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Impact of Multimedia Methods of Learning in the Curriculum Design in Educational Institutions in Malawi: A critical Study

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ABSTRACT

This study evaluated the multimedia methods of learning in the curriculum design in the educational institutions in Malawi. It reflects on the role the multimedia methods play in learning processes. In Malawi learners benefit to a limited extent from the multimedia methods which improves deeper understanding, improved problem-solving skills, access to a variety of information and world exploration. This is because multimedia methods use words and pictures which have a positive effect on the processes of learning. The study was qualitative in nature and design. To collect data non-structured interviews were conducted. In addition to face-to-face interview, the research employed guided focus group discussions and observations to collect the needed data. The generated data was analyzed, interpreted and presented descriptively in themes and sub-themes following the research questions in the light of the Cognitive Theory of Learning. The findings of the research have shown that educational institutions in Malawi are making progress in the use, promotion and application of multimedia methods to improve learning processes. The institutions are on the way to migrating from the traditional methods to modern methods. However, some of the major challenges multimedia methods encounter include security, materials, implementation, energy, infrastructure, internet and abuse. The research concluded that the traditional method of chalk and talk in learning is no longer as effective in this age of technology. The educational institutions must embrace multimedia methods and sustain a process of migrating from traditional methods to the application of multimedia methods. Because the multimedia methods of learning effectively derive from the planned activities of the curriculum, this is where the ongoing process must be included and implemented.

Keywords: multimedia methods, curriculum design, traditional methods, multimedia materials, instructional media technology, information communication technology in education

1. INTRODUCTION TO THE STUDY

Chapter Overview

This chapter introduces the study on the impact of multimedia methods of learning in the curriculum design in education institutions in Malawi. It is a critical type of study that typically involved investigating the phenomena of multimedia methods of learning in Malawi. It first outlines the general introduction to the study. This is followed by the basic definitions of multimedia methods of learning and curriculum design. Next a justification of the study, statement of the research problem, purpose of the study, research questions, the role of the researcher, significance of the study, the general outline of the dissertation and concludes with a chapter summary.

1.1 General Introduction

Despite the introduction of Information and Communications Technology (ICT) intended to improve the delivery of knowledge to teachers and learners, many educational institutions in Malawi are far behind in integrating the traditional methods of learning and the multimedia processes of learning in the curriculum design.

Furthermore, there is less effort to include the integration of traditional and multimedia methods of learning in the curriculum development to improve the delivery of knowledge to learners. Many schools do not have facilities to enhance the inclusion of multimedia processes of learning to improve the retention of knowledge to the learners.

The traditional methods of learning, therefore, are forced on learners whererote learning is encouraged and thus deprive the learners of the opportunity to develop critical thinking skills. It is essential, therefore, to diversify the methods of learning in the curriculum development to enhance and encourage learner's critical thinking skills and retention of knowledge. And the ideal method to achieve learner's critical thinking skills is the inclusion and adaptation of multimedia methods of learning processes in the curriculum development.

1.2 Traditional or Conventional Methods of Learning

In traditional methods of learning, teachers are the controller of the class and take complete responsibility for the learning environment. All the duties and powers are in the hands of the teachers. The teachers play the role of an instructor for the students and makes decisions over the learning environment.Teachers are the main source of knowledge to teach students and impart knowledge. The process of teaching takes place chiefly in the classroom. In the classroom, a full-strength of students sit together and learn the content delivered by teachers and they master knowledge through practice.[1]

1.2.1 Basic Characteristics of Traditional Methods of Learning

The following are the general basic characteristics of traditional methods of learning:

- In traditional teaching methods, classrooms are teacher centric.
- Teachers are the main source of knowledge in the traditional method of teaching. They take the responsibility for the knowledge dispensers, not the facilitators.
- In traditional teaching methods, chalk and talk methods are highly used.
- Very strictly organized or controlled classrooms are the focus of the traditional method of teaching.
- Teachers give lectures and students learn. Traditional methods, therefore, lack collaboration and group learning among students.
- Traditional methods of learning are examinations oriented. The main motive of teachers is to prepare students for exams than to teach them and make them understand the concept and syllabus. Students learn just to pass the exam and get good results.
- There is no proper alignment of objectives, activities, and assessments in traditional learning.
- In the traditional learning methods, recitation, and memorization of the content of the study is prioritized.
- Traditional learning methods are typically practiced in the classroom and students get rewarded for the effort they put into the classroom during periods of each subject.
- In traditional learning methods, rules and regulations are exercised in the classroom. The students' behaviors are in check.[2]

1.2.2 Advantages of Traditional Learning Methods of Education

The definition of traditional education is that instruction takes place between a teacher and students where all are physically present in the same classroom. And it has the following benefits and advantages to both teachers and learners:

- **Active Learning**

It is an approach that involves actively engaging students with the course material through discussion, problem-solving, case studies and other methods. Also, students get set up face-to-face meetings and clear their all doubts.[3]

- **Maintain Interpersonal Relationships**

Students can be involved with different people throughout their learning experience. The group projects require learners to communicate with colleagues. Also, the sharing of notes is one of the ways through which one can maintain interpersonal relationships.[4]

- **Learning is scheduled.**

Students plan a schedule of balanced activities and enough time for studying each subject. Joining the class on time also practices being punctual throughout the academic years.[5]

- **Extra-curricular activities**

It includes sports, community service, hobbies, arts, educational clubs, and field trips.

Today, it is undoubted that the scenario of the classroom has been changing, students are no longer being treated as the target audience. Instead, they take active participation in the classroom and learning. Teachers allow them to speak and ask questions about what they teach. Over the years, teaching

[1]https://www.digitalclassworld.com/blog/traditional-method-of-teaching/
[2]Ibid.
[3] Ibid.
[4] Ibid.
[5] Ibid.

styles and methods have been changing. The traditional way of education in which memorization and recitation methods are used has been replaced by interactive methods.[6]

1.3 The Modern Methods of Teaching and Learning: Its Advantages

- Through modern methods of teaching and learning the learner learns through the sociable interactive environment and becomes an independent learner.
- The modern methods of teaching and learning encourages hands on idea. The learners participate in practical workshops.
- The modern methods of teaching and learning, creates an atmosphere that encourages student participation by giving them a course work or assignment that is relevant to their everyday life.
- The modern methods of teaching and learning creates a discussion atmosphere to discuss their assignment in groups and use the feedback and comments from the whole class.
- The modern methods of teaching and learning, enhance constructive debates that encourages students to engage with the material.[7]

1.4 Definitions of Curriculum Design

Karen Schweitzer defined curriculum design as a term used to describe the purposeful, deliberate, and systematic organization of curriculum (instructional blocks) within a class or course. In other words, it is a way for teachers to plan instruction. When teachers design curriculum, they identify what will be done, who will do it, and what schedule tofollow.[8] The goal of curriculum design, therefore, is to improve student learning, but there are other reasons to employ curriculum design as well. This research followed the definition of curriculum as all planned activities of a school.

1.4.1 Types of Curriculum Design

There are three basic types of curriculum design:

i. Subject-centred design

ii. Learner-centered design

iii. Problem-centered design

(i) Subject-Centered Design

Subject-centered curriculum design revolves around a particular subject matter or discipline. For example, a subject-centred curriculum may focus on mathematics or biology. This type of curriculum design tends to focus on the subject rather than the individual. Subject-centred curriculum design describes what needs to be studied and how it should be studied. The primary drawback of subject-centred curriculum design is that it is not student-centred.[9]

(ii) Learner-Centred Curriculum Design

In contrast, learner-centred curriculum design takes everyone's needs, interests, and goals into consideration. In other words, it acknowledges that students are not uniform and adjusts to those student needs. Learner-centred curriculum design is meant to empower learners and allow them to shape their education through choices. The drawback to this form of curriculum design is that it is labour-intensive. [10]

(iii) Problem-Centred Curriculum Design

Problem-centred curricula focus on teaching students how to look at a problem and come up with a solution to the problem. Students are thus exposed to real-life issues, which helps them develop skills that are transferable to the real world. Problem-centred curriculum design increases the relevance of the curriculum and allows students to be creative and innovate as they are learning. The drawback to this form of curriculum design is that it does not always take learning styles into consideration. [11]

The multimedia methods of learning, therefore, fit very well in the problem centered curriculum design because its aim is to help students to develop critical thinking skills.

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[6]Ibid

[7]Serroukh, Semo. *Traditional teaching methods teaching methods Vs modern*. Autonomou university of Queretaro, 7. 2022

[8]Schweitzer Karen. *Curriculum Design: Definition, Purpose and Types*. Thought Co., 2019

[9]bidi

[10]bidi

[11]bidi

1.4.2 Curriculum Outline in Malawi

Table1 below, compiled and formulated by GramesChirwa and Dovika Rani Naidoo, summarizes curriculum change and development in Malawi from pre-colonial period to the multiparty democratic period and the curriculum focus of those periods.[12]

Period	Year	Curriculum Focus	Curriculum Content
Traditional	Up to 1800	preparationism, functionalism, communalism, perennialism and holisticism.	Erecting huts; catching, preserve and marketing fish; making and mending nets; manufacturing canoes, etc.
Missionary	1800-1926	Literacy for reading the Bible	Reading, Writing and Arithmetic
Colonial	1926-1964	Education for development	Personal hygiene, use of the environment, home life, use of leisure time, literacy and numeracy, moral development and religious life.
Post-colonial period; first educational plan	1973 - 1985	Agriculture Knowledge	Agriculture, Domestic and Personal Hygiene, Environmental studies, Nature Science, General Science, Chichewa, English, Mathematics, Music, Physical Education, Religious Studies, Bible-Knowledge, Home-economics, and Needlecraft
Second educational plan	1985 to 1995	Literacy and Numeracy skills	Agriculture, Chichewa, English, Creative Arts, Social Studies, Mathematics, Music, Physical Education, Religious Studies, Bible-Knowledge, Needlecraft, Home Economics, Science/Health Education and Life skills. All subjects being externally examined
Primary Curriculum and Assessment Reform	2001 to date	Practical skills for entering self-employment and entrepreneurship	Chichewa, English, Mathematics, Expressive Arts Religious Education, Bible Knowledge, Life Skills, Social and Environmental Sciences, Agriculture and Science and Technology

Table 2 below features of the new curriculum in Malawi and how it differs from its predecessors. Taken from GramesChirwa and Doviko Rani Naidoo research work on curriculum change and development in Malawi.

1991 Curriculum (Second Education Plan:1985-1995)	New curriculum (PCAR 2001)
Content based curriculum. The focus is on the achievement of objectives and coverage of content mainly from the perspective of the teacher place and Continuous assessment is used as one main mode of assessment.	**Outcomes based education–** The focus is on the outcomes displayed by the learner after teaching and learning has takenplace and Continuous assessment is used as one main mode of assessment.
Number of subjects up to 14 The subjects are Chichewa English Creative Arts Social Studies Mathematics Music Drama Physical Education Religious Studies Needlecraft Agriculture Home Economics Science/Health Education Life skills	**Number of Learning areas up to 9** The learning areas are Chichewa English Mathematics Expressive Arts Religious Education/Bible Knowledge Life Skills Social and Environmental Sciences Agriculture Science and Technology
Literacy skills development- The course aimed at literacy skills development	**Literacy and Numeracy skills development** The new focus is on acquisition of literacy and numeracy skills at the earliest stage of the learners' schooling
Core versus Elective subjects Some subjects were labelled core while others are not. This is compounded by the examinations focus by Malawi National Examination's Board (MANEB) who only examined the core subjects at Primary School Leaving Certificate Examinations. The subjects examined are Mathematics, English, Chichewa, Science and Health, Social Studies The impact of this is arrangement was that only the core subjects were emphasized and taught while the rest of the subjects were more or less ignored. As a result, many children were denied the privilege of exposure to other subjects which are equally important to the lives.	**All Learning Areas (Subjects) are Core.** All the Learning Areas (Subjects) in the curriculum are core. Malawi National Examinations Board (MANEB) examines all the Learning Areas at Primary School Leaving Certificate Examinations (PSLCE). The impact of this arrangement is that all subjects in the curriculum are emphasized by the teachers
Mostly has stand-alone subjects except for General Studies and Social Studies	**Integration of Subject Components** The integration has come about as a way of reducing the

[12]Grames, Chirwa and Doviko, Rani Naidoo. *Curriculum change and Development in Malawi: A Historical Overview*. Mediterranean Journal of Social Sciences, 7.2014

Most of the subjects stand alone and as a result the curriculum had many subjects most of whom were apparently not being taught although they appeared on the school time tables	overload but without losing subject matter.
Focused on Knowledge Acquisition The curriculum attempted to impart knowledge using mainly teacher-centered methodology	**Focuses on the acquisition of Skills, Concepts and Knowledge as well as desirable attitudes and values** All learning areas/subjects aim at preparing learners for the world of work through entrepreneurship skills. Various skills, concepts, attitudes and values are earmarked for each learning area. These become **targets** for achievement as outcomes to be displayed by each learner.
	Incorporates emerging or cross-cutting issues Democracy, Human Rights, Environment and Population have mainly been featured in Social and Environmental Sciences learning area as well in the literacy and languages of English and Chichewa. Issues of HIV/AIDS have mainly been incorporated in the Life Skills, Social and Environmental Sciences, Agriculture, Science and Technology, literacy and languages as well as in Expressive

Source: Adapted from Kaambankadzanja 2011

The design, content, and presentation of the curriculum in table 1 and 2 reveals that by 2014 there were less efforts to include multimedia methods of learning in the curriculum design of learning in Malawi. The focus was on the acquisition of knowledge, skills, concepts, attitudes, and values. There were no efforts in the curriculum design to enhance and encourage a learner's critical thinking skills and retention of knowledge through the inclusion of multimedia methods of learning in the curriculum design, content, and presentation. Thus, this facilitated slow learning and repetition in classes among learners especially in primary and secondary school levels.

