, I would like to assure you that the information you give will be strictly confidential and your name will not appear in the transcript.

1. Do you understand about visual aids?
2. Do subject teachers prepare and use visual aids when teaching?
3. What kind of visual aids do teachers use in classroom?
4. Do teachers use visual aids from local environment to help in teaching?
5. Do you find visual aids interesting? Why?
6. Are there any ready-made visual aids in in your school?
7. Do you understand much better when visual aids are used?
8. Are you able to remember more when taught with visual aids?
9. Do you think using visual aids helps to improve your examination performance?
10. Do you prefer visual aids to audio learning aids such as radio?

Thank you very much for sparing your time to participate in this discussion

APPENDIX B: Detailed Fieldwork Interview Questions for Subject Teachers

This study is conducted in order to find out the impact of visual aids on students' academic performance. Your contributions to this study are therefore very important. You are kindly requested to be cooperative and free to give your views. Before we start our interview, I would like to assure you that the information you give will be strictly confidential and your name will not appear in the transcript.

1. How long have you been teaching since you started your teaching career?
2. Do you use visual aids in teaching? If not, Why?
3. Do you find visual aids helpful in increasing students motivating students to learn?
4. During lesson delivery when do you use visual aids?
5. What kind of visual aids do you use in teaching?
6. Do you prepare visual aids yourself or buy them?
7. Do you use local materials from school surroundings to prepare visual aids?
If not, Why?
8. Does the school help in procuring visual aids?
9. Do you think visual aids increase students understanding?
10. Are students able to remember more when you use visual aids?
11. Do you think students' performance increases when you use visual aids in teaching?
12. Have you attended any seminar or workshop on the preparation and use of visual aids?
13. What problems do you face when you prepare visual aids?

14. Do you receive assistance from the school administration in preparing visual aids?

Thank you very much for sparing your time to participate in this discussion

**APPENDIX C: Detailed Fieldwork Interview Questions for Academic Masters/
Mistresses**

This study is conducted in order to find out the impact of visual aids on students' academic performance. Your contributions to this study are therefore very important. You are kindly requested to be cooperative and free to give your views. Before we start our interview, I would like to assure you that the information you give will be strictly confidential and your name will not appear in the transcript.

1. How long have you been teaching since you started your teaching career?
2. For how long have you been academic master?
3. Are the teachers in your school using visual aids in teaching? If not, Why?
4. Do teachers use visual aids effectively?
5. Do students understand better when visual aids are used?
6. Are there any commercially produced visual aids at your school?
7. Do you see any relationship between visual aids and students' academic performance?
8. Do you encourage teachers to prepare and use visual aids?
9. Have teachers requested any assistance from you with regards to visual aids?
10. Have teachers received any in-service training on visual aids?
11. What kind of storage do you have for keeping visual aids after use?

Thank you very much for sparing your time to participate in this discussion

APPENDIX D: Detailed Fieldwork Interview Questions for Heads of School

This study is conducted in order to find out the impact of visual aids on students' academic performance.. Your contributions to this study are therefore very important. You are kindly requested to be cooperative and free to give your views. Before we start our interview, I would like to assure you that the information you give will be strictly confidential and your name will not appear in the transcript.

12. How long have you been teaching since you started your teaching career?
13. For how long have you been heading schools?
14. Are the teachers in your school using visual aids in teaching? If not, Why?
15. Do teachers use visual aids effectively?
16. Are there any commercially produced visual aids at your school?
17. Do you see any relationship between visual aids and students' academic performance?
18. Do you encourage teachers to prepare and use visual aids?
19. Do you supervise your teachers when they prepare visual aids?
20. Have teachers requested any assistance from you with regards to visual aids?
21. Have teachers received any in-service training on visual aids?
22. What kind of storage do you have for keeping visual aids after use?
23. Does the school have any fund allocated for procuring visual aids?
24. Do you receive adequate assistance from DEO and government with regards to visual aids?

