

**AN ASSESSMENT OF MULTIMEDIA USE A MONG COLLEGE TUTORS:
A CASE OF SUMBAWANGA TEACHERS' TRAINING COLLEGE IN
TANZANIA**

PANJA VENANCE

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
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ADMINISTRATION
THE OPEN UNIVERSITY OF TANZANIA**

2020

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by The Open University of Tanzania a dissertation titled *“An Assessment of Multimedia Use among College Tutors: A case of Sumbawanga Teachers’ College in Tanzania.* In partial fulfillment of the requirements for the award of degree of Master of Education in Administration, Planning and Policy Studies of The Open University of Tanzania.

.....

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.....

Date

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DECLARATION

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.....

Signature

.....

Date

DEDICATION

This work is dedicated to my beloved father, whose understanding of the importance of education has laid the foundation of my schooling. Moreover his life style has been an inspiration device to my life achievement. The work is also dedicated to my Beloved wife Faraja and my daughters Faith Venance and Gladness Venance whose moral support have been significant and appreciated throughout my study.

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ABSTRACT

The study investigated the role of multimedia use among college tutors at Sumbawanga Teachers' Training College. The main objective of this study was to assess the role of multimedia in teaching and learning among college tutors. The study was guided by three objectives: To explore the perceptions of college tutors over the use of multimedia in teaching and learning at college level, examine the role of multimedia in improving teaching and learning at college level, identify challenges tutors face when using multimedia in teaching and learning at college level and establish appropriate strategies for using multimedia to improve teaching and learning at college level. The study employed a descriptive design where questionnaires were used to collect data from tutors. The study found that tutors perceive multimedia use in teaching and learning in a positive way. The study revealed that multimedia is an effective way for effective and efficient teaching and learning at college level. The study also revealed some challenges affecting the use of multimedia in enhancing teaching in teachers training colleges. Strategies to improve the use of multimedia in teachers training colleges were also established. Therefore, it is the high time for governments and education stakeholders to make emphasize in the use of multimedia in teaching and learning. Also, motivation to using multimedia content should be provided so as to effectively implement the use of multimedia in colleges and schools to increase students' performance, understanding, competencies and achievement.

Keywords: *Multimedia, Sumbawanga Training College, teaching and learning*

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CHAPTER ONE

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

This chapter introduces the study that investigates the effectiveness of multimedia on enhancing teaching and learning in teachers training institute in Sumbawanga District, Tanzania. The chapter is organised into subsections including the background of the problem, statement of the problem, objectives of the study, research questions, and significance of the study, limitations and delimitations of the study.

1.2 Background to the Study

The term multimedia includes the text, the video and picture that assist the learners to understand the concept during the teaching and learning process. This multimedia is used in education technologies to improve understanding of concepts among the learners. The multimedia is said to improve memory, create interest and sustain interest to learn and it is said to be strong teaching approach than the traditional teaching approach which concentrates to use of chalk and board.

With increase large class size in many schools in Tanzania and Africa at large the multimedia seems to be the answer for the improving the efficiency in teaching the large class size bring the advantages of allowing the learners to interact, create conducive learning environment and can allow the learners to take part in the lesson outside the classroom and beyond the normal working hours.

Use of authentic materials in the form of films, radio, TV has been there for a long time. It is true that these technologies have proved successful in replacing the traditional teaching. The new era assigns new challenges and duties on the modern teacher.

According to Lewis and Hosie (1994) recommends that multimedia is useful to the large class spread over large rooms where the learners can learn with interest and do the interaction that stimulate their sensory. This has been used in teaching simulation, problem solving and decision making. The classes that are using multimedia have been observed to simulate learners than the classes administered under traditional method of teaching.

Kline (1994) proposed that multimedia gives the answer to a tough situation faced by teacher educators, i.e., the need to provide opportunities for pre-service students to observe children, so that they become trained and skillful in analyzing the behaviour of the children. For example, field visits to classroom settings can be time consuming, not easy to organize and often disturbing and interfering for schools and children. The precision of students written accounts noted during such visits cannot easy to determine.

Salinger (2004) claims that ICT can enhance the quality of education because the content of multimedia helps in explaining difficult concepts applying methods which are not accessible through traditional methods of learning. Kline (1994) stated that multimedia is beneficial for pre-service teacher education programmes. A number of

studies indicate that computer-based multimedia can improve learning and retention of material presented during a class session or individual study period, as compared to “traditional teaching method or study materials in which multimedia is not utilized (Fletcher, 2003; Mayer, 2001).

In recent years, there has been increasing interest in the development and use of multimedia-enhanced content to enhance the quality of teaching and learning. The multimedia contents are digital instructional materials that combine text, graphics, audio and animations. Teachers tend to use these contents to liven up classroom lectures by using them to better demonstrate and explain difficult concepts that cannot be easily explained using text alone. (Lanzilotti et al, 2006; Thomas & Israel, 2013).

It is by basing on the above advantage of the multimedia in the teaching and learning process the ministry of education is putting much emphasis on the curriculum that would support the college tutors to use and inculcate the culture of the prepared teachers to use the multimedia in their teaching. It is from this observation there is need to assess the use of multimedia among the college tutors in teacher training colleges at Sumbawnga TTC.

1.3 Statement of the Problem

The teaching and learning environment in Teacher's training colleges has allowed the college tutors to use multimedia as the ministry recognises that these tutors are training the students teachers to go for effective teaching in both secondary and

primary schools in Tanzania, it is however that the use of multimedia is seen and observed to be low in teachers training colleges, this in turn will limit the ability of students teachers graduates to implement the effective use of multimedia in their classroom teaching. This study hence, intends to ascertain the perceptions of the colleges tutors in using multimedia in their college teaching, to establish the effects of multimedia in teaching and learning at the college level, to establish the challenges the college tutors encounter in using the multimedia in their college teaching and learning and lastly to establish strategies to be used in teachers training colleges to improve the use of multimedia in teaching in TC.

1.4 General Objective

To examine the use of multimedia in teachers training colleges in Sumbawanga teachers training college.

1.4.1 Specific Objectives

The proposed study seeks to address the following specific objectives;

- i) To explore the perceptions of college tutors over the use of multimedia in teaching and learning at college level.
- ii) To examine the role of multimedia in improving teaching and learning at college level.
- iii) To identify challenges tutors face when using multimedia in teaching and learning at college level.
- iv) To establish appropriate strategies for using multimedia to improve teaching and learning at college level.

1.5 Research Questions

The research questions that will address the above objectives are;

- i) What are perceptions of college tutors over the use of multimedia in teaching and learning at college level?
- ii) What are the effects of multimedia on the conception of principles and subject knowledge in teaching and learning at college level? and
- iii) What are the challenges tutors face when using multimedia in teaching and learning at college level?
- iv) What appropriate strategies can be used to improve teaching and learning using multimedia at college level?

1.6 Significance of the Study

The findings of this study will be useful to curriculum developers at the Tanzania Institute of Education (TIE), Ministry of Education and Vocational Training and other education stakeholders in the country. The findings of the study will have a considerable potential impact to improve the application of multimedia in teaching and learning in Teacher training colleges. The study will also create an opportunity to tutors to express their views on the use of multimedia in teaching and learning. The questionnaires and the researcher during the interviews will make tutors re-examine their approaches and attitudes towards the use of multimedia.

On the other hand, the study is expected to reveal the effects of the use of multimedia in teachers' training colleges. The findings may reveal the importance of multimedia

in teaching and learning. Hence, the government and education stakeholders may put more emphasis on the use of multimedia in teaching and learning.

The study is expected to raise issues and challenges faced by tutors and learners. The challenges may be used by other researchers and students interested in investigating multimedia in different levels of learning. The results of this study will not only benefit learners but also improve teachers' competences. The study is expected to also provide a foundation for further researches in the area of multimedia in education.

1.7 Delimitation the Study

The study will be conducted at Sumbawanga T.C found in Rukwa region in Tanzania. It will focus on the assessment of multimedia in teacher training college rather than significance of multimedia technology in secondary schools. Nor did the study make an evaluation of the effectiveness of using multimedia in enhancing student teacher academic performance in teacher training colleges. The study will involve teachers college and participants will be sampled from Sumbawanga municipality, results of the present study will not be conclusive to all teachers colleges.

1.8 Definition of Key Terms

Multimedia: Multimedia is operationally defined as an environment that offers learners access to information in a variety of formats, including illustrations, pictures, text, still images, animation, video, and audio presentations while plain

texts include books without pictures or illustrations (Techterms, 2012). It is believed through literature that illustrations and other multimedia motivates the learner while reading and lead to better understanding of the material to be learned (Omari, 2011).