1.5 Definition of Multimedia Methods of Learning

Multimedia means multiple forms of mediaintegrated together.[13]This can include text, graphics, audio, animation, video, data, images, etc. Multimedia canalsostandfor interactive types of media such as video games and CD ROMs. Furthermore, Multimedia is characterized by the presence of text, pictures, sound, animation, and video; some or all of which are organized into some coherent program" (Phillips, 1997).[14]

Multimedia learning is learning from words and pictures. The objective for studying multimedia learning is that people can learn more deeply from words and pictures than from words alone. It promotes meaningful constructive learning processes rather than rote learning and favors appropriate cognitive activity during learning rather than behavioral activity.[15]

1.5.1 Principles of Multimedia Methods of Learning

Richard Mayer, the father of Multimedia Cognitive Theory, proposed 12 principles of Multimedia Learning where he explains his research on how best to structure Multimedia Learning experiences to maximize learner comprehension. This theory and its principles provide guidance on how to create effective multimedia presentation for learning.[16] One of his principles of Multimedia Learning is Multimedia Principle. Mayer argues that people learn better from words and pictures than from words alone. The multimedia principle, therefore, is a starting point for all the other principles, given that it indicates that learners perform better when exposed to words and pictures rather than just words. To address this principle, Mayer explains that one needs to include images to illustrate key points, ensure that all images enhance or clarify meaning and favor static images over animations.[17]Mayer's theory embraces a knowledge construction perspective that multimedia learning is a sense-making activity in which the learner seeks to build a coherent mental representation from the presented material. The theory aligns with contemporary thinking on effective learning, which embraces a constructivist perspective that students learn most effectively when they must construct their own knowledge structures and mental models.[18]

1.5.2 Impact of Multimedia Learning to the Students

The main impact of multimedia learning on the learning process of the students is twofold, that is, student attention and retention increase. Under these circumstances, in a multimedia learning environment, students can identify and solve problems more easily compared to the scenario where teaching is

[13]Diane M. Coyle. *Computers Are Your Future*. Complete, 10/E, Prentice Hall, 2009.
[14]https://www.nuiteq.com/company/blog/5-benefits-of-multimedia-learning
[15] Richard E. Mayer. *Introduction to Multimedia Learning*. Cambridge University Press: 05.8. 2014

[16]https://waterbearlearning.com/mayers-principles-multimedia-learning/
[17]https://ctl.wiley.com/principles-of-multimedia-learning/
[18]https://ctl.wiley.com/principles-of-multimedia-learning/

made possible only by textbooks. It is argued that students may learn better from image and words than just from words as each channel has a limited capacity.[19]

1.6 Statement of the Research Problem / an Issue

There are volumes of international texts available online about multimedia and multimedia methods of learning and educational experts advocating for the inclusion of multimedia methods of learning in the educational curriculum designs. The educational experts of curriculum design and development have meticulously highlighted the pros and cons of adapting multimedia methods of learning in the educational curriculum. Missing from the international texts and experts is the use and the significance of the multimedia methods of learning emanating from the Malawi context. Therefore, the study critically analyzed, reflected, and evaluated the impact of multimedia methods of learning in the Malawi educational context and appreciated if any development has been made in the adaptation of multimedia methods of learning in the national curriculum design.

While there is no doubt that the interest in technology education is rising globally, however, Malawi Educational Institutions are treading behind in incorporation of multimedia methods of learning in the curriculum design. There is slow progress in the inclusion and implementation of multimedia methods of learning in the curriculum design in educational institutions in Malawi.

Most learners in Malawi, therefore, do not benefit from multimedia methods of learning which includes deeper understanding, improved problem-solving skills, increased positive emotions, access to a vast variety of information and world exploration. One might wonder why. This was the reason why the researcher embarked in this critical study where to explore, critique, analyze, reflect, and evaluate the impact of multimedia methods of Learning in the curriculum design in educational institutions in Malawi.

The purpose of the study was to investigate, if any, the impact of multimedia methods in the processes of learning, teaching and acquisition of knowledge. The hope was that the study will contribute an awareness to teachers, learners and all educational stakeholders in Malawi the significance of inclusion of multimedia methods of learning in the curriculum design.

1.7 Critical Research Questions

The study was guided by the following critical research questions: What is the impact of Multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi? To investigate this question deeply, the research employed the following sub-questions:

1) What are the common materials for multimedia methods of learning and teaching applied in the curriculum design in the educational institutions in Malawi?
2) Why are multimedia methods of learning and teaching beneficial in the curriculum design in the educational institutions in Malawi?
3) Why are challenges of applying multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi?
4) How to resolve the challenges of applying multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi?
5) How much are multimedia methods of learning and teaching included in the curriculum design in the educational institutions in Malawi?
6) How multimedia methods of learning and teaching promoted in the curriculum design in the educational institution in Malawi?
7) What is the role of the multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi?

1.8 Aim of the Study

The aim of the study was to critically analyze, interpret, reflect, and evaluate the impact of Multimedia Methods of Learning in the Curriculum Design in Educational Institutions in Malawi. And furthermore, to examine the effects of instructional multimedia methods on learning outcomes among students.

1.9 Hypothesis

This study was guided by the following critical research hypothesis: The use of words and pictures by teachers and learners than from words alone.has a positive effect on the processes of learning. People can learn more deeply from words and pictures

The adaptation of multimedia methods of learning, therefore, in the curriculum design in educational institutions in Malawi would enhance deeper learning, students' attention, and retention of knowledge than the use of traditional methods of learning alone.

[19]https://www.nuiteq.com

1.10 Research Objectives of the Study

The following were the objectives the research paper:

1. To critically analyze (investigate / examinations) the effect of multimedia methods of learning in the curriculum design in education institutions in Malawi.
2. To critically reflect (think deeply) on the role the multimedia methods of learning plays in the curriculum design in education institutions in Malawi.
3. To critically evaluate (assess) the effectiveness of multimedia methods of learning in education institutions in Malawi.
4. To promote multimedia methods of learning against traditional methods in the curriculum design in education institution in Malawi.

1.11 Justification of the study

The study was justified by the empirical evidence of frequent news of exposing learners to repeating a class, failure of learners to pass standardized examinations and some learners delay in acquiring reading and writing skills.

The Ministry of Education, Science and Technology and the Malawi Institute of Education are engaged in the process of reviewing school curriculums to make them more relevant and responsive to the needs of the Malawian society. In his address in one of the symposiums for the teacher education curriculum, Malawi Institute of Education, Executive Director, William Susuwele Banda, lamented that there has been a general outcry that the country's learners especially in public schools are reaching senior primary classes without being able to read or write, and they are working on coming up with new methodologies aimed at addressing this challenge. He therefore made an appeal to the participants to come up with proposals that adds value to the education of primary school teachers and look at policies guiding the teacher education curriculum. Susuwele Banda said key areas to be reviewed include those that will see the enhancement of early grade reading and writing in junior primary classes.[20]

This is due to lack of teaching and learning techniques that enhances deeper learning, learners' attention and retention of knowledge. Thus, the need to forcefully adopt the multimedia methods of learning in the curriculum design in the educational institutions in Malawi. Multimedia methods of learning enhances students critical thinking skills contrary to traditional methods of learning where rote learning is emphasized. Rote learning is a memorization technique based on repetition. The method rests on the premise that the recall of repeated material becomes faster the more one repeats it.[21]

This study was further justified because the world has become digitalized. The computer age has advanced and is fast taking over how people think and do things. The Multimedia methods of learning, therefore, allow students to present their newly attained knowledge through images, audio, and video instead of just textually. It further helps students to find or create online games, tutorials or quizzes to facilitate an interactive learning environment.

Multimedia plays an important role in today's society and learning environments. It is a powerful tool and a good way for communication between teachers and learners, and learners and the environment. The study of multimedia methods of learning, therefore, will be justified because it is a technique that enhances deeper retention of knowledge and improves communication.

1.1.2 Significance of the study

First, this research was significant because multimedia methods of learning provide effective techniques to improve the studentsin the process of teaching and learning in the classrooms. The use of multimedia methods of learning in classroomprovides opportunityfor interacting with diverse texts that give students a solid background in the tasks and content of the curriculum.

Second, the study was significant as it will enrich the stakeholders and policy makers in the educational sector to deeply consider the significance and promotion of the incorporation of multimedia methods of learning in the curriculum to enhance student's retention of knowledge and information.

Third, the findings of the study revealed to the institutions' administrators, the effective way to promote the use of multimedia methods of learning in all the levels of education in Malawi. And help to evaluate the effectiveness of the use of multimedia methods of learning being currently used in institutions of learning in Malawi.

Fourth, the research significantly revealed the prime way to effectively stimulate teachers and learners to use multimedia methods of learning in schools. And thus, invest in multimedia learning.

1.13 The Role of the Researcher

This research was qualitative in nature and thus required active participation of the researcher. The researcher conducted the interviews himself to generate and interpret data. The researcher also dependent on secondary data through readings and the internet.

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[20]Precious, Kumbani. MoEST Reviewing IPTE Curriculum. National News, 3.5.2016

[21]https://en.wikipedia.org/wiki/Rote_learning

1.14 Theoretical Framework

To put the research question in perspective, a theoretical framework was required to investigate the impact of multimedia methods of learning in the curriculum design in Malawi. Therefore, a logical framework to clarify and sharpen the focus of the study was selected.

In the study the Cognitive Theory of Multimedia Learning was selected to explain the impact of Multimedia methods of learning in the curriculum development in Malawi. This explication of a theoretical framework provided focus to subsequent steps in planning and constructing the inquiry. It further provided a basis for including or excluding literature based on its relevance to it.[22]

To understand how we can most effectively use multimedia instruction, we turned to an expert, Dr. Richard E. Mayer. Richard E. Mayer earned his Ph.D. in psychology in 1973 from the University of Michigan. He served as a professor of psychology at Indiana University from 1973 to 1975 and then moved to the University of California at Santa Barbara where he continues to serve as a professor of psychology. Mayer is best known for his work in educational psychology. His most significant works deal with problem-solving and multimedia learning. With his work in multimedia learning, Mayer developed the Cognitive Theory of Multimedia Learning to explain how multimedia learning works and how we can best use it. He published his theory in a chapter of the same title in The Cambridge Handbook of Multimedia Learning.[23]

1.14.1 The Channels of Multimedia Learning

The first step to understanding why multimedia learning can be so powerful is understanding how the brain processes information. Mayer explains that the brain takes in information and processes it in multiple channels, based on how that information is presented. [24]

The first channel is for visually represented material and the second is for auditorily represented material. When a learner is presented with visual information, including pictures, videos, charts, or printed words, all that information goes into the visual channel and is processed there. Auditory information includes spoken words in a narration and other non-verbal sounds, and these are processed by the brain separately from the visual. The learner integrates the visual model and the auditory model together with their prior knowledge and experiences. Once all the material has been combined in a functional way, the new knowledge can move into long-term memory. [25]

Multimedia instruction, therefore, helps students learn more deeply because it takes advantage of these two separate channels and allows the students to go through the process of making multiple models to really understand the material that is presented to them.[26]

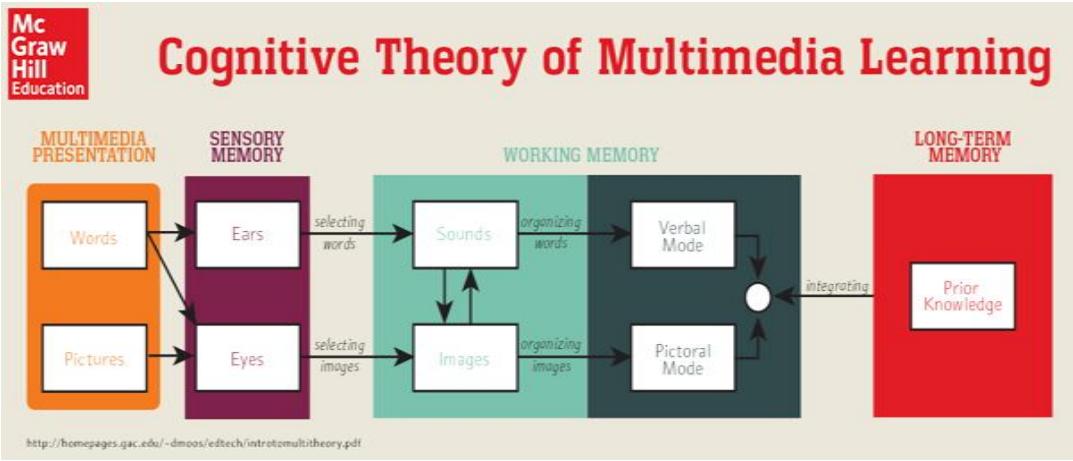

Figure 1. Source: Adapted from McGraw Hill Education: Cognitive Theory of Multimedia Learning, 16.4.2016. Posted in: Online Teaching