Thank you very much for sparing your time to participate in this discussion

APPENDIX E: Classroom Observation Checklist

The observation schedule intends to record teachers' use of visual aids in the classroom during lesson delivery.

1. Name of the school
2. Form.....
3. Observation begins at ended at.....
4. Number of students in classroom.....

Directions; Tick all that apply in the classroom

S/N	Statement	Yes	No
1.	Teacher possession of visual aid		
2.	Teacher effective use of visual aid		
2.	Relevance of visual aid to the content taught		
3.	Students understanding of visual aid		
4.	Visual aid is locally made		
5.	Presence of visual aids in the class e.g. in walls		

THE OPEN UNIVERSITY OF TANZANIA
DIRECTORATE OF RESEARCH, PUBLICATIONS, AND POSTGRADUATE STUDIES

P.O. Box 23409 Fax: 255-22-2668759
 Dar es Salaam, Tanzania,
<http://www.out.ac.tz>



Tel: 255-22-2666752/2668445 ext.2101
 Fax: 255-22-2668759,
 E-mail: drpc@out.ac.tz

11/08/2017

District Education Officer,
 Mkuranga District,
PWANI.

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an act of Parliament no. 17 of 1992. The act became operational on the 1st March 1993 by public notes No. 55 in the official Gazette. Act number 7 of 1992 has now been replaced by the Open University of Tanzania charter which is in line with the university act of 2005. The charter became operational on 1st January 2007. One of the mission objectives of the university is to generate and apply knowledge through research. For this reason staff and students undertake research activities from time to time.

To facilitate the research function, the vice chancellor of the Open University of Tanzania was empowered to issue a research clearance to both staff and students of the university on behalf of the government of Tanzania and the Tanzania Commission of Science and Technology.

The purpose of this letter is to introduce to you **Humphrey Ngonyani; Reg.No. PG201609400** who is a **MED.APPS** student at the Open University of Tanzania. By this letter **Humphrey Ngonyani** has been granted clearance to conduct research in the country. The title of his research is **"The Impact of Visual Aids in Relation to form Four National Examination Performance"**

The period which this permission has been granted is from 14/08/2017 to 15/10/2017.

In case you need any further information, please contact:
 The Deputy Vice Chancellor (Academic);
 The Open University of Tanzania;
 P.O. Box 23409;
 Dar Es Salaam.
 Tel: 022-2-2668820

We thank you in advance for your cooperation and facilitation of this research activity.
 Yours sincerely,

Prof Hossea Rwegoshora
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA

MKURANGA DISTRICT COUNCIL*(All correspondence should be addressed the District Executive Director)*

Phone No. 0232402738,
Fax No. 023 2402706



P.O. Box 10,
MKURANGA,
PWANI.

In reply please quote:

Ref. No. MK/SS/TP/55/3

24.08.2017

Mr. Humphrey Ngonyani,
Open University of Tanzania,
Directorate of Research, Publication and
Postgraduate Studies,
P.O. Box 23409,
DAR ES SALAAM

RE: RESEARCH CLEARANCE

Your letter written by Vice Chancellor for you with the topic captioned above refers. I'm glad to inform you that the research clearance has been accepted and thus permission has been granted to conduct your research in Mkuranga District on "The Impact of Visual Aids in Relation to Form Four National Examination Performance".

The permission period will remain to be between 21st August, 2017 to 20th October, 2017. However take note that there might be some restrictions during the National Examination in October, 2017 which will need you to get special permission.

Please don't hesitate to ask assistance from us.

B. A. Majoya

For. DISTRICT EXECUTIVE DIRECTOR
MKURANGA

For: DISTRICT EXECUTIVE DIRECTOR
MKURANGA

Copy to:

1. District Executive Director,
Mkuranga District Council,
MKURANGA. (To take note)
2. Vice Chancellor,
The Open University of Tanzania,
P.O. Box 23409,
DAR ES SALAAM
3. Head of Secondary Schools,
Mwinyi, Dundani, Vikindu, Mwarusembe, (Please assist him)
and Kiparang'anda
MKURANGA