The term multimedia is the set of different technologies, which are used for the purpose of communication through a combination of visual and audio media in new ways. It is used for different purposes i.e., entertainment, advertising and education. Multimedia often refers to technologies of computer. Now-a-days every PC supports multimedia because they have CD-ROM or DVD drive, a good sound card and video card usually installed in main board. However, the term multimedia also describes a number of dedicated media devices, such as Digital Video Recorders (DVDs) interactive television, MP3 Players, advanced wireless devices and public video displays. Multimedia is the combination of several types of media, which consists of text, video, audio, graphics, etc. For example, a presentation, which is presented with audio and video clips, is considered a multimedia presentation (Vallikkad, 2009).

According to Lewis and Hosie (1994), multimedia was particularly useful in situations where there were large number of learners distributed over time and place, where learners had varied experiences and skills and where there was a shortage of teachers with subject matter expertise. In addition, they claimed that multimedia was ideal when there was a need for simulation, continuous practice or retraining; the problems of combining different learning media such as text, slides, video and audio; where subject matter was stable , and when training involved processes, procedures, problem-solving and decision making. In this study multimedia means combination

of different media, all being used to best describe or explain something in teaching and learning.

Teaching: This means teaching and learning as interactive activity which involves the guide of teachers, learning activity or aspect and learners' anchored by multimedia.

Tutor: Is a teacher, a teaching assistant or someone who helps a student catch up in a subject.

Student Teacher: This refers to the student who is trained and equipped with the techniques of teaching.

Perception: Is defined as an awareness of the truth of something. In this study, perception refers to tutors knowledge, perspective and experience of what entail multimedia and the associated value in facilitating the teaching and learning process.

1.9 Organisation of the Study

The current study was organised in five chapters. The first chapter covered on the Introduction where background information about the study was given. Further the statement, objectives, research questions and significance of the study was also covered. Chapter two covered literature review done that is theories related to the study, and themes on the effects of multimedia in education and the general perception on the use of multimedia in education,, further the conceptual framework

was presented. Chapter three covered the research methodology, while chapter four covered data collection and presentation. Chapter five covered the summary, conclusion and recommendations.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review and conceptual framework as related to the study. The chapter is organized into the following sub-sections: theoretical review, empirical review, conceptual framework and research gap.

2.2 Theoretical Review

This study is underpinned by two theories i.e. the Extended Unified Theory of Acceptance and use of Technology (UTAUT2) and the Ellis model for multimedia effectiveness. The UTAUT2 is a technology acceptance model initiated by Venkatesh and others in 2012. The theory was used as a reference model unified by variables which users perception of quality multimedia technology. UTAUT2 deals with seven independent constructs: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Hedonic Motivation (HM), Price Value (PV) and Habit (HT) and two dependent variables: Behavioural Intention to Use (BI) and Use of Technology (UB).

This study also is underpinned by Elliss model for multimedia effectiveness for establishing precisely the value of multimedia in enhancing learning. According to this model, any study of the effectiveness of multimedia as a tool to enhance learning must specify: learning in a manner that is consistent with accepted learning theory; the student population under consideration; the subject matter being studied; which media elements are being studied, at what level of interactivity, and toward

what end. The two theories guide the current study by providing insights on the acceptancy of multimedia technology, perceptions on the use of multimedia technology and on the other hand, the effectiveness of multimedia in teaching and learning. The first theory, the UTAUT2 provided foundation on the acceptance of the use of multimedia technology while the second one, Elliss (2004) model for multimedia effectiveness provided insights on the effectiveness of multimedia in enhancing teaching and learning.

2.3 College Tutors' Perceptions over the Use of Multimedia

The section reviews the perceptions the tutors have over the use of multimedia in teaching in teachers training colleges. This is important because it is by having the status of thier perceptions is when the programme for multimedia can be effectively implemented in colleges.

Reviewed studies have indicated that teachers' beliefs on multimedia are key factors influencing use and implementation of multimedia in teaching and learning in their classes (Hennessy, et al, 2010). Successful application of multimedia in education programs is hinged on how the teacher perceives it. A teacher who does not recognize how multimedia satisfies his/her needs and that of his/her students may not consider applying it in classroom. (Hew and Brush, 2007). Rogers (2003), posited that if teachers perceive the use of multimedia positively, the adoption and integration into the teaching and learning process would be easy.

Using a quantitative approach (Simonson, 2004) explored attitudes of primary school teachers on using CT for instruction. The study was a correlation between how the

teacher perceived and used CT in the lessons. Similarly, Drent et al. (2008) studied factors that influenced the inventive application of CT by 210 tutors in Holland and found a positive correlation between how the tutors perceived and use CT.

Similarly, Ngan (2001) assessed perceptions of teachers in implementation of ICT in primary schools in Hong Kong. The study found that respondents understood the important role played by ICT in teaching and learning.

Sivakumaran et al, (2012) surveyed student perceptions of multimedia technology integrated in classroom learning. This study surveyed students entering seventh, eighth, and ninth grade regarding their current use of any technological tools in their current learning environment, and their perceptions as to the benefits of using it on a more regular basis. Results found that, although most were not utilizing technology to its capacity in their classrooms, students perceived that incorporating technology on a higher level in their classrooms would make them more engaged and excited to learn.

A study conducted on a Midwestern college campus found that not only was technology useful in increasing the student participation but results also suggested that “adding technology to courses where it is not currently used is likely to have a positive impact on student perceptions of the instructor and the course as well as on most aspects of student behavior” (Lavin, Korte, & Davies, 2010).

Patrick (2016) did a study on the multimedia use in Tanzania secondary schools in Morogoro. The study established that many teachers are passionate to adopt the use

of multimedia in the classroom but their positive attitude toward the use of the multimedia was affected with the problem of shortage of the hard ware and software of the computers to enhance teaching.

2.4 The Role of Multimedia in Teaching and Learning Process

The following literature review covered on the role played by the multimedia in teaching this reflected that multimedia when effectively used it created and aroused interest in learning, made interaction with content more relevant and so made learners to recall the taught content. Multimedia has been evidenced to be one of the effective ways in teaching and learning at different levels of learning (Oshinaike and Adekunmisi, 2012; Mtebe et al 2016). Multimedia provides support for presenter to gain support from audience and creates interest, ability to understand the subject matter and principles and sustain interest. These observations further supported by (Lindstrom, 1994) who says that one who interacts with the learning resources understands more than 75 percent of the taught content.

The study by de Sousa et al. (2017) who investigated the effects of multimedia use on the teaching and learning of social sciences at tertiary level. The study used a quasi-experimental research design and the results of their study suggested that effectiveness of multimedia can be obtained through using a combination of multimedia. This can improve teaching and learning at all levels.

Liu (2010) did a study on the use on multimedia in teaching Language in English. The study used both qualitative and quantitative methodology established that the use

of multimedia such as song, pictures and simulation encourage the learners to learn better and the teacher therefore should well plan their teaching of English using multimedia such as pictures and simulation.

Multimedia is also revealed in the work of Acha (2009) who conducted the study on the effectiveness of multimedia programmes in children's vocabulary learning. Results support previous research about cognitive load in e-learning environments, and show that children's learning processes are hindered by limited working memory. This finding implies a challenge for multimedia programmes designed for children and based on self-regulated learning.

Allen (1998) conducted a study to find out the efficiency of multimedia software in the academic achievement of a sample from Texas University in the microorganism curriculum, their knowledge retention, and their attitudes toward using multimedia computers in teaching the microorganism course. The study sample comprised 76 students, divided equally into two groups: control and experimental. The 16-week study result uncovered statistically-significant differences, in the academic achievements, knowledge retention & attitude toward computer, in favor of the experimental group which studied using the multimedia method over the control group which studied using the traditional method.

Watkins (1999) carried out a study which aimed at finding out the efficiency of teaching by using the multimedia software stored on a CD in the academic achievement of a sample of students from the University of Arizona (49 students)

and their attitudes toward sciences. The study used the semi-experimental method as it divided the study sample haphazardly into two groups: one is experimental whose students studied using educational software while the other is control whose students studied some subjects of sciences using the traditional method. An achievement test is applied in this study in addition to an attitude scale. The results showed the excelling of the experimental group over the control group which studied using the traditional method in an attempt to reach an academic achievement. They also showed no statistically-significant differences in attitudes between the two groups.

Yunus (2007) study entitled ‘the effectiveness of multimedia software to teach Geometry in the second grade of preparatory schools’ aimed at identifying to what extent multimedia software helps in the academic achievement of the preparatory school students in the subject of Geometry and its remembrance. The sample of experimental study included 300 male and female students divided into two experimental and control groups each group consisted of 150 male and female students. The experimental group was taught by multimedia software program that contain a content of the Geometry unit identified by the Ministry of Education in the Syrian Arab Republic. The results showed significant statistical differences in the average of academic achievement of the experimental and control groups in the test conducted after the experiment in favor of experimental group.

Obaid (2001) conducted a study on the effect on multimedia in teaching mathematics. The results indicated that the students who were exposed to the use of multimedia such as graphic, drawing, real objects in counting and real situation in

computer simulation understood well the taught mathematics subject than the group which was denied the use of multimedia interaction. This made the republic of Arabic Egypt to encourage all teachers in the country to employ the multimedia when teaching the mathematic subject in school.