1.14.2 Effectiveness Use of Multimedia Instruction

With the understanding of how the brain processes information, it is significant to incorporate multimedia learning in the curriculum design and use it effectively. The following are some of the effective uses of multimedia instruction:

1. Multimedia learning incorporates words and pictures. For instance, it can be a chapter in a textbook that includes pictures or charts or online lessons that incorporate videos.[27]

[22]Michael Q. Patton, Qualitative research & evaluation methods (3rd ed) (Thousand Oaks, CA: Sage Publications, 2002) 35.
[23]McGraw Hill, Canada, https://www.mheducation.ca/blog/richard-mayers-cognitive-theory-of-multimedia-learning
[24]Ibidi
[25]Ibid
[26]Ibid
[27]Ibid

2. The Multimedia learning presentation contains a limited number of printed words, a simpler picture, and a clear spoken narration.Mayer argues that the assumption is that all humans have a limited capacity for information.[28]
3. Multimedia learning provides an alternative for the learner to choose what pieces of information to take into the working memory, and then the learner must actively engage with that material to learn it. Mayer describes the processing as creating a mental representation or a model of the information.[29]
4. Multimedia learning encourages the student's active processing of information.To make learning effective, our presentation material should have an understandable structure, and it should guide the learner in making a mental model.[30]

1.14.3 The Structures of Multimedia Learning

- The first structure that Mayer describes is a process structure. This structure holds an explanation for how a system works and can be represented as a cause-and-effect chain. Mayer's visual representation of the two channels for processing information is an example of a process structure. [31]
- The second structure he describes is a comparison structure. This structure compares multiple points between two or more items and is often represented as a matrix. [32]
- A third structure is a generalization structure. This structure organizes a main idea and the subordinate supporting details, which can be represented as a branching tree.[33]
- The fourth structure is an enumeration structure. This is a collection of items and can usually be represented as a list because the items in the collection are equal. [34]
- The fifth structure is classification. Classification includes sets and subsets and can be represented as hierarchies.[35]

1.14.4 Cognitive Theory of Multimedia Learning: Theoretical Foundations

Meyer argues that a fundamental hypothesis underlying research on multimedia learning is that multimedia instructional messages that are designed considering how the human mind works are more likely to lead to meaningful learning than those that are not. The cognitive theory of multimedia learning is based on three cognitive science principles of learning: [36]

1. The dual channels assumption. Mayer explains that the human information processing system includes dual channels for visual/pictorial and auditory/verbal processing information during learning.
2. The limited capacity assumption. Mayer further explains that each channel has limited capacity for processing information during learning.
3. The active processing assumption. Mayer furthermore explains that active learning entails carrying out a coordinated set of cognitive processes during learning.[37]

This study, therefore, was guided by the Cognitive Theory of Multimedia Learning coined by Mayer and Moreno (1999). The Theory states that deeper learning can occur when information is presented in both text and graphics than by text alone. The theory of Multimedia hinges on the presumptions that there are two channels for learning: auditory and visual.[38] Mayer's Cognitive Theory of Multimedia Learning tells us that the words and pictures that we choose for instruction are important and impactful.

1.15 The Outline of Chapters

The following is the layout of the study:

Chapter 1: Introduction to the study

[28]Ibid
[29]Ibid
[30]Ibid
[31]Ibid
[32]Ibid
[33]Ibid
[34]Ibid
[35]Ibid
[36]Richard E. Mayer and Logan Fiorella, The Cambridge Handbook of multimedia Learning, Cambridge University Press, 19.11.2021
[37]Richard E. Mayer and Logan Fiorella, The Cambridge Handbook of multimedia Learning, Cambridge University Press, 19.11.2021
[38]https.//cornerstone.lib.mnsu.edu

The Chapter serves as an introduction to the study of multimedia methods of learning in general and it highlights its significance to the processes of learning.

Chapter 2: Literature Review

This chapter is a presentation of literature review pertaining to multimedia methods of learning, curriculum designs, and tradition or conventional methods of learning globally.

Chapter 3: Research Methodology

In this chapter, a description of the research design and methodology for a disciplined inquiry, ethical issues related to the research and limitations of the study will be discussed.

Chapter 4: Presentation and Discussions of the Findings

Chapter four presents the findings of the research. It will provide an in-depth interpretation and analysis of those who participated in the responses to the interviews: the findings.

Chapter 5: Conclusion, Implications and Recommendations

Chapter five discusses the conclusions, implications of the research study and recommendations for future studies.

1.16 Chapter Conclusion

Multimedia methods of learning plays a significant role in education today globally. The world has become ICT oriented. Therefore, multimedia methods of learning help to connectand communicate learners and teachers universally. It provides an opportunity in the education sector to use more than just one medium of learning and teaching. It promotes the use of more than one of our senses in learning processes. Using a variety of artistic or communicative media like multimedia methods of learning adheres to making an idea or presentation fresh and interesting and allows for greater insight.Multimedia methods of learning combines different content forms such as text, audio, images, animations, or video into a single interactive presentation, in contrast to traditional methods of learning which featured little to no interaction from users, such as printed material or audio recordings.[39]

2. LITERATURE REVIE

2.1 Introduction

There are limited published works on the impact of multimedia methods of learning in the curriculum design in educational institutions in the Malawi context. Therefore, the research would depend on the international literature. The literature review would mainly include information from the internet, daily newspapers, magazines, journals and limited published books.

2.2 Digitalization in Teaching and Education in Malawi: Digitalization, the Future of work and the Teaching Profession Project.

One such international publication from Malawi is the research paper by TiongeWeddington Saka entitled, Digitalization in Teaching and Education in Malawi: Digitalization, the Future of Work, and the Teaching Profession Project. This paper aims to assess the status of the availability and use of digital technology in the education sector, the challenge to its effective integration and the opportunities for teaching and learning. Tionge in her study focused on trends and practices in digitalization of the primary and secondary education levels.[40]

The study revealed several challenges to the use of ICT in Malawi despite the enactment of the National ICT policy in Malawi in 2013 whereby the policy promotes the use of ICT at all school levels to enhance ICT literacy, improve management of education systems and increase access to and quality of education. Tionge argues that there is a need for more robust data on the use of ICT in primary and secondary school to inform decision-making and sector planning.

She further argues that more comprehension data is needed to inform the decisions and policies that will move this agenda forward, especially in the education sector where digitalization is increasingly becoming essential to teaching and learning.[41]

Tionge's research paper, however, was carried out in 2021. She acknowledges in her findings that there is a need for more robust and comprehensive data on the use of ICT in schools in Malawi. Therefore, this current research on the impact of multimedia methods of learning in the curriculum design in educational institutions in Malawi supplies the data that fills some gaps that Tionge, did not explore. In particular we explore the area of integration of multimedia methods of learning in the curriculum design to enhance retention of information and knowledge to the learners and teachers, which

[39]Brian Knox and Philippa, https://preply.com/en/question/what-is-the-significance-of-multimedia

[40]Tionge, Weddinton Saka. *Digitalization in Teaching and Education in Malawi*. International Labour Organization Publishing: International Labour office, CH-12, Geneva 22, Switzerland, 2021.

[41]TiongeWeddinton Saka, Digitalization in Teaching and Education in Malawi, International Labour Organization Publishing, International Labour office, CH-12, Geneva 22, Switzerland, 2021.

Tionge'sstudy did not attempt to include in her research. Tionge's arguments mainly emanate from the use of ICT in the education sector. Tionge didn't broaden her research to include all multimedia tools that can be part of technology for use in the educational sector.

The study deeply and critically analyzes, reflects, evaluates, promotes and advances the effect of multimedia methods of learning in the curriculum design in education institutions in Malawi to provide informed data to the policy makers in the educational sectors in as far as the use of ICT and multimedia methods of learning are concerned.

2.3 Using Multimedia Learning Objectives in Public Affairs Classrooms: Global Experiences with Hubert Project E-Cases and E-Studies.

This paper is co-authored by Susan M. Kilonzo, Maseno University, Kenya and Jodir R. Sandfort, University of Minnesota and Helen K. Liu, Hongkong University. The paper is a comparative analysis study examining systematically how the common tools of multimedia materials in the classrooms are each used. The research work aims to advance an understanding of the process of classroom teaching in which faculty try to create interactive experiences. [42]

The paper admits that there are many pedagogical methods available to instructors for fostering engagement with course content, such as interactive lecturing, small groups, exercise, and problem-based assignments. The research explores a new generation of teaching cases that present information through multimedia formats. It describes and analyzes shared experiences of using public affairs e-cases and e-studies in public schools in very different institutional and cultural contexts; Kenya (Kisumu), the USA (Minneapolis) and China (Hong Kong). [43]

The findings of the research revealed that despite the fact that each school make use of learning objects to increase active learning, still differences exist among schools due to institutional context and investment as well as different national and cultural contexts. The authors acknowledge the need for further research about interactive learning in public affairs education[44]

This paper however is formulated in the context of the United States of America, China and Kenya; and thus, cannot fit fully in the Malawi context when it comes to critical analysis of the application of the multimedia methods of learning and teaching.

2.4 Cognitive Principle of Multimedia Learning: The Role of Modality and Contiguity

Mayer and Moreno are the fathers of multimedia methods of learning. Mayer and Moreno conducted a research project aimed to test and clarify the contiguity and modality principle of the multimedia learning theory. It was their belief that the instructional design of multimedia was based on intuitive beliefs instead of empirical data. Part of the study focused on two effects of the contiguity principle: temporal and spatial effects. The temporal-contiguity effect is when visual and spoken material is presented simultaneously, not successively. The spatial-contiguity effect refers to printed pictures and text in proximity to each other. The other part of this study was the modality principle. This principle suggests information should be presented as auditory narration rather than visual, on-screen text. There were two experiments used during this study. The first experiment studied how the spatial contiguity of animations, text, and modality influence learning. The second experiment examined the beneficial effects of presenting material auditorily rather than visually.[45]

Both experiments showed that using mixed modality in multimedia instruction improves learning, using both verbal and visual instruction. The experiments also showcased the importance of designing multimedia instruction with graphics and text materials close to one another. [46]

Based on the results of the experiments, it is also important to have the text material simultaneously with the graphics portraying the same content idea. The data collected by Mayer and Moreno also portrayed the idea that narration was superior to text.[47] Mayer and Moreno research, therefore, advances the significance of multimedia methods of learning in enhancing acquiring of information and knowledge among learners and teachers in educational institutions. The research of this present project agrees with the findings of Moreno and Mayer in many ways.

2.5 Curriculum Change and Development in Malawi: A Historical Overview

Another paper emanating from the Malawi context is the research paper developed by GramesChirwa and Devika Rani Naidoo from the University of Johannesburg, entitled, Curriculum Change and Development in Malawi: A Historical Overview. This paper employs a historical approach to explore pre-colonial, colonial and post-colonial curriculum change and development in Malawi. This conceptual paper focuses on the process and rationale that resulted in the decision to revive the primary curriculum in 2001 to come up with an outcomes-based curriculum, and the influence of the first post-

[42] Susan M. Kilonzo, Jodir R. Sandfort and Halen K. Liu, Using Multimedia Learning objects in Public Affairs Classrooms: Global Experiences with Hebert Project E-Cases and E-Studies, Journal of Public Affairs Education, 2020.
[43]Ibid
[44]Ibid
[45]Moreno, R., and Mayer, R.E., Cognitive Principles of Multimedia Learning: The Role of Modality and Contiguity, Journal of Education Psychology, 1999.
[46]Ibid
[47]Ibid

apartheid South African curriculum on the design features of the new curriculum in Malawi. It is based on primary sources such as curriculum documents and secondary sources on curriculum development in Malawi. [48]

The paper raises concerns relating to 'unproblematic borrowing' of curriculum policies from South Africa, given the review and revision in South Africa in 2000. The findings of the research revealed that several factors have shaped curriculum change and development in Malawi. These factors border on political, social, economic, and external influences, the most salient of these external influences being globalization. As curriculum innovation is a continuous process, it is expected that curriculum planners in Malawi will be constantly changing the curriculum to respond to the needs of the country.[49] However, the research made no attempt to explore the influence of multimedia methods of learning in curriculum design despite the fact that this research paper was developed as a first step by way of preliminary assessment of the curriculum design in Malawi and provided direction and strategy for the development of the curriculum design. The developers of the research paper acknowledge that the proposed curriculum design is however inherently inadequate and does not fully address all aspects of present-day curriculum design methods.[50] Therefore, this current research papers aims at bridging this gap.

2.6 The School and Society & The Child and The Curriculum

2.6.1 John Dewey

The School and Society & The Child and the Curriculum is one of the finest thoughts of education on the child and curriculum coined by John Dewey. He was born in Burlington, Vermont, to a family of modest means. He was born October 20, 1859. He attended the University of Vermont, where he was initiated into Delta Psi, and graduated Phi Beta Kappa in 1879. He was an American philosopher, psychologist, and educational reformer whose ideas have been influential in education and social reform. He was one of the most prominent American scholars in the first half of the twentieth century.[51]

2.6.2 The Child and The Curriculum

In this book, John Dewey discusses the case of the child vs the curriculum and of the individual nature vs social culture. He argues that the teacher knows neither what the present power, capacity, or attitude is, nor yet how it is to be asserted exercised and realized. He believes that the child is the focal point of designing and formulating a school curriculum. He explains that the case of the curriculum is the child, and that the child presents capacities and attitudes which are to be exercised and realized.[52]

2.6.3 Education and Learning

Dewey argues that education and learning are social and interactive processes, and thus students thrive in an environment where they are allowed to experience and interact with the curriculum, and all students should have the opportunity to take part in their own learning. He believed in helping students realize their full potential. In The Child and the Curriculum, Dewey discusses two major conflicting schools of thought regarding educational pedagogy. The first is on the curriculum and focuses on the subject matter to be taught. Dewey argues that the major flaw in this methodology is the inactivity of the student. He further argues that for education to be most effective, content must be presented in a way that allows the student to relate the information to prior experiences, thus deepening the connection with this new knowledge student.[53] He further argues that for education to be most effective, content must be presented in a way that allows the student to relate the information to prior experiences, thus deepening the connection with this new knowledge.[54]

2.6.4 John Dewey and Multimedia Methods of Leaning

Therefore, John Dewey, through his reasoning became one of the most famous and exceptional proponents of hands-on learning or experiential education, which is related to multimedia methods of learning. This current research paper advances the ideas and thoughts of John Dewey in education to augment the impact of multimedia methods of learning and teaching in educational institutions in Malawi.

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[48]GramesChirwa and Devika Rani Naidoo, Curriculum Change and Development in Malawi: A Historical Overview., Mediterranean Journal of Social Sciences, 6. 2014

[49] Ibid

[50]Ibid

[51]John Dewey, https://en.wikipedia.org/wiki/John_Dewey

[52] John Dewey, The School and the Society $ The Child and the Curriculum, Anodos Books, 2018

[53]John Dewey, https://en.wikipedia.org/wiki/John_Dewey

[54] John Dewey, https://en.wikipedia.org/wiki/John_Dewey

2.7 Principles of Multimedia Services

This article introduces the Cognitive Psychology foundation. It is in this foundation that Richard Mayer, founded the principles of multimedia methods of learning. This article attempts to summarize the principles of multimedia methods of learning theorized by Richard Mayer. It is an assumption on how people learn. The twelve principles are structured in a such way that maximum learning can potentially be achieved by the recipient. Mayer refers to the twelve principles, "Cognitive Theory of Multimedia Learning." This theory and its principles provide guidance on how to create effective multimedia presentations for learning.[55]

2.7.1 The Principles of Multimedia Learning

The following are the principles of multimedia learning Richard Mayer developed and discussed in the article:[56]

1. The coherence principle.
2. The signaling principle.
3. The redundancy principle.
4. The spatial contiguity principle.
5. The temporal contiguity principle.
6. The segmenting principle.
7. The pre-training principle.
8. The modality principle.
9. The personalization principle.
10. The voice principle.
11. The image principle.
12. The multimedia principle.

Commenting on each principle, the article argues that the multimedia principle is the genesis for all the other principles. The reason being that learners perform better when exposed to words and pictures rather than just words.[57] Therefore the multimedia principle forms the basis of multimedia methods of learning. The researcher will use the multimedia principle in discussing multimedia learning methods.

The article concludes that Mayer's multimedia principles provide directions for the design of multimedia demonstration. Furthermore, the articles argue that Mayer's theory aligns with contemporary thinking on effective learning, which embraces a constructivist perspective: Students learn most effectively when they must construct their own knowledge structures and mental models. By following the principles of the cognitive theory of multimedia learning, instructors can help ensure that their multimedia presentations will enhance student learning.[58]

2.8 Multimedia In Education Curriculum

This is a special course module on multimedia in education curriculum designed and coordinated by B. Andresen & Katja Van Den Brink. Dr. Bent B. Andresen was from the Department of Education at Aarhus University in Denmark. He was asked by UNESCO to compile material for a course module on multimedia in education curriculum. He did this work together with Katja van den Brink, a France-based psychologist.[59] The target audience for the specialized course module multimedia in education included:

1. Heads of pre- and in-service teacher training and vocational development institutions, trainers of trainers for ICTs in education, instructional guidance and support specialists.[60]

2. Teachers, ICT school coordinators and other educational personnel.[61]

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[55]Galen Davis and Mrie Norman, Wiley University Services, Center for Teaching and Learning, 19.7.2016, https://ctl.wiley.com/principles-of-multimedia-learning/

[56]Ibid

[57]Ibid

[58]Ibid

[59] B. Andresen & Katja Van Den Brink, Multimedia in Education Curriculum, UNESCO Institution for Information Technologies in Education, 2013.

[60] Ibid

[61] Ibid

The aims of the course Multimedia in Education are for the participants to acquire a deep knowledge and high competencies regarding multimedia for the school educational environment. Furthermore, the module aimed at boosting educators' stimulus and skills in applying multimedia into educational settings and adapting the content of the course into current educational practices. [62] The course module focused on the use of multimedia in education. [63] The course module, therefore, is a special tool to help educators to understand how to use multimedia methods of learning in the teaching and learning environment. It helps teachers and learners to understand and know the principles of collaborative learning, communication, connectedness, learner communities and contextualization in education.[64]

2. 9 Richard Mayer's Cognitive Theory of Multimedia Learning

McGraw Hill posted in online teaching this summary of Richard Mayer's cognitive theory of multimedia learning. McGraw in his article summary explains that multimedia learning helps students to learn more deeply from words and pictures than just words alone. He further explains that many people are able develop new hobbies or learn new skills using multimedia. McGraw Hill cautions that all uses of multimedia are not equally effective for the learner.[65]

2.9.1 Dr. Richard E. Mayer

Dr. Richard E. Mayer earned his Ph.D. in psychology in 1973 from the University of Michigan. He served as a professor of psychology at Indiana University from 1973 to 1975 and then moved to the University of California at Santa Barbara where he continues to serve as a professor of psychology. Mayer is most known for his work in educational psychology. His most significant works deal with problem solving and multimedia learning. With his work in multimedia learning, Mayer developed the Cognitive Theory of Multimedia Learning to explain how multimedia learning works and how we can best use it. He published his theory in a chapter of the same title in The Cambridge Handbook of Multimedia Learning.[66]

2.10 Education Curriculum Review Underway

This is a newspaper article by TwimepokiMangani that appeared in Malawi News Agency. The author reported a significant trend by the ministry of education in Malawi redefining the entire academic curriculum. The report explains that Ministry of Education is in the process of redesigning the entire academic curriculum on the path of aligning with Malawi vision 2063.[67] This was disclosed by Deputy Minister of Education, Monica Chang'anamuno in Dedza during her inspection of the closure of the 2022 Malawi National Examination Board (MANEB) examination on Thursday at Mtendere Secondary School. She said that the Ministry was not only expected to administer the usual curriculum review but rather they are to implore a syllabus change that would effectively address the nation's short falls.[68]

This article gives hope that in the review and redefining of the Malawi curriculum to align it with the Malawi vision 2063 multimedia methods of learning will be deeply considered to help teachers and learners on the process of learning and retention of knowledge. However, the article does not say how the ministry of education will guarantee the quality of the redefined curriculum.

2.11 Chapter Conclusion

The literature reviewed so far in this chapter two is so intense but mainly outside the Malawi context. This is evidence that there is limited literature from the Malawi context, and therefore justifies the research project. The research will contribute to the literature in Malawi on multimedia methods of learning for further studies. Despite this literature contributing to the limited secondary sources available locally, it will significantly help the researcher in the project as follows:[69]

1. To demonstrate the researcher's familiarity with the topic and its scholarly context.
2. To develop a theoretical framework and methodology for research.
3. To position the research work in relation to other researchers and theorists.
4. To show how the research addresses a gap or contributes to a debate.
5. To evaluate the current state of research and demonstrate the researcher's knowledge of the scholarly debates around research topic.

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[62] Ibid
[63] Ibid
[64] Ibid
[65]McGraw Hill Canada, Posted in: Online Teaching, Richard Mayer's Cognitive Theory of Multimedia Learning, 16.4.2019 https://www.mheducation.ca/blog/richard-mayers-cognitive-theory-of-multimedia-learning
[66]Ibid
[67]TwimepokiMangani, Education Curriculum Review Underway, Malawi News Agency, Lilongwe, Mana, 30. 9., 2022
[68] Ibid
[69]Shona McCombees, How to write a literature review / Guide, Examples, & Templates, 2023

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

Here the researcherdescribed the research design and methodology to be deployed in the study. These included the proposed research design, sampling, data generation techniques and methods of data analysis, ethical issues, and limitations of the study. This study used qualitative research design to investigate the impact of multimedia methods of learning in educational institutions in Malawi. This study was a critical type of research where the investigator tends to analyze, reflect, evaluate, promote and advance multimedia methods of learning in the curriculum design.

3.2 Research Design

This research would follow the qualitative research design. The inquiry would employ different philosophical assumptions; strategies of inquiry; and methods of data collection, analysis, and interpretation. The inquiry would rely on text and image data and draw on diverse strategies of inquiry.[70]This method would help to explore and understandexperiences from the participants.[71] The research aimed to discover and recover information and knowledge from the available facts related to multimedia methods of learning and curriculum development in the institution of learning in Malawi.

It focused on what the participants experience, ensuring that the communication tool used in the research was fair to their lived experiences as stakeholders in education. The researcher engaged a sizeable number of participants to collect data. This was done through extensive and prolonged contact with the participants to develop patterns and relationships of meaning.

Here the researcher brackets or sets aside own experiences in order to understand those of the participants in the study.[72] This study attempted to describe the meanings of participants' experience and thus it followed a qualitative strategy of inquiry.[73] The nature of this research required a qualitative design type of study because of the following reasons:

1. the research was a field-focused inquiry.
2. the researcher served as an instrument in the research process.
3. data collection and analysis were interpretive.
4. data collected represented the voice and views of the participants.
5. research addressed unique perspectives and perceptions of individual participants.
6. the success of the research was judged by the coherence, insight, and instrumental utility of the study.[74]

The researcher, however, acknowledges some limitations of qualitative research methods. Such limitation included the following:

- Participants would provide indirect information filtered through the views of interviewees.
- Participants would provide information in a designated place rather than the natural field setting.
- Researcher's presence would bias responses.
- Not all people are equally articulate and perceptive.[75]

Despite the limitations, qualitative research design had the following advantages:

- It was useful when participants cannot be directly observed.
- Participants would provide historical information.
- It allowed researcher control over the line of questioning.[76]

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[70]John W. Creswell, Research Design, Sage Publications Ltd: London, 2009, P232

[71]Kjell E. Rudestam and Rae R. Newton. Surveying your dissertation: A comprehensive guide to content and process. (Los Angeles: Sage Publications, 2007), 70.

[72]JohnW. Creswell, Research Design, Sage Publications Ltd: London, 2009, P13

[73]Rudestam et al. Surving your dissertation: acomprensive guide to content and process, 39.

[74]Eisner Eisner, The enlightened eye: Qualitative inquiry and the enhancement of educational practice, (Upper Saddle River, NJ: Prentice Hall, 1998), 102.

[75]JohnW. Creswell, Research Design, Sage Publications Ltd: London, 2009, P179

[76] Ibid.

To overcome the limitations the researcher deployed numerous methods and solutions to the study to deal with the setbacks. To overpower bias the researcher continuously desired to remain objective and avoided all subjectivity during the research process.

3.3 Study Area

The study was primarily carried in Lilongwe City, the Capital City of Malawi. Geographically, Lilongwe is situated in the central part of Malawi. Lilongwe has a population of 1.2 million people.[77] The population of Lilongwe justifies the findings of the research on the national level in as far as the use of multimedia methods of learning was concerned in Malawi. Therefore, the following institutions of learning would be involved in the study:

1. Lilongwe Technical College. It trains primary school teachers for public schools.
2. Lilongwe Teacher Training College. It trains teachers for both primary and secondary schools for public schools.
3. Domasi Teacher Training college. It is situated outside Lilongwe in the south of Malawi. It trains primarily teachers for secondary schools. It is responsible for curriculum development and reviews in Malawi.
4. Falls Community Day Secondary School. It is a secondary level institution for the Falls community and the surrounding locations in Lilongwe city.
5. Bwaila Secondary School. It is a secondary school level.
6. Mwechekondo Primary School. It is a public primary school.
7. Lilongwe LEA Primary School. It is a primary public school.
8. Mount Carmel PVT Schools. It is Christian Private School for both primary and secondary.
9. SOS Nursery. Donor aided school for nursery, primary and secondary.
10. Ching'ombe Teacher Development Center
11. Kaufulu Teacher Development Center. It is a development center for teachers and schools.
12. Biwi Primary School
13. Khamula Primary School

3.4 Sampling

This woulddepend on the structure of the study. It would include three curriculum designers to share their lived experiences, eightteachers of chosen institutions, threePrimary Education advisors of Teacher Development Centers, one ICT Teachers in selected institutions, onegovernment official from the Ministry and eight students from selected institutions. The total participants to be interviewed would be 24. However, the number of participants may increase or decrease depending on the circumstances surrounding the researcher or the anticipated participants.