Nadar (2003) conducted a study entitled as ‘the effective use of computer on the development of some necessary basic skills to enable the students of technology education to use video camera. The study aims to measure the effective use of computer on the development of some necessary basic skills to enable the students of technology education to use video camera in the Faculty of Specific Education in Tanta. The study used the experimental method and the sample consisted of 40 students from technology education divided randomly into experimental and control groups. The results of the study showed significant statistical differences at the significance level of 0.05 between the average grade of the experimental group students and the average grade of the control group students in the academic achievement in favor of the experimental group.

A study by Omodara and Adu (2012) which examined the relevance of educational media and multimedia technology for effective service delivery in teaching and learning processes. The study revealed positive impacts of multimedia on learning. This is in line with what the current study seeks to reveal in Tanzania as one of the means to achieve effective education and provide adequate knowledge in the country.

Similar examination was made by Akinoso (2018), in his study adopted the quantitative methodology where the study intended to establish how the use of multimedia in teaching mathematics would improve the students' performance. The result indicated that those students who were exposed to the multimedia were able to perform better than those who were not exposed to the multimedia.

2.5 Challenges Tutors Face When Using Multimedia

The following literature was done to reveal challenges that are facing tutors in education institutions when using multimedia. These multimedia include, computers, internet, CD, DVD and simulations models in teaching. The key challenge that face these tutors was identified to be low skills in using the technology in teaching. Research indicates that in many developing economies including Africa, there are many limitations encountered in attempting to bring CT into the education process. Hennessy et al (2010) identified a range of physical dynamics that influence computer use by teachers, including unreliable electrical power supply, inadequate computer resources (internet access, hardware and software provision). In this study, the researcher sought to find out if despite the installation of the multimedia laboratories, there are other infrastructural issues that might undermine effective integration of CT in the teaching and learning process.

Research indicates that another challenge facing CT integration in classroom instruction is lack of computer literacy and know how on integration in teaching among teachers. Hennessy et al (2010) explain that the effective incorporation of CT into the teaching and learning hinges on the capability of teacher to organize their

learning environments to suit computer pedagogical approaches. With regard to tutors' preparedness to impart computer skills, Wilhelmsen, Ørnes, Kristiansen, et al (2009) found that four in every ten pre service teachers thought that they were not being adequately trained on how to utilize CT in classroom instruction. Similarly, in a survey of both Oslo University College and Sør-Trøndelag University College, student teachers felt that they did not get enough courses on pedagogical use of computer (Rizza and Enochsson, 2009). Those findings agreed with previous ones, such as Hetland and Solum (2008) who stated that the digital proficiency of the tutor was inadequate and apparently there was need for more courses to enhance training.

Cultural mindset is a factor that could affect perception towards an innovation as review of literature reveals. (Becta, 2004) reports existence of cultural mind set among teachers whereby they have a tendency to resist change from the teaching methods they are used to and adopt new ones. With reference to the current study, this would refer to resisting change from mere use of chalk and talk method to use of emerging computer approaches. According to the Becta report, the resistance goes beyond individuals to institutions whereby some set ups are not easy to rearrange in order to accommodate emergent infrastructural resources and new approaches. That finding had been found earlier by Cuban et al., (2001.) and later by Zamfir (2008) who concurred, that even though use of CT in classroom instruction had shown remarkable academic outcomes, transforming from one approach to another is a perplexing procedure.

A study by Oshibaïke et al., (2012) revealed problems limiting the use of multimedia in Nigeria. The identified problems included lack of supportive infrastructures, lack of time to spend on technology, lack of adequate training, and inadequate capital/funds on the part of the individual lecturers.

Hyasinta (2012) investigated the extent in which multimedia, illustrations, interactivity, visibility and vocabulary are presented in Psychology and Special Education study materials so as to enhance readability as well as learning. The study revealed that Psychology and Special Education teachers should prepare multimedia enriched study material in schools.

Patrick (2016) conducted a study on the use of multimedia in secondary schools in Morogoro. The study comprised of officials from the Ministry of education, institute of education, school inspectors and tutors from Morogoro TTC. The study being guided by a mixed research method; where interviews, questionnaire and document were used, revealed that the teachers were interested in using the multimedia but they were affected with problems with software and hard ware. Furthermore, the study finding showed that they were affected with poor skills in using the technology in the teaching.

2.6 Research Gap

With evidenced from the reviewed literatures, it is evident that the issue of multimedia use in teaching and learning at college level has not been thoroughly addressed. Some studies have been conducted at primary school level, while others at

secondary school level. Therefore, it is in the light of this study that college tutors will be assessed on how they perceive multimedia content use, the effects of integrating multimedia in teaching and learning at college level as well as the challenges faced by tutors when implementing the use of multimedia in teaching and learning at college level.

2.7 Conceptual Framework

The conceptual framework is the lens that provides how the study is to be structured and investigated. The context covers the aspect of teaching and learning in teachers colleges. Where the ministry insists the use of multimedia like text, internet, pictures, models, simulation and power point to present the effective teaching on the class.

However, the use of multimedia in teachers' colleges is faced with mixed feeling, some see it as helpful while others see it as hard to use so they maintain the traditional teaching methods which hinders students understanding. Further, the use of media is faced with some challenges such as tutors claim to have no training on multimedia and therefore, they cannot use it effectively.

Finally, the output is to attain improved teaching and learning that attain better teaching to student teachers, attain better learning outcomes and attain competence-based curriculum. Thus, the conceptual framework to understand the use of multimedia needs to coincide the above variables.

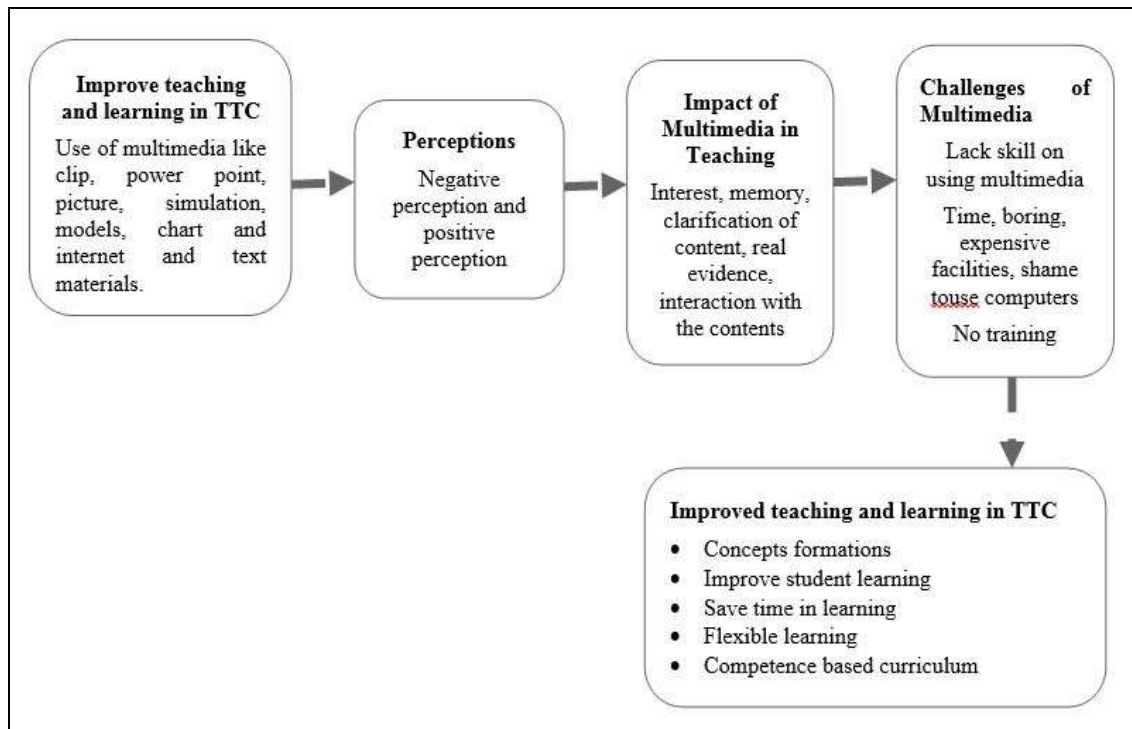


Figure 2.1: Conceptual framework

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes research methodology that was used during implementation of the study. The chapter is organized into the following sub-sections; area of the study, research design, population, sample and sampling techniques, data collection instruments, data analysis techniques and research ethical considerations.

3.2 Study Area

Sumbawanga Municipality is one of four Local Government Authorities in Rukwa Region. The Council is situated in the south-west Highlands of Tanzania at the Latitude 7.8° – 9° South and, Longitude 31° – 32.3° to the East.