3.4.1 Sampling Techniques

This study would apply non-probability sampling.[78] Here the researcher anticipated identifying the participants based on exact characteristics, fitting the focus of the study.[79]The researcher selected the sampling units that were representative of the particular group or section of the wider population, though the sample units did not pretend to represent the wider population. They were deliberately and unashamedly selective and biased.[80]

Since the chance that a particular sampling unit would be selected depended on the subjective judgement of the researcher; it did not avoid the probability-sampling requirement where every unit has a known probability chance of being selected.[81]

The researcher understood and accepted that there would be less benefit in following a random sample which would be largely ignorant of the impact of multimedia methods of learning and who could not comment on matters of interest to the researcher. The basic concern in the sample identified was to get in-depth information from informants.

As this is small-scale research, the non-probability sampling was chosen because it fits in well in the research. Furthermore, non-probability samples are much less complicated to formulate and cost less.[82]

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[77]https://worldpopulationreview.com/world-cities/lilongwe-population

[78]Non-probability sampling is a sampling method that uses non-random criteria like the availability, geographical proximity, or expert knowledge of the individuals you want to research to answer a research question.Non-probability sampling is used when the population parameters are either unknown or not possible to individually identify.Published on July 20, 2022, by Kassiani Nikolopoulou. Revised on December 1, 2022.

[79]Cohen et al, Methods in Education: Third Edition, 113-115

[80]Ibid.

[81]Ibid.

This research used three types of non-probability sampling namely:

1. Purposive sampling
2. Convenient sampling
3. Snowball sampling

In purposive sampling, samples were chosen for the specific reason. For example, the head-teachers and students were chosen for they were considered possessing knowledge about multimedia methods of learning.[83] Convenient sampling involved choosing those that were near to serve as participants. Snowball sampling involved identifying a small number of participants which have the required characteristics.[84]

In purposive sampling, eight students were identified from Falls Community Day Secondary School for focus group discussions based on their capabilities to express themselves freely in the language of their choice. Purposive and snowball sampling was used on Primary Education Advisors. Those who were well experienced. Convenient sampling was used on head teachers as they were near and accessible. Teachers were sampled using snowball after which they were interviewed.[85]

Table 1: Table Showing Sampling Techniques

Category of Respondent	Sampling Technique	Target Population	Sample Selected
Current Students	Purposive sampling	4800	8
Primary Education Advisor	Purposive and snowball sampling	16	3
Teachers	Purposive and convenient sampling	70	14
Head teachers	Purposive sampling	7	7

Source: Adapted from Cohen, 2007, Methods in Education.

3.5 Data Sources, Data Generation and Method

The research would collect data from both primary and secondary sources. Primary data would be collected through in-depth and focus group interviews. While secondary data would be collected through the internet, journals, newspapers, educational articles and books.

3.5.1 Document Analysis

The study main data would come from the primary education advisors, headteachers, teachers, educational officials, ICT teacher experts and students. While secondary data would come from extensive reading journals, newspapers, magazines, books, and internet news locally and internationally.

3.5.2 In-depth Interviews

These face-to-face interviews with the participantsgenerated the needed data. The interviews were in unstructured form and open-ended questions. Here the participants shared their experiences in multimedia methods of learning in their institutions of learning and its impact to the processes of learning to the recipients – the students. It was beneficial to use the in-depth interviews because it helped the participants to behave naturally in their context and environment. This gave the opportunity for the researcher to bond and establish relationships with the participants. It also provided some control to the researcher to exercise caution and direct the participants during the interviews.[86] The researcher before, during and after the interviews received a warm welcome from the participants and the school community.

[82] Ibid.
[83] Ibid
[84] Ibid.
[85] Ibid.
[86]John W. Creswell, Research Design, Sage Publications Ltd: London, 2009, P232

3.5.3 Focus Group Discussion

In this study, focus group discussion was used to collect data from the students themselves. This would save time and freely allow the participants to interact with one another. The students were grouped together in a round table to create a friendly environment for them. The researcher briefed the student on the objective and the purpose of the focus group discussions. The researcher chose to use focus group discussions to collect data from the students because of the following reasons:

1. The researcher wanted to collect or generate qualitative data.
2. It was time saving for the researcher.
3. It was cost saving for the researcher.
4. The participants willingly expressed their attitudes, values and opinions.
5. The participants expressed themselves in their own languages.
6. The participants helped to broaden the discussions.
7. The discussions provided an opportunity for the researcher to triangulate the information generated with the information from interviews.[87]

Despite the positive outcomes from the focus group discussions conducted, the researcher was knowledgeable of the challenges of generating data from the focus group discussions. The challenges included the following:

1. To assemble all the participants at one place at the same time would have been a challenge.
2. It could be a challenge to analyze data in a brief and clearly expressed manner.
3. It could have been difficult to use a questionnaire.
4. It could have been likely that some participants would have dominated the discussions.

3.6 Data Analysis

In this research data generated was interpreted qualitatively. The main themes that emerged during the interviews were identified and examined. The data generated were analysed as raw data in the form of transcripts and field notes. The data was analyzed thematically following the predetermined theoretical framework of the research. The generated data was analyzed as follows:

1. The raw data in form of transcripts, field-notes and images was organized, ready for analysis.[88]
2. The transcribed data was read through in order to get the general sense of the information.[89]
3. The researcher analyzed data in detail in the process called coding, in which data was organized in chunks or segments or themes before bringing meaning.[90]
4. The researcher generated a description of the setting, the people and categories for analysis.[91]
5. The themes were conveyed as findings of the analysis. The researcher then wrote a preliminary summary of the main findings, issues, ideas and concepts.[92]
6. The researcher made interpretations or meanings out of the findings. A comparison with past findings was made in which some affirmations were seen. Then a synthesis with the literature to draw some conclusions about the impact of multimedia methods of learning in education institutions in Malawi was made.[93]

3.7 Ethical Consideration

The participants to this studywere protected by the researcher through private and confidential policy. The researcherapplied the ethics in addressing the practical issues, such as interviews process, probing, empathy, and confidentiality.

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[87]David Morgan. Focus group as qualitative research, (Beverly Hills, CA: Saga Publications, (2006), 41-48

[88]John W. Creswell, Research Design, Sage Publications Ltd: London,

[89] Ibid.

[90] Ibid.

[91] Ibid.

[92] Ibid.

[93] Ibid

To build confidence for the participants the researcher ensured that consent was sought from the participant before the interviews. The participant was free to choose whether to participate in the interviews or not. The researcher briefed the participants before the interviews to give an opportunity to the participant freely to stay or leave.

3.8 Expenses of the Study

This kind of research will require extensive travelling and such need extra income to achieve the desired goal. It will also be challenging to get hold of Ministry of Educational officials or Principals of Teacher training Colleges or Curriculum Designers Experts for interviews.

3.9 Chapter Conclusion

The research evaluated the impact of mmultimedia methods of learning in the ccurriculum design in educational iinstitutions in Malawi. The research sought to understand the effects of multimedia methods of learning in the curriculum design in Malawi's institutions of learning.

4, PRESENTATION AND DISCUSSION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents and discusses the research findings on the impact of Multimedia Methods of learning in the curriculum design in educational institutions in Malawi. The discussions and the findings are presented and discussed in the format of themes and sub-themes under titles corresponding to the study research questions. The data presented in the findings was collected and analyzed by the researcher himself to ensure accuracy and correctness of the data. The data presented is the result of the interviews conducted by the researcher which included face to face interviews, focus group discussions, observations and questionnaires. The data is from twelve educational institutions of learning in Malawi. The data generated revolved around Cognitive Theory of Multimedia Learning which has guided the interpretation of the findings of the study. The Theory has permitted the exploration of the impact of multimedia methods of learning in the curriculum design in educational institutions in Malawi.

4.2 The Categorization of the Findings

The researcher decided to categorize the findings of the research for the sake of fairness during the presentation of the outcomes of the research. The data collected comes from different contexts and thus it is fair in the research to treat it differently. The sources of the data collected ranges from colleges, secondary schools, primary schools and teacher development centers. The findings of the research are categorized as follows:

4.2.1 The Application of Multimedia Methods of Learning in Colleges

First, raw data was collected from four colleges in Malawi. These colleges included Lilongwe Technical College, St Joseph Teachers Training College, Domasi Teachers Training College and Lilongwe Teachers Training College. The data collected from these colleges represents the institutions of higher learning in Malawi, and how are impacted by the multimedia methods of learning. The data collected from the colleges reveals that the institutions of higher learning in Malawi are fairly on the way to achieve maximum potential in the use of multimedia methods of learning for teaching and learning processes. All four colleges visited, and their officers interviewed reported about the inclusion of multimedia methods of learning in their college curriculum.[94] The colleges are fast migrating from traditional or conventional methods of learning to multimedia methods of learning, and the curricula are being reviewed and upgraded to allow the inclusion of new technologies of teaching and learning, to improve the delivery of services in the learning environments.

There are deliberate mechanisms and policies in the colleges to train and equip staff with new skills to enhance the use of multimedia methods of learning among all the stakeholders of the colleges. For instance, DTTC has a new building fully installed with technological equipment for teaching and learning funded by Japanese International Cooperation Agency.[95] The new building and the installed equipment will help the DTTC to fully migrate from traditional methods of teaching and learning to multimedia methods of teaching and learning.

Another important stride the DTTC has made is the introduction of "Instructional Media and Technology" courses to impact teachers and learners with Multi-Media (MM) modes of learning. These courses aim at orienting students on the use of teaching aids, current teaching and learning technologies and exposure of students on how to use modern technology in the classroom.[96]

Apart from the introduction of instructional media and technological courses in the colleges in Malawi, with the impact of multimedia methods of teaching and learning, new methods of teaching and learning are emerging in the colleges' environment in Malawi. Colleges are implementing distance learning through E-Learning, Open and Distance Learning (ODL) virtual google classes and online learning.[97]

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[94] Interview with Samson Mawephe, Chief Lecturer Physical Education, DTTC, April 2023.
[95] Interview with Grace Gondwe, Lecturer & HOD, DTTC, April 2023.
[96] Ibid.

Through distance learning, students residing in distant geographical areas can enroll for a course of their choice in different colleges without necessarily moving away from their environment. The online courses help the working class to upgrade without necessarily leaving their place of duty, families, or responsibilities. And furthermore, online courses save time and are economical as students do not need to find new accommodation, spend money on transportation or food. Online courses have been an alternative educational tool for face-to-face learning when there is an outbreak of disease or natural disasters.

When the world was hit by Covid – 19, schools and colleges started introducing and teaching their courses on online. When there was an outbreak of cholera[98] in Malawi some schools were closed, and government advised schools to utilize radio school programmes[99] aired on different radio stations in the country. When the cyclone hit and devastated the southern part of Malawi, schools were closed for a couple of weeks as some schools were being used as camps for the victims of the cyclone.[100] The government of Malawi made an appeal to teachers and students in the affected districts to utilize radio educational programmes. Therefore, multimedia methods of learning are a remedy when face to face teaching and learning cannot take place due to several reasons like contagious diseases and natural disasters.

Furthermore, the colleges are moving away quickly from the use of talk and chalk to MM learning. The colleges have made strides to furnish and install in their classroom's new whiteboards and modern equipment for learning and teaching. Lilongwe Technological College (LTC), for example, has a computer laboratory, internet facility for teachers and learners, an ICT operational department and classes fitted and installed with multimedia materials.[101] LTC has stocked computers, whiteboards, projectors, alarms, windmill, notice boards and tablets to facilitate the process of teaching and learning.

Therefore, the findings of the research undertaken have revealed that colleges in Malawi are making progress in the use, promotion and application, of multimedia methods of learning to improve teaching and learning processes in Malawi. The colleges are on the way to migrating from the conservative traditional methods of teaching and learning to modern methods of learning and teaching. The colleges are making efforts to include multimedia methods of learning in the curriculum development, training teachers in the multimedia methods of learning, furnishing classrooms and learning environments with modern facilities of teaching and learning. The government and donor agencies are committed to improving the service delivery in the educational sector through equipping the colleges with modern teaching and learning materials and capacity building of teachers and school administrators. As a result of these efforts, multimedia methods of learning have immensely impacted the teachers, students and the college stakeholders in the colleges in Malawi.

4.2.2 The Application of Multimedia Methods of Learning in Secondary Schools

The raw data was collected from three secondary schools in Lilongwe, Malawi. These secondary schools included Falls Community Day Secondary School where data was collected through face-to-face an interview with one of the teachers who heads the department of science at the school[102] and through a focus group discussion which was composed of eight form four students.[103] The other two secondary schools where data was collected were Mount Carmel Private Schools through face-to-face interviews with the head and deputy teachers at the school. And Lilongwe Girls Secondary School. The head teacher of LGSS was reluctant to respond to the questions or supply information to the researcher. She wanted a letter of approval from the ministry of education. Since the researcher had no letter of approval from the ministry of education, the interview was curtailed abruptly. However, the head teacher hinted that the school uses multimedia methods of learning and teaching, and it has some of the materials required for multimedia learning. She mentioned that the school has a computer laboratory and an ICT section headed by personnel specialized in ICT technology.[104] The selected secondary school, LGSS, would have contributed to the research enormously if the school could have positively participated in the research.