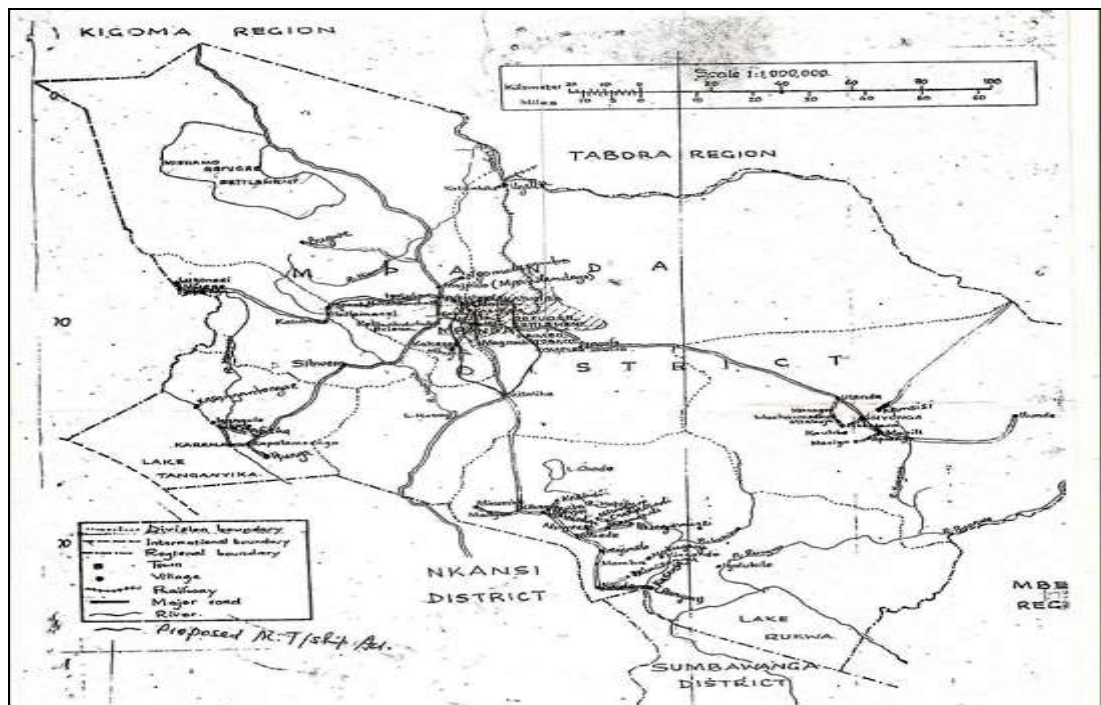


Figure 3.1: Sumbawanga Municipality map

The Municipality borders with Kalambo District Council at West, Songwe Region (Momba District) in the South East, Nkasi District to the North West and Sumbawanga Municipal Council to the North. Sumbawanga District Council where this study was undertaken occupies a total of 8,871 km² of which 668 km² is covered by water and 8,203 km² is covered by land. The area receives annual rainfall ranging from 800mm to 1200 mm and experiences maximum temperature of 24⁰C to 27⁰C and a minimum of 13⁰C to 16⁰C with average altitude of about 2029 metres above the seal level.

3.3 Research Approach

The study employed a quantitative approach where survey was used to collect data from college tutors. Since its focus was to seek opinions from the college tutors on the use of multimedia in teachers training college, to cover the opinion from these tutors survey approach was deemed necessary as it would reduce costs and cover data collection over short time.

3.4 Research Design

The study used survey design to present and conduct the data collection and analysis. The survey design is the design which uses questionnaire to seek opinion on the studies topic. The survey design was needed for this study because the current researcher intended to seek opinion from the respondents on the perception of multimedia use, the role of the multimedia in affecting the student learning and lastly the strategies that can be used to improve the use of multimedia in teachers colleges.

So the survey design was sought as it could reduce cost and cover many people at shorter time.

3.5 Population, Sample and Techniques

3.5.1 Population

A research population is generally a large collection of individuals or objects that is the main focus of a scientific query. It is for the benefit of the population that researches are done. However, due to the large size of populations, researchers often cannot test every individual in the population because it is too expensive and time-consuming (Best & Kahn, 2006). A targeted population is a group of respondents in which a researcher intends to make generalization for study. For the purpose of this study, the target population included all tutors at Sumbawanga TC.

3.5.2 Sample Size

A sample is a smaller group obtained from the accessible population (Mugenda, 1999). This group is carefully selected to be representative of the whole population with the relevant characteristics. Also, according to Cohen et al, (2000) a sample is a small group of units drawn from the target population in which the researcher is interested to gather data for the study and drawing conclusion to the entire population in the district concerned. The study recruited a total of 50 tutors from Sumbawanga TC.

3.5.3 Sampling Technique

Sampling is a procedure, process or technique of choosing a sub-group from a population to participate in the study. It is the process of selecting a number of

individuals for a study in such a way that the individuals selected represent the large group from which they were selected.

The study employed random sampling method. Cresswell (2014) recommends this type of sampling as there is large group of respondents to be included in the sample, so not every respondent can be included in the sample hence use of random sampling. The technique holds that every individual has the chance of representing the entire group so their inclusion is by random selection.

3.6 Data Collection Instruments

Data collection instruments are the tools that the researcher expected to use for the collection of data in the field. Data collection refers to the gathering of information aimed at proving or refuting some fact and maintaining those which are meaningful. This section provides a description of the instruments used in data collection process, which includes both primary and secondary data collection tools as described below.

3.6.1 Questionnaires

Questionnaires are data-gathering instruments by which a subject responds to questions or statements that generally require information (Best and Kahn, 1996). The questionnaire is an ideal instrument to gather descriptive information from a large sample in a fairly short time (Kothari, 2004). Both closed-ended and open-ended questions were prepared and administered by the researcher. Basically, the use of questionnaires had an advantage of providing the respondents adequate time to reflect on the questions asked and consult relevant documents before providing the

required data (Kasomo, 2006). Questionnaire were used to gather information from tutors, because it had advantage of reducing cost where the respondents can respond the information asked and post the responses, it could eliminate problem of shyness or hiding information as the respondents freely respond in absence of the researcher.

3.6.2 Documentary Review

Lincoln and Guba (1985) define a document as “any written or recorded material” not prepared for the purpose of evaluation or at the request of the inquirer. Documents can be divided into two major categories). In this study the document which were reviewed are lesson plan, scheme of work, report seminars on the multimedia use. Documents are considered by the researcher because they are stable in that they can be reviewed repeatedly to provide the same information.

3.7 Data Processing and Analysis

Data analysis is the process of breaking the information into meaningful information to be presented to the audience using group of data and information. The data from this study was presented in frequencies and percentage. Percentages were used to describe the content. Objectives of the study were used to guide the data presentation in themes of the study.

3.8 Data Validity and Reliability

3.8.1 Data Validity

Validity is the ability of a measuring instrument or research study to measure what it claims to measure (Kothari 2004). Validity refers to the degree of congruence

between the explanations of the phenomena and the realities of the world (Kothari and Patton, 2004). The current researcher attained validity by piloting the tool. The questionnaire was tested to the classmates to see the thoroughness and clarity, after the pilot, the tool was applied accordingly.

3.8.2 Data Reliability

The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Joppe, 2000). To ensure reliability the researcher tried to be precise in describing phenomena as well as minimizing bias or subjectivity. Merriam (1998) recommends triangulation as a way to increase reliability. These include triangulation of methods, where the current researcher used more than one method (questionnaire and documents) to collect data and compare them. The use of more than one method enabled the current researcher to compare information from those methods and this ensured credibility of result as opposed to using data from single method.

3.9 Research Ethics

The research process of searching and collecting data needs to conform to the principles of ethics. This study observed the ethics by obtaining permission from the open university of Tanzania at the Directorate of Postgraduate Studies. This allowed the current researcher to access the tutors at Sumbawanga Teachers College. Further, the current researcher ensured the confidentiality of information for those who

volunteered in the data collection. Since the college tutors had their own timetable for teaching the researcher asked to do questionnaire filling after work hours; this was done to ensure the purpose of searching knowledge was not interfering with their work schedule.

CHAPTER FOUR

4.0 PRESENTATION OF FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the research findings of the study on “*An Assessment of Multimedia Use among College Tutors: A case of Sumbawanga Teachers’ College*” in Tanzania. The chapter is organized in five major parts namely: respondents’ demographic information; perceptions of college tutors over the use of multimedia in teaching and learning at college level; the role of multimedia in improving teaching and learning at college level; challenges tutors face when using multimedia in teaching and learning at college level; strategies for using multimedia to improve teaching and learning at college level. These findings of this study are presented as follows.