Nevertheless, the data collected from the selected and cooperative secondary schools are the representation of the application of multimedia learning in secondary institutions in Malawi and how they are impacted by the multimedia methods of learning. The data collected from the selected secondary schools revealed that some schools are above other schools with regard to application of multimedia methods of learning for teaching and learning processes. This is because of the following reasons:

First, the research revealed that most secondary schools are using the conservative traditional methods of learning and teaching.[105] This method negatively encourages rote learning[106] and memorization to the students. It discourages the students to become actively involved in the learning

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[97] Ibid.

[98] Government referred schools to utilize a radio programme called, "Tikwere."

[99] Ibid.

[100] Naomi Mkwanda, Ministry of Education Extends Suspension of Classes. Nyasa Times, 15 March 2023.

[101] Interview with LTC Students, focus group discussions, April 2023 (FGD headed by Daison Foster).

[102] Interview with KlinaLipenda, teacher and head of department of science, FCDSS, April 2023.

103Interview with form four students, focus FCDSS, April 20, 2023.group discussion.

[104] Abrupt interview with the head teacher of LGSS, April 20, 2023

[105] Interview with Crispin Kambudzuma, head teacher MCPS, April 2023

[106] Rote learning is a memorization technique based on repetition. The method rests on the premise that the recall of repeated material becomes faster the more one repeats it. Some of the alternatives to rote learning include meaningful learning, associative learning, spaced repetition and active learning.

processes, and as such contributes to the retardation of students critical thinking skills. The students consider their teachers as primary sources of knowledge and information and support for students. The teacher imparts knowledge to the students through lectures, textbooks, and other didactic methods. The main goal is for the teacher to ensure that all students understand the material. Students put all their focus on the teacher, they work alone, and collaboration is discouraged.[107] Thus tradition methods of learning create dependency attitudes among the students and facilitates reduction of critical thinking skills among the students.

Second, the research revealed that secondary school objectives and goals are examinations oriented. The aim mostly of teachers and learners is to pass standardization national examinations.[108] So, the percentage of achievement in learning is measured through the pass rate of national examinations. The teachers focus on the areas that are examinable during national examinations and other areas of the curriculum suffer setbacks. For the students to pass the national examinations they master the examinable material through rote learning but deep learning that facilities critical thinking and critical thinking skills to students does not take place in the learning processes.

Third, the research revealed that most of the secondary schools are using chalk and talk methods. The teacher talks and the students listen.[109] The teacher uses chalk to write on the black or green hard or cemented board, students take notes in their exercise books. The schools do not have modern equipment for teaching and learning, like whiteboards, iPad, computers, laptops, tablets, projectors and screens, radios / radio cassettes, television, internet connections, films, audio tapes, video tapes, slide shows, recorded music, tutorial, video animation, digital cameras, microphones, sound cards and video cards. Therefore, lack of the technological materials in the schools contributes to the failure of the institutions to apply multimedia methods of teaching and learning in the classroom and school environment.

Fourth, the research revealed that some secondary schools have poor and dilapidated infrastructure that cannot accommodate materials for multimedia methods of learning. The buildings are incredibly old and in the state of collapsing. The classroom windows and doors are not there or broken. The classrooms leak when it is raining, and the roof is at the age of falling. The classrooms do not have chairs and tables for students. The walls of the classrooms are dirty and hazardous conditions for teachers and students. The electrical wires of the building are exposed, creating a dangerous situation for the building catching fire and for the users of the building.[110] Therefore, these poor and dilapidated conditions of infrastructures in secondary schools create security threat to the safety of the materials that are used for multimedia methods of learning and teaching.

Fifth, the research revealed that some secondary schools do not have specialized skilled personnel in ICT and instructional media technology.[111] The schools do not have staff well trained in the use of multimedia materials. Every time the schools want to engage the students in multimedia methods of learning they outsource skilled personnel in ICT and instructional media from somewhere else. This is expensive and limits how often the schools apply multimedia methods of learning even though the schools stock multimedia materials. Therefore, lack of training in multimedia and instructional media technologies has contributed to a limited application of multimedia in some secondary schools in Malawi.

Sixth, the research has revealed that some secondary schools do not have computer and ICT laboratories.[112] This demotivates the interest of teachers and students in utilizing the impact of multimedia methods of learning and instructional media technologies. This has contributed to lack of computer and ICT skills and knowledge among the teachers and students. The non availability of ICT, computers and gadgets and internet in secondary schools hinders the application and implementation of multimedia methods of learning.

Therefore, the use of conservative methods of learning, examinations-oriented style of teaching and learning, chalk and talk methods of teaching and learning, poor and dilapidated infrastructure of school buildings, lack of trained personnel in multimedia and non-availability of computers and ICT laboratories, have contributed towards some secondary schools being behind in the application of multimedia methods of teaching and learning in their institutions. However, the findings of the research revealed further that despite the hindrances in the applications of multimedia methods of learning in some secondary schools, other secondary schools have made some significant steps in the application of multimedia methods of teaching and learning in their schools. Such significant steps include the following:

1. Improved infrastructure for teaching and learning for accommodation of multimedia learning and teaching materials.
2. Migration from traditional methods of learning and teaching to multimedia methods of learning and teaching.
3. Incorporation of instructional media technologies in the curriculum development.
4. Establishment of ICT and computer laboratories for multimedia learning and teaching
5. Training of staff in multimedia learning and instructional media technologies.
6. Integrating traditional methods of learning with multimedia methods of learning.

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[107] https://www.bing.com/searchcentered+approach?pglt=43&q=teacher-

[108] Interview with Amos Lapken, deputy head teacher, MCPS. April 2023.

[109] Interview with Crispin Kambudzuma, head teacher, MCPS. April 2023

[110] Through observation, Kaufulu CDSS. April 2023.

[111] Interview with KlinaLipenga, teacher & head of science department, FCDSS. April 2023

[112] Ibid.

7. Minimizing the application of chalk and talk style of learning and teaching, while maximizing the application of multimedia methods of learning and teaching.
8. Stocking of multimedia learning and teaching materials for short and long term such as whiteboards, iPad, computers, laptops, tablets, projectors and screens, radios / radio cassettes, television, internet connections, films, audio tapes, video tapes, slide shows, recorded music, tutorial, video animation, digital cameras, microphones, sound cards and video cards, sounds, pictures, charts, CD-ROM, games, entertainment, social media, graphics, photographs and drawings.
9. Application of multimedia learning to improve student's critical thinking and critical thinking skills.
10. Through multimedia, schools have improved in research and technology.
11. Introduction of collaborative, cooperative style of learning through multimedia methods.
12. Introduction of incentives to motivate staff to participate in multimedia methods of learning and teaching.
13. Provision of multimedia materials to teachers and learners to instill interest in them.
14. Multimedia methods of learning, will engage students to participates in classwork, group work, pairing, educational visits, demonstrations, assignments, use real things and the environment and interactions.[113]

4.2.3 The Application of Multimedia Methods of Learning in Primary Schools

The raw data was collected from five primary schools in Lilongwe, Malawi. These primary schools included Mbuka full primary school one & two, Mwenyekondo full primary school, Lilongwe LEA primary school, Mount Carmel private primary school and Biwi full primary school. The data collected from the selected five primary schools are the representation of the application of multimedia learning in primary schools in Malawi and on how are impacted by the multimedia methods of learning. The data collected from the selected primary schools revealed that some primary schools are above other schools regarding application of multimedia methods of learning for teaching and learning processes. It is the same situation as in secondary schools in Malawi. However, the situations in primary schools are worse and pathetic. This is because of the following reasons: For fair analysis of the application of multimedia methods of learning in primary schools each school will be evaluated in detail.

4. 2.3.1 Mbuka Full Primary School

This primary school is situated in a densely populated area in the urban city of Lilongwe. It is a public school fully funded by the government purse. The school is surrounded by three densely populated markets. These markets are Phwetekere, Kandikole and Kaondo. The population of the school is estimated to be six thousand learners. Due to the population of learners the school is divided into two schools on one campus. It has two shifts. One shift starts school from 7:30 am to noon and another shift starts noon to 4 pm. A female teacher heads the school.[114]

The research finds out that Mbuka primary school uses the following multimedia materials to enhance the delivery and retention of knowledge and information in the teaching and learning processes:

- Radios for Tikwereprogramme aired on the national broadcasting station to assist teachers and learners to acquire knowledge when outside the classroom or when there is no teacher to assist the learners. However, due to lack of maintenance and repair most of the radios are not working or dead.[115] Secondly, due to the broadening of the primary school curriculum the timetable of Tikwere radio programme mismatches with the school timetable. This makes it difficult to implement the radio programme at the school. Power blackouts are also gradually contributing to diminishing the programme.
- The school has a headset called Zone Learn orLogitech wired headsets . Zone Learn is designed for the deep, sustained learning that students need to excel in school. It is specifically designed for smaller head sizes to meet the needs of younger learners. And it is also durable enough to hold up against the activities of a typical school day.[116] The Logitech assistsMbuka primary school learners in numeracy and reading programmes. However, the Logitech units alone are not enough for the learners. The teachers must alternate with the learners to use the gadgets.
- The school uses multimedia materials for learning like pictures, charts, text messages, games, microphones, sounds like bell and whistle, drawings.
- For teachers, the school uses multimedia materials like computers and projectors but is not adequate for a school of six hundred learners.

[113] Interview with KlinaLipenga, teacher & head of science department, FCDSS. April 2023

[114] Interview with LotinaKatumba, head teacher, MFPS

[115] Ibid.

[116] https://www.logitech.com/en-us/products/education/headsets/zone-learn-headset.html

- The school lacks multimedia materials, trained staff in multimedia technologies, a library equipped with multimedia gadgets and a storeroom for multimedia materials.

Therefore, the researcher evaluated Mbuka primary school as far behind in the application of multimedia methods of learning and teaching. This has resulted in absenteeism, demotivation and repetition among learners. Teachers are demotivated as they do not have modern materials for learning and teaching.[117] It is overwhelming for teachers and school administrators to prepare lessons and work for six thousand learners manually.

4. 2.3.2 Mwenyekondo Full Primary School

The Mwenyekondo primary school catchment areas are a mixed bag. The school draws learners from both densely and low populated areas. The learners come from Mwenyekonde, Phwetekere and Falls Estate. The school is close to Mwenyekonde market and Lilongwe Technical College.

The research revealed that Mwenyekonde primary school is above other surrounding schools in the application of multimedia methods of learning and teaching. This is because, first, the school runs a multimedia programme called unlocking talent.[118] The programme aims at "Transformational Learning for Malawian Children." The unlocking talent programme is funded by international aid agencies like VSO, One billion, airtel Malawi, Norwegian Embassy, KFW, German Cooperation and ministry of Education Science and Technology.

The unlocking talent has so far provided Mwenyekondo primary school with forty tablets for mathematics lessons and another forty tablets for Chichewa lessons. The tablets target standard one to standard four learners.[119] The unlocking talent have also provided solar batteries to charge the tablets. The school has connected to a reliable internet source. Teachers are trained in the application and use of the instructional media technologies. The school also has Logitech headsets with lessons to assist standard one to standard four learners in reading and numeracy.[120] Apart from tablets and Logitech headsets, the school has radios. They use the radio to assist learners to listen to a national broadcasting educational programme called Tikwere aired on a national broadcasting station.

In addition to technological gadgets the school possesses, it also uses multimedia materials to enhance the critical thinking and critical thinking skills of the learners. For visual and audio, the school uses group work, core work, discussions, questions and answer, demonstrations, role modelling, print rich, charts, pictures and sound.[121]

Therefore, through the unlocking talent Mwenyekonde primary school have acquired multimedia materials like tablets, iPad, Logitech headsets, radios, solar power, internet and infrastructure. These multimedia learning technologies places the Mwenyekonde primary school above surrounding schools like Mbuka and Lilongwe LEA primary schools for example.

The building in the photo was funded by the unlocking talent partners.

Figure 2: Source: Mwenyekondo Primary School, April 2023

[117] Interview with LotinaKatumba, head teacher, April 2023.
[118] Interview with LotinaKatumba, head teacher, April 2023.
[119] Ibid.
[120] Ibid.
[121] Ibid.

4. 2.3.3 Biwi Full Primary School

Biwi primary school is in area eight in the urban city of Lilongwe. The school is surrounded by a market, shopping Centre and a public hospital. Its catchment areas are Biwi, Mchesi and Kawale. The findings of the research have revealed that Biwi primary school has made some advancements to embrace technology and multimedia methods of learning compared to its school neighboring schools like Kaufulu primary school for example. However, this has happened because the schools run the similar programmes to that of Mwenyekondo primary school, with the unlocking talents funded by international agencies. The school has achieved the following in as far as the application of multimedia methods of learning and teaching are concerned:

1. The school has a learning centre provided by unlocking talents.[122]
2. The school has tablets, iPad, computers, Logitech headsets and radios.
3. For visual learning it uses real objects, charts, resource persons, learner's books, pictures in learners' books, supplementary books with pictures. For audio, the school uses sounds, tablets, radios and headsets.

With the help of unlocking the talent, Biwi primary has made progress in the application of multimedia methods of learning and teaching. However, the school needs to improve in the care of the gadgets.

Figure 3: Source: Biwi Full Primary School

4. 2.3.4 Lilongwe LEA Primary School

Lilongwe LEA primary school is in the urban city of Lilongwe. It is in the middle-populated area in Falls Estate. The school is a walkable distance away from the old town of Lilongwe. The school is next to a community sports stadium and social welfare premises. The school enrolls children from Falls Estate and the neighboring communities like Mchesi.

The research findings have revealed that even though the school is in the middle of the city, it has not made much progress in regard to the application of multimedia methods of learning and teaching. The only multimedia materials the school applies in learning and teaching include radio for Tikwere national broadcasting programme, projector, cellphones, a computer, flipcharts, pictures, games and sound. Unfortunately, the radios for Tikwere are all dead. The only alternative the school has is the projector that they use for Makweleroprogramme helping learners in reading and numeracy.[123] Therefore, Lilongwe LEA primary school is behind in the application of multimedia methods of learning and teaching.

4. 2.3.4 Kaufulu Teacher Development Centre

Teacher development centers are set up as resource centers for teachers and school stakeholders. A Primary Education Advisor (PEA) heads the centers, assisted by a Coordinator. Kaufulu zone has seven schools and seventy teachers. The data collected from the center revealed that the center is behind with regard to the application of multimedia methods of learning and teaching to assist teachers with modern technologies. The center has radios for Tikwereprogramme for national numeracy and reading programme, one computer, pictures and video tapes.[124] As a resource center, the research expected that the center would have been fully furnished and stocked with materials for multimedia methods for teachers and learners.

4. 2.3.5 Mount Carmel Private Primary School

Mount Carmel is a Christian private school funded with private funds. The primary section has only forty-eight learners and eight teachers. It is new school and applying Christian principles in its philosophy. In its efforts to promote the application of multimedia methods of learning and teaching the

[122] Interview with focusing group discussions. BFPS teachers lead by Naomi Msowoya. April 20, 2023.
[123] Interview with Emmanuel Magalasi, Head Teacher, LLEAPS. April 2023.
[124] Interview with EmphraimChinyama, PEA, KTDC. April 2023.

school has three computers, radios, films, charts, recorded music, social media uses, pictures, drawings and does educational visits.[125] Therefore, the research revealed that the school is on the way to achieving maximum potential in the application of multimedia methods of learning to improve the critical thinking and problem-solving skills of the learners. However, the school needs to invest in more teacher training for application of multimedia methods and materials.

4.3 Common Multimedia Materials

The data collected from colleges, secondary and primary schools revealed that the following are the common materials the schools and colleges use in multimedia methods of learning and teaching:whiteboards, iPad, computers, laptops, tablets, projectors and screens, radios / radio cassettes, television, internet connections, films, audio tapes, video tapes, slide shows, recorded music, tutorial, video animation, digital cameras, microphones, sound cards and video cards, sounds, pictures, charts, CD-ROM, games, entertainment, social media, cell phones, text messages, graphics, photographs and drawings. However, none of the colleges nor schools interviewed has all the materials listed above. Some of these materials for multimedia methods of learning can be sourced locally or improvised. While for other items like computers and other electrical gadgets schools may need to purchase to have access to them.

4.4 Benefits of Multimedia Methods of Learning

4.4.1 Benefits of Multimedia to Students

The data collected from the sources revealed that the application of multimedia methods of learning have the following benefits and impact to students:

- It assists students to access, expand, share and increase retention of knowledge and information.
- It assists students in research and data analysis.
- It assists students to see and hear; so as to avoid rote learning and memorization of information. And thus, enhances understanding.
- It assists students not to waste time and grasp information and knowledge quickly.
- It assists students to arouse interest, motivation, performance, attraction, excitement and such reduces absenteeism among the learners and teachers.
- It assists students in the reduction of workload and thus minimize the bad attitudes towards cheating in exams.
- It assists students to participate in distance learning.
- It assists students to work independently of a teacher.
- It is a psychomotor[126] in nature; and as such will assist students to get the actual thing and interact with the thing. Students cannot forget the information easily.
- It assists students in providing a platform for communication.

4.4.2 Benefits of Multimedia to Teachers

- It assists teachers in the reduction of work and saves time. Teachers do not need to write notes on the board. Chalk and talk methods of learning are not necessary anymore and makes the teaching job easier.
- It is a source of entertainment to students since it rouses interest and reduces class boredom. And as such it controls unruly behaviors and assists in class management.
- It assists teachers to meet diverse needs and abilities of students in the learning environment. And thus, brings different elements of interest to learners.
- It assists teachers to standardize their delivery when overseeing diverse groups of students.
- It assists teachers to improve concentration and makes teaching easy.
- Multimedia methods do not require extra workforce and labor.
- It is easy to understand, and such teachers save time.
- It is the fastest means of sharing information between teachers and students.

[125] Interview with Amos Lapken, deputy head teacher, MCPS. April 21, 2023

[126] Relating to psychological processes associated with muscular movement and to production of voluntary movements.

4.5.1 Challenges of Multimedia Application

The application of multimedia methods of learning and teaching in the curriculum development can be extremely fascinating. However, the findings of the research have revealed that multimedia methods of learning and teaching have their own challenges. The challenges range from personnel to materials. The following are the challenges the researcher found out from the focus group discussion and school staff interviewed in different schools and colleges:[127]

1) Security is one of the challenges schools that use multimedia learning and teaching materials confront. Technological materials attract thieves. Materials like computers, tablets, radios, projectors and iPads need secure storeroom with a strong door and lock. All the schools under study expressed their concern to the researcher regarding security of multimedia materials. To secure the materials the schools have ended up hiring extra security guards to guard computer and ICT laboratories.[128]

2) Training is one of the challenges in the application of multimedia methods in learning and teaching. The research revealed that in many schools' teachers are not trained in how to use materials for multimedia. Lack of training demotes teachers who are unable to use multimedia methods. For example, one focus group at Biwi primary school had seven teachers but only one could operate a computer.[129]

3) Multimedia materials are expensive to purchase, maintain and repair. Public schools struggle to raise financial resources to buy or replace multimedia materials.[130]

4) Implementation is another issue schools struggles in the application of multimedia methods. Schools may have the multimedia materials but may lack the implementation skills to use the materials for the benefit of the school.[131]

5) The multimedia materials need energy to operate. For example, computers, projectors and iPads need energy to operate. It might be solar energy or electricity. If there is no reliable energy, multimedia gadgets become of no value to the school. And the source energy must be manageable to the school like solar energy. Schools cannot afford generators that use diesel. The schools during interviews lamented the frequent backout in Malawi. The blackouts can disrupt multimedia programmes.[132]

6) The infrastructures for ICT and computer labs are dilapidated and in poor condition in some schools. With dilapidated and poor infrastructure, is difficult for schools to implement multimedia methods of learning and teaching. Schools need safe and clean infrastructure to implement multimedia methods of learning andteaching.[133]

7) Internet service is necessary when applying multimedia methods in schools. Those school that do not have reliable internet find it difficult to operate multimedia methods of learning and teaching materials. Schools need data to access the internet. If the school does not have data, it cannot access information through multimedia.[134]

8) Another challenge the schools face when using multimedia methods is simply that multimedia materials are not user friendly. Lack of knowledge and skills by users undermines the promotion and impact of multimedia on teaching and learning.[135]

9) The other challenge of this course, the practical aspect of technology, is that large groups are difficult to manage. When instructing large groups with limited materials it consumes time and energy.[136]

10) Students can abuse the multimedia methods of learning and teaching so easily.

4.5.2 Solutions to the Challenges of Multimedia Application

The researcher during focus group discussion encouraged the participants to find practical solutions to the challenges schools confront when applying multimedia methods of learning and teaching. All the three focus groups produced the following practical answers to the challenges multimedia methods pose:

i. Frequent repair and maintenance of the multimedia materials and gadgets. This prolongs the life span of the materials and gadgets.[137]

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[127] Interview with FCDSS focus group, LTC focus group, BFPS focus group. April 2023

[128] Interview with EmphraimChinyama, KTDC. April 2023.

[129] Interview with BFPS focus group. April 2023.

[130] Ibid.

[131] Interview with Ephraim Chinyama. April 2023

[132] Ibid.

[133] Ibid.

[134] Ibid.

[135] Ibid.

[136] Ibid.

ii. Adequate training for staff and students before, during and after the use of the multimedia materials. This training may include workshops, group approaches and discussion groups.[138]

iii. Incentives to staff and teachers.[139]

iv. Make it as much as possible, the materials to be user friendly.[140]

v. Where the materials for multimedia are not enough or not available improvise or substitute with local available objects.[141]

vi. Use affordable and cheap gadgets e.g., cellphones.[142]

vii. Use portable energy like solar energy or power banks.[143]

viii. Take advantage of resource persons to address weak areas of the school.[144]

ix. Provision of ICT and Computer labs to school.

4.6 Instructional Media Technology

Today's teachers are responsible for students who work and learn in the rapidly advancing, technological world. The use of instructional media and technology effectively facilitates planning, delivery, and reinforcement of student learning. Teachers develop fundamental adaptable concepts and skills to effectively manage their students' use of media and technology as the new tools of production and communication.[145]

When the researcher was interviewing one of the participants in the research from Domasi Teachers Training College, she introduced this exciting course, "instructional media technology." DTTC is offering this course. The course aims at orienting students on the use of teaching aid, current technologies and exposing students in how to use technology in class. This area may need further study, but it is an indication that DTTC is advancing on educational technology.[146] It is embracing multimedia methods of learning and teaching quickly.

4. 7 Multimedia in the Curriculum

To critically understand, analyze, reflect, investigate and evaluate fully the impact of multimedia methods of learning in the curriculum design, the researcher included the following question in the questionnaire, *"In your school curriculum, does it include the application of multimedia methods of learning forretention of knowledge, information and experience."* The researcher expected open-ended responses from the respondent. However, it was a mixed bag on how the respondent replied to this question. To achieve the desired outcome of the formulated question, the researcher followed up with other related questions to find the underlying cause of the question. The following are the responses from the respondent:

- The first respondent replied: *the application of multimedia methods of learning is not included much in the school curriculum….* He meant that the multimedia methods are included but not satisfactory to his expectations.[147]
- The second respondent replied: *the application of multimedia methods is included in the curriculum but less included…* He meant that it is included but not as much.
- The third respondent replied: *the application of multimedia methods is included in the curriculum but not much, but the problem is implementation and materials. The curriculum has the multimedia, but the problem is materials.* For this respondent, the problem is materials and the implementation process.
- The fourth respondent replied: *the application of multimedia is included in the curriculum, but the problem is implementation and materials, therefore, teachers should be resourceful…* Here three issues come out: 1). Materials 2). Implementation 3). Teachers.
- The fifth respondent replied: *the application of educational media technology is included in the curriculum, but the teachers must be trained.* Here the issue is training teachers.
- The sixth respondent replied: *the application of multimedia methods – implementation and materials in the past was a challenge but now is implementation.* The issue here is implementation and availability of materials.

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[137] Interviews with focus groups. April 2023
[138] Ibid.
[139] Ibid
[140] Ibid.
[141] Interview with Anthony Mwakihana, St JTTC. April 2023.
[142] Ibid.
[143] Ibid.
[144] Ibid.
[145] https://www.iun.edu/education/initial-programs-additional-information/conceptual-framework/kb-instructional-medi
[146] Interview with Grace Gondwe, DTTC. April 2023.
[147] Interview with Grace Gondwe, DTTC. April 2023.

- The seventh respondent replied: *the application of multimedia methods – current development in the curriculum regard multimedia methods – migration to multimedia methods…* Here the issues are migration – continuous process.
- The eighth respondent: *application of multimedia methods included in the curriculum have visual and audio methods.* Here the issue is dual process.

The researcher deduces from the above arguments and draws as a logical conclusion as follows:

1) It is evident from the arguments of the respondents that multimedia methods of learning and teaching are included in the curriculum design, even though not much but they effectively impact the curriculum.
2) The issue is not how much is included in the curriculum but availability of materials and the implementation process of the curriculum.
3) To effectively fulfill the objectives of the curriculum teachers must be resourceful.
4) For the multimedia to impact the curriculum, teachers must be trained in the use of multimedia.
5) The effect and impact of multimedia in the curriculum is a continuous process.
6) The impact of multimedia in the curriculum is dual process.

4. 8 Impact of Multimedia Methods of Learning in the Curriculum Design

The multimedia methods of learning and teaching to impact the curriculum of the school effectively the following must be taken into consideration:

- There must be availability of multimedia materials to apply in the implementation of the curriculum.
- The implementation process of the curriculum must be prioritized.
- Teachers must be resourceful.
- Teachers must be trained in multimedia methods of learning and teaching.
- The application of multimedia methods in the curriculum development must be considered as a continuous process.
- The application of the multimedia methods of learning and teaching in the curriculum must be designed in a such a way that it impacts the senses of sight and hearing.

4.9 Chapter Conclusion

In this chapter, the researcher has presented and discussed the research findings on the impact of Multimedia Methods of learning in the curriculum design in educational institutions in Malawi.The findings of the research have shown that educational institutions in Malawi are making progress in the use, promotion and application of multimedia methods of learning to improve teaching and learning processes. The research has further shown that institutions of learning in Malawi are on the way to migrating from the traditional methods of teaching and learning to modern methods of learning and teaching.