4.2 Respondents’ Demographic Information

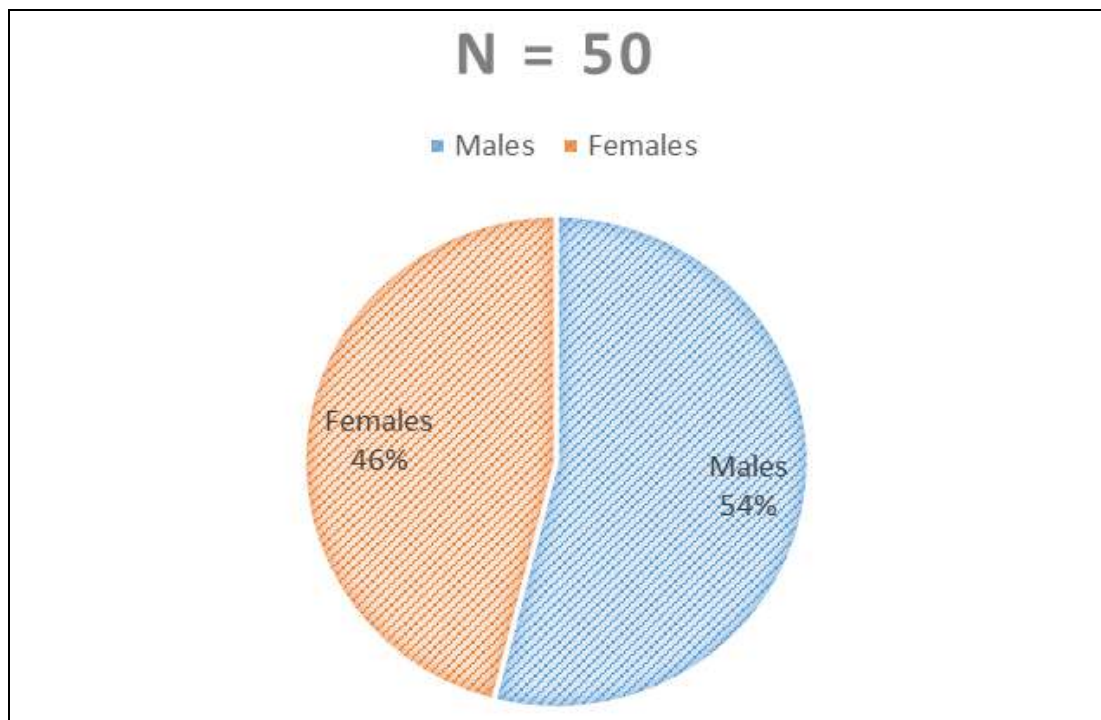
This section presents the distribution of tutors according to gender, age bracket, years of experience and highest level of professional qualification. The data in this section gives characteristics of the participants of the study.

4.2.1 Distribution of Respondents by Gender

Figure 4.1 shows the distribution of respondents by gender. The study found that among all 50 respondents, 27 (54%) were males while 23 (46%) were females.

Table 4.1: Distribution of respondents by gender

Respondents	Frequency	Percentage
Males	27	54
Females	23	46
Total	50	100

**Figure 4.1: Distribution of respondents by gender**

4.2.2 Distribution of Respondents by Age

Respondents were asked to indicate their age. The result from Table 2 shows that 15 (30%) of the respondents were aged between 42 and 49 years old, whereas 12 (24%) were aged between 34 – 41. 11 (22%) respondents indicated that they were aged 50 and above while 10 (20%) were aged 26 – 33 and only 2 (4%) of the respondents were aged between 18 and 25.

Table 4.2: Distribution of respondents by age

Age Groups	Frequency	Percentage
18-25	02	4
26-33	10	20
34-41	12	24
42-49	15	30
50 and Above	11	22
Total	50	100

4.2.3 Distribution of Respondents by Years of Experience

The result from Table 2 shows that 20 (40%) of the respondents had 11 - 15 years of teaching experience whereas 12 (24) had between 6 - 10 years. 12 (24%) of the respondents had put in between 11-15 years, while only 6 (12%) of the respondents had spent 5 and below years of teaching experience.

Table 4.3: Distribution of respondents by years of experience

Years	Frequency	Percentage
5 and Below	06	12
6 - 10	12	24
11 - 15	20	40
16 – and above	12	24
Total	50	100

4.2.4 Distribution of Respondents by Levels of Education

The result from Table 4 presents level of education of all respondents. The study shows that 35 (70%) of the respondents hold bachelors' degrees, whereas 10 (20%) had master's level, 10 (20%) had diplomas while 00 (00%) had PhD level of education.

Table 4.1: Distribution of respondents by level of education

Level of Education	Frequency	Percentage
Diploma	05	10
Bachelor Degree	35	70
Master's Degree	10	20
PhD	00	00
Total	50	100

4.3 Perceptions of College Tutors on the Use of Multimedia in Teaching and Learning at College Level

Research question one sought to examine tutors' perceptions on the use of multimedia in teaching and learning at Sumbawanga TC. Perceptions can be defined as the individual's tutor's belief on multimedia as an instructional resource or channel. In order to achieve this objective, the researcher used questionnaires which were supplied to randomly selected Sumbawanga TC tutors. The Likert scale was used to measure tutors' beliefs and attitude towards multimedia. According to Tuckman (1975), the Likert scale is one of the tools used to measure attitude where the respondent is given a series of attitude statements to respond to by selecting one of the given choices using scales 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Undecided (U), 4 = Disagree (D) and 5 = Strongly Disagree (SD). This means that respondents who rated strongly agree or agree were interpreted to have positive perceptions on the use of multimedia in teaching and learning while those who rated disagree or strongly disagree were interpreted as having negative perceptions on the use of multimedia in teaching and learning. However, those who selected undecided were considered to be not sure with the statements provided.

Table 4.1: Perceptions of college tutors on the use of multimedia in teaching

S/N	Perceptions	1	2	3	4	5
1.	Multimedia gives chance to learners to interact with the learning materials thus suspends the traditional way of learning in the classroom	41 (82)	07 (14)	01 (2)	01 (2)	00 (0)
2.	I see use of multimedia as conducive for effective teaching	35 (70)	09 (18)	03 (6)	02 (4)	01 (2)
3.	Use of multimedia such as computer simulations as interesting and assisting in concepts formations	38 (76)	08 (16)	02 (4)	02 (4)	0 (0)
4.	I see use of multimedia as creating interest to learn among students	21 (42)	20 (40)	05 (10)	03 (6)	01 (2)
5.	Multimedia helps concept formation in various disciplines	26 (52)	15 (30)	08 (16)	00 (0)	01 (2)
6.	Multimedia simplify difficult concepts in learning	35 (70)	10 (20)	03 (6)	02 (4)	00 (0)
7.	Multimedia helps keeping memory of the learners	25 (50)	20 (40)	01 (2)	03 (6)	01 (2)
8.	Multimedia reduce time taken by the tutor to explain the content of the subject matter	26 (52)	15 (30)	08 (16)	00 (0)	01 (2)

* *Note: Values in parenthesis () are %*

Table 4.5 above presents the frequency of respondents' perceptions on the use of multimedia. Results show that several factors are that were stated by the researcher which are; multimedia gives chance to learners to interact with the learning materials thus suspends the traditional way of learning in the classroom (96 percent); I see use of multimedia as conducive for effective teaching (88 percent); use of multimedia such as computer simulations as interesting and assisting in concepts formations (92 percent); I see use of multimedia as creating interest to learn among students (82 percent); multimedia helps concept formation in various disciplines (82 percent); multimedia simplify difficult concepts in learning (90 percent); multimedia helps keeping memory of the learners (90 percent); multimedia reduce time taken by the tutor to explain the content of the subject matter(82 percent). All the above mentioned factors were highly opined thus they indicated that the tutors were having positive perceptions towards use of multimedia in teaching in TTC.

4.4 The Role of Multimedia in Improving Teaching and Learning at College Level

The second objective of this study was to find out the views of tutors about the effectiveness of multimedia on the conception of principles and subject knowledge in teaching and learning at college level. Through different in-depth interview sessions with tutors, and college principle, the researcher used open ended questions to interview them where a wealth of information was obtained. Through the use of qualitative techniques, tutors and principle's interviews were coded and analysed using content analysis. Using the Likert scale respondent were given a series of statements to respond to by selecting one of the given choices using scales 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Undecided (U), 4 = Disagree (D) and 5 = Strongly Disagree (SD). Their responses are presented as follows.

Table 4.1: Effectiveness of multimedia inn teaching and learning

S/N	Questions	1	2	3	4	5
1.	Multimedia makes learning easy and fun	26 (52)	15 (30)	08 (16)	00 (0)	01 (2)
2.	The content is reliable	35 (70)	09 (18)	03 (6)	02 (4)	01 (2)
3.	Multimedia helps teachers to explain clearly and students to understand	38 (76)	08 (16)	02 (4)	02 (4)	0 (0)
4.	Multimedia information captivate the attention to students	21 (42)	20 (40)	05 (10)	03 (6)	01 (2)
5.	Students better understand the subject	38 (76)	08 (16)	02 (4)	02 (4)	0 (0)
6.	Multimedia increases students' performance	35 (70)	10 (20)	03 (6)	02 (4)	00 (0)
7.	Multimedia images are easy to remember	25 (50)	20 (40)	01 (2)	03 (6)	01 (2)
8.	Multimedia are suitable and usable	26 (52)	15 (30)	08 (16)	00 (0)	01 (2)
9.	Multimedia enhances the presentation of information	35 (70)	09 (18)	03 (6)	02 (4)	01 (2)
10.	Multimedia increases interests to learn	41 (82)	07 (70)	01 (2)	01 (2)	00 (0)

Table 4.6 above presents responses from tutors on the effectiveness of multimedia in teaching and learning. The study has revealed that multimedia is so effective when teaching. Respondents have agreed that multimedia makes learning easy and fun, the

content is reliable, multimedia helps teachers to explain clearly and students to understand, multimedia information captivate the attention to students, students better understand the subject, multimedia increases students' performance, multimedia images are easy to remember, multimedia are suitable and usable, multimedia enhances the presentation of information, multimedia increases interests to learn.

4.5 Challenges Tutors Face When Using Multimedia in Teaching and Learning at College Level

The third objective of this identify challenges tutors face when using multimedia in teaching and learning. Results from the study as shown in the table below shows the order of importance where; lack of equipment/resources, lack of training options, lack of management support have (100 percent) been ordered as the major challenges affecting tutors when using multimedia in teaching at college level. Similarly, lack of time and lack of technical advice/support have scored (80 percent) as the major limiting factors constraining the use of multimedia in college. Other constraining factors are lack of learners' interest, high cost of technology, not user-friendly scoring (30 percent) whereas factors like difficult to integrate into subject, doesn't contribute to promotion tenure, inadequate capital on the part of the individual, too hard to use all scoring (40 percent) and lack of tutor motivation, lack of quality materials, discomfort using technology (20 percent) were found to be of less importance.

Table 4.7: Challenges tutors face when using multimedia in teaching and learning

S/N	Challenges Facing Tutors	Frequency	Percentage
1.	Lack of equipment/resources	50	100
2.	Lack of training options	50	100
3.	Lack of management support	50	100
4.	Lack of time	40	80
5.	Lack of technical advice/support	40	80
6.	Lack of learners' interest	30	60
7.	High cost of technology	30	60
8.	Not user-friendly	30	60
9.	Difficult to integrate into subject	20	40
10.	Doesn't contribute to promotion tenure	20	40
11.	Inadequate capital on the part of the individual	20	40
12.	Too hard to use	20	40
13.	Lack of tutor motivation	10	20
14.	Lack of quality materials	10	20
15.	Discomfort using technology	10	20

4.6 Strategies for Using Multimedia to Improve Teaching and Learning at College Level

The fourth and final objective of this study was to establish appropriate strategies for using multimedia to improve teaching and learning. Participants were asked, using open ended questionnaire to mention appropriate strategies which could help to minimize challenges. Most of them mentioned provision of in-service training 50 (100%), increased support from the management 50 (100%), 45 tutors' motivation (90%), students' motivation 42 (84%), provision of multimedia facilities 40 (80%) provision of funds to enable development of multimedia content 39 (78%), ensuring availability of internet and other facilities 37 (74%), and support from the government 34 (68%) as the main appropriate strategies to be used to improve multimedia in teaching and learning. However, support from school management 22 (44%) and creating good classroom environment 19 (38%) were also among the strategies for improving multimedia in teaching and learning.

Table 4.1: Strategies for using multimedia to improve teaching and learning

S/N	Strategies	Frequency	Percentage
1.	Provision of in-service training	50	100
2.	Increased support from the management	50	100
3.	Tutors' motivation	45	90
4.	Students' motivation	42	84
5.	Provision of multimedia facilities	40	80
6.	Provision of funds to enable development of multimedia content	39	78
7.	Ensuring availability of internet and other facilities	37	74
8.	Support from the government	34	68
9.	Support from school management	22	44
10.	Creating good classroom environment	19	38

4.7 Discussion of Findings

This sub-section covers discussion of findings presented above in section 4.2 to 4.5. The discussion section covers the socio-demographic characteristics of respondents, perceptions of college tutors on the use of multimedia in teaching and learning at college level; the effectiveness of multimedia on the conception of principles and subject knowledge in teaching and learning at college level; and challenges tutors face when using multimedia in teaching and learning at college level.

4.7.1 Respondents' Demographic Information

The study indicated that social-demographic status such as age, sex, and education level affects tutors' perceptions and understanding of multimedia. This is in line with Rosenblatt and Shirom, (2009) who revealed that socio-demographic characteristics of a teacher population conveyed statistically, such as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage are stated to affect teacher's understanding and perceptions on the role of multimedia in teaching and learning.

4.7.2 Perceptions of College Tutors on the Use of Multimedia in Teaching and Learning at College Level

The study has revealed that multimedia is perceived positively by tutors. Factors like multimedia gives chance to learners to interact with the learning materials thus suspends the traditional way of learning in the classroom; I see use of multimedia as conducive for effective teaching; use of multimedia such as computer simulations as interesting and assisting in concepts formations; I see use of multimedia as creating interest to learn among students; multimedia helps concept formation in various disciplines; multimedia simplify difficult concepts in learning; multimedia helps keeping memory of the learners; multimedia reduce time taken by the tutor to explain the content of the subject matter have scored high percent of tutors perception on the use of multimedia in teaching and learning at college level.

Perceptions of tutors on the use of multimedia in teaching and learning at Sumbawanga TC are in line with Simonson, (2004) and Drent et al. (2008) who found a positive correlation between how the tutors perceived and use CT. similarly, Ngan (2001) found that respondents understood the important role played by ICT in teaching and learning.

4.7.3 The Role of Multimedia in Improving Teaching and Learning at College Level

The study has revealed that multimedia plays a greater role on teaching and learning at college level. Most of the agreed roles of multimedia in effecting teaching are multimedia makes learning easy and fun, the content is reliable, multimedia helps

teachers to explain clearly and students to understand, multimedia information captivate the attention to students, students better understand the subject, multimedia increases students' performance, multimedia images are easy to remember, multimedia are suitable and usable, multimedia enhances the presentation of information, multimedia increases interests to learn.

Similar observations were made by a number of studies in other areas including Oshinaike and Adekunmisi (2012); Mtebe et al (2016), who mentioned that multimedia provides support for presenter to gain support from audience and creates attention, improves comprehension and helps audience to be aware the subject. Also more emphasis is given by Lindstrom (1994) from an excerpt that people always remember about 20% of what they see, 40% of what they see and hear, but about 75% of what they see and hear and do simultaneously.

Further moreth above findings extends the finding established by Akinoso (2018), in his study adopted the quantitative methodology where the study intended to establish how the use of multimedia in teaching mathematics would improve he students' performance. The result indicated that those students who were exposed to the multimedia were able to perform better than those who were not exposed to the multimedia.

4.7.4 Challenges Tutors Face When Using Multimedia in Teaching and Learning at College Level

Results from the study show the order of importance where; lack of equipment/resources, lack of training options, lack of management support have

(100%) been ordered as the major challenges affecting tutors when using multimedia in teaching at college level. Similarly, lack of time and lack of technical advice/support have scored (80%) as the major limiting factors constraining the use of multimedia in college. Other constraining factors are lack of learners' interest, high cost of technology, not user-friendly scoring 30% whereas factors like difficult to integrate into subject, doesn't contribute to promotion tenure, inadequate capital on the part of the individual, too hard to use all scoring (40%) and lack of tutor motivation, lack of quality materials, discomfort using technology (20%) were found to be of less importance.

Studies from the literatures also identified a number of challenges facing teachers in design and development of multimedia and in teaching and learning. For example, Hennessy et al (2010) mentioned some challenges facing teachers including unreliable electrical power supply, inadequate computer resources (internet access, hardware and software provision). Also, Wilhelmsen, Ørnes, Kristiansen, and Breivik (2009) pre-service teachers were not being adequately trained on how to utilize CT in classroom instruction. Further, a study by Oshinaike (2012) revealed problems limiting the use of multimedia in Nigeria. The identified problems included lack of supportive infrastructures, lack of time to spend on technology, lack of adequate training, and inadequate capital/funds on the part of the individual lecturers. The above findings on the challenges of multimedia use in enhancing teaching in teachers colleges were also established by Patrick (2016) conducted a study on the use of multimedia in secondary schools in Morogoro. The study comprised of officials from the Ministry of education, institute of education, school inspectors and

tutors from Morogoro TTC. The study being guided by a mixed research method; where interviews, questionnaire and document were used, revealed that the teachers were interested in using the multimedia but they were affected with problems with software and hard ware. Furthermore, the study finding showed that they were affected with poor skills in using the technology in the teaching.

4.7.5 Strategies to Improve Use of Multimedia in TTC

The result in the table shows that there were some strategies that were highly ranked to improve the use of multimedia in teacher training colleges to improve students learning. These were provision of inservice training on use of multimedia in teaching (100 percent), increase support from the management (100 percent), tutors' motivation to use multimedia (90 percent), student's motivation in use of multimedia (84 percent) and provision of multimedia facilities (80 percent).