The schools are making efforts to include multimedia methods of learning in the curriculum development, training teachers in the multimedia methods of learning, furnishing classrooms and learning environments with modern facilities of teaching and learning. The government and donor agencies are committed to improving the service delivery in the educational sector through equipping the schools with modern teaching and learning materials and capacity building of teachers and school administrators. Among results of these efforts, multimedia methods of learning have immensely impacted the teachers, students and the college stakeholders in the colleges in Malawi. The next chapter presents conclusions, implications and recommendations.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the foregoing chapter, the investigator presented, analyzed and interpreted the research findings following the research question which produced some themes. In this chapter, which is the final one, the investigator has made conclusions and some recommendations from the research findings.

The study attempted to investigate the impact of multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi. The study was guided by the following research question: (1) What are the impacts of applying multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi? (2) What are the common materials for multimedia methods of learning and teaching applied in the curriculum design in the educational institutions in Malawi? (3) Why are multimedia methods of learning and teaching beneficial in the curriculum design in the educational institutions in Malawi? (4) What are the challenges of applying multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi? (5) How to resolve the challenges of applying multimedia methods of learning and teaching in the curriculum design in the education institution in Malawi? (6) How much are multimedia methods of learning and teaching included in

the curriculum design in the educational institutions in Malawi? (7) How are multimedia methods of learning and teaching promoted in the curriculum design in the education institutions in Malawi?

In contemplation of the above questions, the researcher, engaged school stakeholders who included the teachers, students, head teachers, deputy head teachers, heads of departments, primary education advisors and lecturers to explain their experiences and involvement in the application of multimedia methods of learning and teaching in the curriculum design in their respective institutions. The researcher through observations, in-depth interviews and focus group discussions managed to get to the findings of the research. Many of the participants who were involved with the researcher acknowledged that the chalk and talk method of teaching and learning is no longer effective in this age of technology and they were of the view that it is high time schools start the process of migrating from traditional methods of teaching and learning to application of multimedia methods of learning and teaching in the school's curriculum activities. Almost all the participants of the research had positive attitudes based on empirical evidence that multimedia methods of learning and teaching effectively impact the curriculum designs of institutions.

5.2 Conclusion

On the inquiry of what are the impacts of applying multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi, it can be concluded that the application of multimedia methods of learning in the curriculum design impacts and enhances critical thinking and problem-solving skills of teachers and learners. Second, the application of multimedia methods of learning in the curriculum design influences perpetual retention of knowledge and information among teachers and learners. Third, the application of multimedia methods of learning in the curriculum design truncates rote learning and memorization of knowledge and information among students because it is hands on: And it further decreases repetition and failure in class for learners. Therefore, the application of multimedia methods of learning in the curriculum design impacts learners and teachers because multimedia methods have dual processes of acquiring information and knowledge, that is, visual and audio. Learners can hear and see at the same time. Multimedia methods of learning considers all the five senses of acquiring knowledge and information. This method conflicts with traditional methods of learning and teaching.

On the inquiry of what are the common materials for multimedia methods of learning and teaching applied in the curriculum design in the educational institutions in Malawi, it can be concluded that the common materials for multimedia methods of learning applied in the curriculum design are electronic gadgets like computers, calculators, printers, scanners, front projectors, laptops, mobile phones, tablets, television, CD player, DVD player, digital camera and entertainment equipment like PAS. Second, the common materials for multimedia methods of learning applied in the curriculum design in educational institutions is through improvisation of local materials like charts, object lessons, pictures and drawings.

On the inquiry of why multimedia methods of learning and teaching are beneficial in the curriculum design in the educational institutions in Malawi, it can be concluded that the application of multimedia methods of learning in the curriculum design are beneficial to all school stakeholders as it assists them to meet diverse needs and abilities in their learning environments and bring different elements of interest to education.

On the inquiry of what are the challenges of applying multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi, it can be concluded that the challenges of the application of multimedia methods of learning in the curriculum design are poor security for multimedia materials, lack of training of school stakeholders in multimedia, lack of reliable and cheap source of energy to operate multimedia materials, poor and dilapidated infrastructures to use and then store multimedia materials, some multimedia gadgets are not user friendly, abuse of multimedia materials and services, internet service and data are expensive; and the practical aspect of multimedia is that large groups are difficult to manage and accommodate.

On the inquiry of how to resolve the challenges of applying multimedia methods of learning and teaching in the curriculum design in the education institution in Malawi, it can be concluded that to resolve the challenges of applying multimedia methods of learning in the curriculum design include frequent repair and maintenance of materials, adequate training of staff and students, incentives to staff , the materials to be user friendly, improvise or substitute with local objects, use affordable and cheap gadgets, portable and reliable energy, use of resource personnel; and the provision of ICT and Computer labs to schools.

On the inquiry of how much are multimedia methods of learning and teaching included in the curriculum design in the educational institutions in Malawi, it can be concluded that multimedia methods of learning and teaching are evidently included in the curriculum activities of the institutions in Malawi, even though not much, but it is effectively impacting the curriculum activities. However, the issue is not how much multimedia is included in the curriculum but availability of materials and implementation process of the curriculum. Therefore, to effectively fulfill the objectives of the curriculum, teachers must be resourceful and trained since multimedia methods of learning are a continuous process.

On the inquiry of how multimedia methods of learning and teaching promoted in the curriculum design in the education institutions in Malawi, it can be concluded that multimedia methods of learning are promoted through the procurement of modern technological materials, provision of training and incentives to teachers, building of modern infrastructures with in-built multimedia devices, a supply of a reliable and affordable source of energy, provision of cheap multimedia materials to teachers and learners; and ensure an end to educational inequality to socially excluded communities that tend to be historically disadvantaged and oppressed.

5.3 Recommendations of the study

Drawing from the above logical inferences, the study made distinct recommendations to those interested in multimedia methods of learning and teaching and school curriculum design.

1. ***End educational inequality in Malawi.***

It is an undeniable fact that the interests of the child are of paramount importance in every community or society. Therefore, there is a need to end educational inequality to socially excluded communities that tend to be historically disadvantaged and oppressed in Malawi. The rural schools in Malawi tend to be neglected, forgotten, left out and sidelined by educational authorities, international donor agencies and business partners when it comes to sharing or supply of multimedia methods learning materials. The urban schools are favored, and such are advancing in multimedia above others. These attitudes create inequalities for other school children in marginalized societies. So, it is necessary to share educational multimedia resources equally and fairly to rural and urban institutions.

2. ***Exemption of all Government Taxes on Multimedia Learning Materials.***

It is undoubted that multimedia learning materials are unaffordable to average Malawians and some schools in particular, especially in the rural areas. It is therefore paramount that the government of Malawi removes all taxes on multimedia learning materials. This will make multimedia materials affordable to average students, teachers, school administrators and schools.

3. ***Training of Inservice and Pre-service Teachers.***

It is unquestionable that teachers deserve intensive training in multimedia methods of learning. This is both for preservice and in-service teachers. Teachers must be trained in how they can use multimedia methods of learning to do research, prepare lesson plans and teach. This will motivate teachers to engage themselves in the process of migrating from chalk and talk to multimedia methods of learning. The training should aim at orienting students on the use of teaching aids, current technologies and exposing students to how to use instructional media technology in class.

15. ***Construction of Modern Infrastructures***

It is the responsibility of the government to ensure that institutions of learning have strong and modern infrastructure for teaching and learning. Therefore, it is paramount that schools have infrastructures with in-built devices for multimedia learning materials. Furthermore, institutions of learning must have modern infrastructures for ICT and computer labs to promote multimedia learning.

16. ***Free Internet Services***

Internet providers like airtel Malawi and TNM need to provide free internet services to public schools as their corporate social responsibility. Free internet services will help students, teachers and school administrators in the planning, delivery, and reinforcement of student learning.

17. ***Provision of an electronic tablet to Every Child***

The Malawi government must join hands with international donor agencies, private business partners, NGOs, CSOs and FBOs to provide a computer tablet for every child in public schools. Among other lessons, the tablet must contain lessons on numeracy and reading. These tablets will help the learners to quickly retain information and knowledge as they will be able to use visual and audio.

5.4 Areas for Further Research

Indisputably, the findings of this research have revealed that multimedia methods of learning have an impact in the curriculum activities in Malawi. However, it was impracticable to address everything in a single study. This study punched some holes which need to be filled by carrying out further research. The researcher proposes further research to be undertaken in the following areas:

i. Impact of instruction media technology: The case study of Domasi Teachers Training College.

ii. Investigating the role of "unlocking talent" in primary school education: The case study of Mwenyekondo and Biwi primary schools.

iii. Investing the effect of poor infrastructures in schools to learners and teachers.

iv. Transformational Learning for Malawian Children Project: Its origins, objectives, Success and Challenges.

v. An assessment of the application of multimedia methods of learning and teaching in pre-school in the city of Lilongwe district.

5.5 Chapter Conclusion

Absolutely the impact of multimedia methods of learning and teaching in the curriculum design in the educational institutions in Malawi is a continuous process that is facilitating institutions to migrating from traditional methods of learning and teaching to instructional media technology.Educational experts are acknowledging that the chalk and talk method of teaching and learning is no longer effective in this age of technology. There are views that it is high time schools started the process of migrating from traditional methods of teaching and learning to the

application of multimedia methods of learning and teaching in the school's curriculum activities. There is empirical evidence that multimedia methods of learning and teaching effectively impact the curriculum designs of institutions because learners use more of the five senses in their learning.

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APPENDICES

Appendix A: INTERVIEW GUIDES

1.WITH THE HEAD TEACHERS, Primary Education Advisors and Heads of Institutions Department (Colleges, Secondary and Primary, TDC institutions).

Impacts of mutltimedia methods of learning in the curriculum design in the educational institutions in Malawi.

a.What do you understand could be the difference between MM methods of learning and Information Communications Technology? (MMM VS ICT)

b.What do understand could be the difference between MM methods of learning and traditional methods of learning?)MMM VS TM)

c.What are the common materials for MM methods of learning applied in the curriculum design in your school?

d.What could be the benefits of MM methods in the delivery of knowledge to learners in the educational institutions?

e.What could be described as the main challenges of applying the MM methods of learning in school in Malawi?

f.How could the challenges be resolved to achieve maximum potential in the use of MM methods?

g.How deep is MM methods of learning included in the educational curriculum in the institutions in Malawi?

h.How could MM methods of learning be promoted in the curriculum design in the education institutions in Malawi?

i.What is the role of the MM methos of learning and teaching in the curriculum design in the educational institution in Malawi?

2.WITH TEACHERS: (Focus Group Discussions with Teachers and interview with deputy teachers and teachers).

Involvement of MM methods in the curriculum design in the educational institutions.

a.What do you understand by multimedia methods of learning and teaching?

b.What other methods of learning do you use apart from multimedia methods of learning at your school.

c.What examples of common materials of multimedia methods of learning you use at your school.

d.What are the benefits of multimedia methods of learning to teachers?

e.What are the benefits of multimedia methods of learning to students.

f.What are common examples of visual multimedia methods of learning you use in your school?

g. What are common examples of audio multimedia methods of learning you use at your school?

h.hat are the challenges of using multimedia methods of learning at your school?

i.What are some of the ways to advance forward the application of methods of learning at your school?

j.In your school curriculum, does it include the use of multimedia methods of learning processes for retention of knowledge, information and experience? Give examples.

k.How do MM methods impact a learner and a teacher in the curriculum design at your institution?

3.WITH STUDENTS: (Focus Group Discussions Guides with Students)of MM methods of learning to students against chalk and talk method.

A.Do you use the following materials of multimedia methods of learning at your school? If yes, discuss its effects or impact to a learner?

1.Radio/ Radio Cassette		2.	Television
2.	Cellphone	4.	Computers
5.	Internet	6.	Whiteboard
7.	CD-ROM	8.	Audio Tapes
9.	Video Tapes	10.	DVD
11.	Pictures	12.	Text messages
13.	Slide shows	14.	Film
15.	Recorded music	16.	Games

17.	Tutorial	18.	Entertainment
19.	Video animation	20.	Social media
21.	Digital cameras	22.	Microphones
23.	Sound cards	24.	video captured cards.
25.	Graphics	26.	Photographs
27.	Sound	28.	Drawings

B. What are the advantages of applying MM methods of learning at your school?

C. What are the disadvantages of applying MM methods in learning?

D. How can you promote MM methods of learning to your peers at school?

A CONSENT LETTER FOR THE RESPONDENTS

Dear Respondent

I am carrying out a study on the topic entitled: **Impact of multimedia methods of learning in the curriculum design in the institutions in Malawi. A critical Study.** My research problem states: most learners in Malawi do not benefit from multimedia methods of learning which includes deeper understanding, improved problem-solving skills, increased positive emotions, access to a vast variety of information and world exploration. In this critical study I explore, critique, analyze, reflect, and evaluate the impact of multimedia methods of Learning in the curriculum design in educational institutions in Malawi. The findings of the research could assist stakeholders in education adopt appropriate practices and policies in education.

Your contribution, therefore, will be very significant in my study and will help me to produce reliable report for colleges, secondary and primary institutions in Malawi. I look forward to your cooperation and support.

Godfrey John JuswellKamwendo

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Your Name and signature Today's Date

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Your Name and signature Today's Date