Table 4.2: Strategies to improve use of multimedia in TTC

Provision of in-service training	50	100%
Increased support from the management	50	100%
Tutors' motivation	45	90%
Students' motivation	42	84%
Provision of multimedia facilities	40	80%
Provision of funds to enable development of multimedia content	39	78%
Ensuring availability of internet and other facilities	37	74%
Support from the government	34	68%
Support from school management	22	44%
Creating good classroom environment	19	38%

4.1.1 Discussion on Strategies to Improve Use of Multimedia in TTC

The data has shown that various strategies can be used to improve use of multimedia in TTC these include the training of tutors, motivating them, and creating good

environment that will be facilitated with ICT equipment. As of now the ministry of education is investing a lot with construction of TTC, in the plan of these constructions IT equipments are established. For example, Korogwe TTC. However, these efforts will not be useful if the tutors are not motivated to learn how to teach using multimedia facilities, there are evidences that the ministry of education is doing both at national and in house seminars to improve teaching, one of the content being IT. So it can be concluded that the Government vision of transforming its Government function and the way the curriculum is implemented in teachers college is in line with its IT Mission and Vision of 2025.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The previous chapter presented the findings and discussion of findings. This chapter covers the summary, conclusion and recommendations of the study. This study sought to assess the use of multimedia among college tutors drawing experiences from Sumbawanga Teachers' College, in Tanzania. The study specifically sought to find out perceptions of college tutors on the use of multimedia in teaching and learning at college level; the effectiveness of multimedia on the conception of principles and subject knowledge in teaching and learning at college level; challenges tutors face when using multimedia in teaching and learning at college level and the strategies that can be used to improve the use of multimedia in teacher training colleges. This chapter is further subdivided into three parts namely; summary, conclusion and recommendations. They are presented as follows.

5.2 Summary

The main objective of the study was to assess the use of multimedia among college tutors drawing experiences from Sumbawanga Teachers' College. The study was done in Rukwa region in Tanzania. The study adopted survey design study design. The study used questionnaires and documentary review methods to collect data. Data from questionnaires were coded and analysed using quantitative tools such as Microsoft excel, and presented in form of graphs and tables. Additionally, the review of past researches provided a way for this study. This helped to gain a lot of

information which provided evidences for drawing a gap in literatures which necessitated this study. Results of the study are given below as follows basing on targeted objectives.

The first objective of this study was to assess the perceptions of tutors on the use of multimedia when teaching. Their responses have proved that multimedia is perceived positively by college tutors. Therefore, it should be encouraged that multimedia should be widely used by college tutors in order to create strong, committed, and successful generation. Generally the factors that were highly positively accepted included that the multimedia assist in learning difficult concepts (90 percent), multimedia helps in memory retention (90 percent), multimedia improves classroom interaction (96 percent) multimedia reduces time taken in teaching (82percent).

The second objective was to examine the effectiveness of multimedia in teaching and learning. Tutors have revealed how effective multimedia use is. Multimedia makes learning easy and fun, the content is reliable, multimedia helps teachers to explain clearly and students to understand, multimedia information captivate the attention to students, students better understand the subject, multimedia increases students' performance, multimedia images are easy to remember, multimedia are suitable and usable, multimedia enhances the presentation of information, multimedia increases interests to learn.

The third objective was to identify challenged tutors are facing when using multimedia in teaching. The study revealed that among the challenges lack of

equipment/resources, lack of training options, lack of management support, lack of time, lack of technical advice/support, lack of learners' interest, high cost of technology, not user-friendly are among the challenges facing tutors when using multimedia.

Finally in the fourth objective, alternative strategies were suggested by respondents as ways to address the problems and challenges related to the use of multimedia in Teachers Training Colleges. Among others, respondents suggested that provision of in-service training; increased support from the management; tutors' motivation; students' motivation; provision of multimedia facilities; provision of funds to enable development of multimedia content; ensuring availability of internet and other facilities can help to address these problems.

5.3 Conclusion

The main objective of this study was to assess the role of multimedia among college tutors at Sumbawanga TC which is located in Sumbawanga municipal council. A total of 50 tutors at Sumbawanga TC participated in this study. Tutors were requested to fill in the required information in the questionnaires supplied to them. Questions were closed ended and were designed to fulfill this study's objectives including assessing perceptions of tutors on the use of multimedia, examining the effectiveness of multimedia in teaching and learning and identifying challenges tutors were facing during teaching and learning using multimedia. Results were analysed descriptively using Microsoft excel software and presented quantitatively. The study found that despite many challenges' tutors are facing when using

multimedia, most of them still value and perceive multimedia as an effective way of use in teaching and learning. Therefore, it is the high time for governments and education stakeholders to make emphasize in the use of multimedia in teaching and learning. Also motivation to using multimedia content should be provided so as to effectively implement the use of multimedia in colleges and schools to increase students' performance, understanding, competencies and achievement.

5.4 Recommendations

With regard to the results which have been obtained from this study, the researcher would like to recommend the following;

5.4.1 Policy Recommendations

- i) Since this study has shown that tutors have positive perception of multimedia, the researcher recommends that the Ministry of Education and Vocation Training should focus on creating an enabling environment to teachers so as to increase effectiveness in the use of multimedia.
- ii) In-service training to tutors and teachers should be providing so that teachers can be conversant with creating quality multimedia content and be in line with the changing environment as far as technology is concerned.
- iii) The study also recommends that all education stakeholders both primary and secondary and the private sector should closely monitor and evaluate progress made towards addressing challenges affecting effective use of multimedia in colleges.

- iv) The study finally recommends that the ministry of education and vocational training together with education management and other stakeholders should create, support and encourage learning institutions to develop suitable policies that are relevant to their institutions and the education policy. Such policies should provide suitable guidelines for implementation of use of multimedia in schools.

5.4.2 Recommendations for Further Studies

- i) Studies on the perceptions of use of multimedia in other areas should be conducted. This study has revealed that Sumbawanga TC tutors perceive multimedia in a positive way. Same study, using same methodology should be conducted in other colleges or education institutions.
- ii) Studies on the effectiveness of multimedia in other areas should be conducted. This study has revealed that multimedia is more effective in teaching and learning. Same study, using same methodology should be conducted in other colleges or education institutions.
- iii) Studies on the challenges of use of multimedia in other areas should be conducted. This study has revealed that Sumbawanga TC tutors perceive multimedia in a positive way. Same study, using same methodology should be conducted in other colleges or education institutions.
- iv) The study may be conducted at primary school level to ascertain the use of multimedia in teaching in primary schools.
- v) The study may be conducted to assess how the college administration factors affect the use of multimedia in teaching in TC

REFERENCES

- Acha, J. (2009). The effectiveness of multimedia programmes in children's vocabulary learning. *British Journal of Educational Technology*, 40, 23 - 31. 10.1111/j.1467-8535.2007.00800.x.
- Akinoso, O. (2018). Effect of the Use of Multimedia on Students' Performance in Secondary School Mathematics. *Global Media Journal*, 16(30): 1-8
- Becta-British Educational Communications and Technology (2004). Barriers to the uptake of ICT by Teachers. Version 1. <http://www.becta.org.uk> page 1 of 29. Site visited on 10/09/2019.
- Best, J. W., & Kahn, J. V. (2006). *Research in Education* (10th ed). Boston, USA: Pearson/Allyn and Bacon.
- Creswell, J. W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative research* (4thEd.). Boston, USA: Pearson Education Inc.
- Cuban, L., Kirkpatrick, H., & Peck, C. (2001). High access and low use of technologies in high school classrooms: Explaining an apparent paradox. *American Educational Research Journal*, 38(4), 813–834.
- Drent, M. & Meelissen, M. (2008). Which factors obstruct or stimulate teacher educators to use ICT innovatively. *Computers & Education*, 51(1), 187-199.
- Fellows, R., & Liu, A. (2008). *Research Methods for Construction* (3rd Ed.). Oxford, UK: Wiley-Blackwell.
- Fletcher, J. D. (2003). *Evidence for learning from technology-assisted instruction*. In H. F. O'Neil, Jr. & R. S. Perez (Eds.), *Technology applications in education:*

- A learning view* (p. 79–99). New Jersey, USA: Lawrence Erlbaum Associates Publishers.
- Hennessy, S. Rosemary, D & Ruthven, K. (2006). Situated expertise in integrating use of multimedia simulation into secondary science teaching. *International Journal of Science Education*, 28(7): 701-732.
- Hetland, P. and Solum, N. H. (2008). Digital Kompetanse i norsklærerutdanning. NIFU STEP rapport 28/2008 Oslo: NIFU STEP.
- Hew, K. F., & Brush, T. (2007). Integrating Technology into K-12 Teaching and Learning: Current Knowledge Gaps and Recommendations for Future Research. *Education Technology Research and Development*, 55, 223-252. <http://dx.doi.org/10.1007/s11423-006-9022-5>. Site visited on 16/06/2019.
- Kessy, H. C. (2012). An Application of Multimedia Learning Theory in Instructional Materials: A Case of Psychology and Special Education. *Journal of Issues and Practice in Education*. <http://196.216.247.26:8094/index.php/JIPE/article/view/227/227>. Site visited on 16/06/2019.
- Kline, F. (1994). *Multimedia in teacher education: Coping with the human element*. In J. Willis, B. Robin & D. Willis. (Eds.). *Technology and Teacher Education Annual* (pp. 759-763). Charlottesville, USA: Association for the Advancement of Computing in Education.
- Lavin, A., Korte, L. & Davies, T. L. (2010). The Impact of Classroom Technology on Student Behavior. *Journal of Technology Research*, 2(1): 1-13.
- Levine, L. E. (2002). Using Technology to Enhance the Classroom Environment. *T.H.E. Journal*, 29(6), 16-18.

- Lewis, J. H., & Hosie, P. J. (1994). *Interactive video and interactive multimedia in higher education in Singapore: A case study*. In C. McBeath & R. Atkinson (Eds), 2nd International Interactive Multimedia Symposium. pp.284-289.
- Liu, J. (2010). *An Experimental Study to explore the Effectiveness of Multimedia in College English Teaching* School of Foreign Language, Qingdao University of Science and Technology.
- Mayer, R. E. (2001). *Multimedia Learning*. New York, USA: Cambridge University Press.
- Ngan, L. M. (2001). A case study of teachers' perceptions on ICT implementation in a primary school: Implications for the change. A Thesis for award of Master of Education degree at University of Hong Kong, Pokfulam, Hong Kong. http://dx.doi.org/10.5353/th_b3196216. Site visited on 12/05/2019.
- Obaid. J. (2001). A program using the bags for the development of multimedia skills necessary to prompt the resident high school mathematics. A thesis for award of Ph.D at Institute of Educational Studies and Research, Cairo, Egypt.
- Omari, I. M. (2011). *Motivation, Instruction, Learning, And Human Performance: A Practical Guide for Teachers on How to Improve Students' Performance*. Dar es Salaam: Delah Educational Publishers Ltd.
- Omodara, O. D. & Adu, E. I. (2012). Effective Service Delivery in Teaching and Learning Processes. *Journal of Research & Method in Education (IOSR-JRME)*, 4(2): 48- 51.
- Oshinaike, A. B. & Adekunmisi, S. R. (2012). "Use of Multimedia for Teaching in Nigerian University System: A Case Study of University of Ibadan". *Library*

- Philosophy and Practice* (e-journal). 682. <https://digitalcommons.unl.edu/libphilprac/682>. Site visited on 20/07/2019.
- Patton, M. Q. (2009). *Qualitative Research and Evaluation Methods: Integrating Theory and Practice*. Thousand Oaks, USA: Sage Publications, Inc.
- Rouet, J. F., Levonen, J. J., & Biardeau, A. (2001). *Multimedia learning: Cognitive and instructional issues*. London: Pergamon.
- Salinger, M. (2004). *Developing and using content in technology enhanced learning environments*. In I.P.A Cheong, H.S. Dhindsa, I. J. Kyeleve, O. Chukwu (Eds), *Globalization trends in Science, Mathematics and Technical education*, Gadong: University Brunei Darussalam.
- Sivakumaran, T. (2012), Student Perceptions of Multimedia Technology Integrated in Classroom Learning. *International Journal of Humanities and Social Science*, 2(11): 67-70.
- Souse de, L. (2017). The effect of multimedia use on the teaching and learning of Social Sciences at tertiary level: A case study Faculty of Education Sciences North-West University, Potchefs DOI: <http://dx.doi.org/10.17159/2223-0386/2017/n17a1>. Site visited on 18/03/2019.
- Techterms, (2012). from <http://www.techterms.com/definition/multimedia>
- Vallikkad, S. (2009). *Information & Communication Technology for Teacher Education*. New Delhi, India: Kanishka Publishers.
- Yin, R. K. (2003). *Case Study Research: Design and Methods (3rd ed.)*. Thousand Oaks, USA: Sage Publications.
- Yin, R. K. (2011). *Qualitative Research from Start to Finish*. New York, USA: The Guilford Press.

Yunus, M. M. (2007). Malaysian ESL teachers' use of ICT in their classrooms: expectations and realities. *Journal of EUROCALL*, 9(1): 79-95.

Zamfir, A. (2008). Impact of Using Computer Applications in Education on Teaching-Learning Process. *7th WSEAS International. Conference on Applied Computer & Applied Computational Science (ACACOS '08)*, Hangzhou, China, April 6-8. <https://pdfs.semanticscholar.org/1226/80a0669d9a2c2c79618e37ba48c47a9d4fc6.pdf>. Site visited on 23/06/2019.

APPENDIX

Appendix 1. Questionnaire for Tutors

THE OPEN UNIVERSITY OF TANZANIA FACULTY OF EDUCATION



RESEARCH QUESTIONNAIRE

AN ASSESSMENT OF MULTIMEDIA USE AMONG COLLEGE TUTORS: A CASE OF SUMBAWANGA TEACHERS' COLLEGE

I am Mr VENANCE PANJA, a student of the Open University of Tanzania, pursuing MED-APPS. I am conducting a study on an assessment of multimedia use among college tutors: a case of Sumbawanga teachers' college.

I kindly request you to spare some few minutes to fill in this questionnaire. I wish to ensure you that, the information you provide will be treated with absolute confidentiality and will only be used for academic purpose and not otherwise.

SECTION ONE: RESPONDENT'S BIODATA

Please answer the following questions completely [] in the box or fill in the blanks

a. Gender

- i. Male []
- ii. Female []

b. Age

- i. 18 – 25 []
- ii. 26 – 33 []
- iii. 34 – 41 []
- iv. 42 – 49 []

- v. 50 and above []
- c. Education level
- i. Diploma []
- ii. Degree []
- iii. Masters []
- iv. PhD []
- d. Years of experience
- i. 5 and Below []
- ii. 6 - 10 []
- iii. 11 - 15 []
- iv. 16 – and above []

SECTION TWO: PERCEPTIONS COLLEGE TUTORS HAVE OVER THE USE OF MULTIMEDIA IN TEACHING AND LEARNING AT COLLEGE LEVEL

The following question intends to seek opinion on your perception on the use of multimedia in teaching. The given statement below is required to be rated using five point likert scale as scales 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Undecided (U), 4 = Disagree (D) and 5 = Strongly Disagree (SD).

S/N	Perceptions	1	2	3	4	5
1.	Multimedia gives chance to learners to interact with the learning materials thus suspends the traditional way of learning in the classroom					
2.	I see use of multimedia as conducive for effective teaching					
3.	Use of multimedia such as computer simulations as interesting and assisting in concepts formations					
4.	I see use of multimedia as creating interest to learn among students					
5.	Multimedia helps concept formation in various disciplines					
6.	Multimedia simplify difficult concepts in learning					
7.	Multimedia helps keeping memory of the learners					
8.	Multimedia reduce time taken by the tutor to explain the content of the subject matter					

**SECTION THREE: THE EFFECTIVENESS OF MULTIMEDIA ON THE
CONCEPTION OF PRINCIPLES AND SUBJECT KNOWLEDGE IN
TEACHING AND LEARNING AT COLLEGE LEVEL**

The following question intends to seek opinion on your opinion on the effectiveness of multimedia in teaching. The given statement below is required to be rated using five point likert scale as scales 1 = Strongly Agree (SA), 2 = Agree (A), 3 = Undecided (U), 4 = Disagree (D) and 5 = Strongly Disagree (SD).

S/N	Questions	1	2	3	4	5
	Multimedia makes learning easy and fun					
	The content is reliable					
	Multimedia helps teachers to explain clearly and students to understand					
	Multimedia information captivate the attention to students					
	Students better understand the subject					
	Multimedia increases students' performance					
	Multimedia images are easy to remember					
	Multimedia are suitable and usable					
	Multimedia enhances the presentation of information					
	Multimedia increases interests to learn					

**SECTION FOUR: CHALLENGES TUTORS FACE WHEN USING
MULTIMEDIA IN TEACHING AND LEARNING AT COLLEGE LEVEL**

The following question seeks to identify challenges facing college tutors when using multimedia. You are therefore, required to indicate whether the given statement is either a challenge to you or not a challenge.

S/N	Challenges Facing Tutors	Challenge	Not a Challenge
1.	Lack of equipment/resources		
2.	Lack of training options		
3.	Lack of management support		
4.	Lack of time		
5.	Lack of technical advice/support		
6.	Lack of learners' interest		
7.	High cost of technology		
8.	Not user-friendly		
9.	Difficult to integrate into subject		

10.	Doesn't contribute to promotion tenure		
11.	Inadequate capital on the part of the individual		
12.	Too hard to use		
13.	Lack of tutor motivation		
14.	Lack of quality materials		
15.	Discomfort using technology		

THANK YOU FOR PARTICIPATING IN THIS STUDY