The use of media resources enhances teaching and learning but has challenges due to individual, technological and organizational factors. On the basis of a study aimed at establishing the appropriateness of the use of media resources, the author discusses factors contributing to the use and adoption of media resources. Dr. Kei argues that lecturers in learning institutions should be trained in the use of media resources. He further opines that establishment of instructional media centres in learning institutions would greatly support teaching and learning. He observes that the use of media resources should be supported by appropriate policies and maintenance of media equipment. This book is a must-read to lecturers and students in institutions of higher learning in Kenya and beyond.

Robert Mburugu Kei

Dr. Robert M. Kei holds D.Phil. in Medical Education (Moi University) and M.Ed. in Health Promotion (University of Bristol). He worked in the Ministry of Health (health inspection and promotion) for 21 years. Dr. Kei lectures in the School of Public Health, Moi University, where he is Head, Department of Environmental Health.

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A Focus on The School of Public Health, Moi University

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DEDICATION

This book is dedicated to my children, Nkatha, Mutuma, Gacheri and Maingi, for their patience, understanding and encouragement during my studies.

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ACRONYMS AND ABBREVIATIONS

CHE	Commission for Higher Education
CIPP	Context Input Process Product
COMESA	Common Market for East and Southern Africa
IREC	Institutional Research & Ethics Committee
IT	Informational Technology
KPA	Kenya Ports Authority
MDG	Millennium Development Goals
MoEST	Ministry of Education Science and Technology
MR	Media Resources
MU	Moi University
NGO	Non-Governmental Organization
NHCS	National Health Communication Strategy
NPMR	Non-Projected Media Resources
PMR	Projected Media Resources
SOM	School of Medicine
SPH	School of Public Health

OPERATIONAL DEFINITION OF TERMS

Adequate is used to mean 'equal to' the requirement or occasion, fully sufficient, fit or suitable.

Availability carries the same meaning as available, accessible and suitable for the use of Media resources.

Butcher Papers are Newsprints used for teaching using felt pen.

Challenges means the difficulties encountered when using instructional media for teaching and learning.

Factors is used to mean the determinants of media resource use in instruction in the School of Public Health; hence, individual, technological and organizational factors.

Effectiveness means producing the intended or expected result; or adequate to accomplish a purpose.

Environment means physical or social, internal and external factors which affect or may affect the use of Media resources.

Hard Ware refers to the Input and Output devices plus System unit of the computer.

Information Communication Technology is the technology used for accessing, gathering, manipulating, interpreting and presenting or communicating information. They include all types of computer software and tools used for teaching and learning. In this study, computers and internet are part and parcel of Media resources.

Instructional media, audio visual aids and **educational media** refer to all those things which are manipulated, seen, heard, read or talked about plus the instruments or avenues which facilitate such activity.

Instruction, teaching, training are used synonymously to mean imparting knowledge or skill for the change of behaviour.

Learning is the act or process of acquiring knowledge or skill for the change of behaviour.

Media resources and **learning resources** are used synonymously to refer to all instructional materials and equipment, including projectors.

Media streaming is the process of electronically distributing digital audio and video content over a network to classrooms. This may need a network connection hub, laptops, LCD projectors, screens and speakers.

Projected instructional media means casting on a screen or other surface an image on film or slide by the use of projectors. The opposite is **Non-projected** instructional Media resources such as print material, writing board etc.

Relevance means connected with the purpose, appropriate or fitting.

Soft Ware are the programs which operate the computer system.

Status refers to the existing condition or situation of Media resources

Use refers to the usage/utilization and adoption which connotes the act of employing, application, using or putting into service instructional Media resources.

CHAPTER ONE

INTRODUCTION TO MEDIA USE IN LEARNING INSTRUCTION

1.1 Introduction

This chapter presents the background to the study, statement of the problem, objectives, research questions, justification, significance, assumptions, scope and limitations of the study, theoretical framework and conceptual model.

1.2 Background to the Study

One of the major development challenges confronting Africa today is the need to develop capacities, strategies and mechanisms necessary to take full advantage of the opportunities offered by media resources. Given the potential for media resources to induce changes, many development analysts believe, these materials can play an important role in educational development process. It is generally believed that media resources can offer real opportunities to improve the quality of instruction. It is also important to examine the challenges encountered when introducing and using media resources in instruction.

Generally, teaching and learning process is enhanced by the use of instructional media. Miller (1990, p. 55) defines media as "the Figureic, photoFigureic, electronic or the mechanical means of enhancing the transmission and reception of visual information." According to this researcher, instructional media consists of hardware and software, which are used to assist learners in acquiring knowledge, skills and attitudes. These instructional media are part and parcel of the information communication technologies.

The process of adoption and diffusion of media resources in education in Africa is in transition. There appears to be the beginnings of a marked shift from a decade of experimentation in the form of donor-supported, NGO-led, small-scale, pilot projects towards a new phase of systemic integration, informed by

national government policies and multi-stake-holder-led implementation processes. One of the primary features of this new phase is the priority that governments are giving to policy development regarding media programmes. Several African countries for instance, already have a national media resources policy in place or under development. Currently, nearly half the countries have chosen to develop media resources policy that is specifically relevant to the education sector (African Technology Development Forum, 2007). Thus the new phase of media resources for education in Africa is occurring within national and emerging regional policy frameworks that are providing the basis for partnerships and donor participation.

During the last decade, the increasing adoption of the internet by organizations and individuals has contributed to Kenya's ability to view the world as a global village, reducing the spatial-temporal separation between different regions of the world and enabling various forms of information to be freely and quickly diffused and exchanged. The diffusion of information and communication technology has, thus, witnessed an upsurge in recent years. However, the rate of adoption across countries diverges considerably regardless of the income levels.

In Kenya, the National Information and Communications Technology Policy is a product of the Economic Recovery Strategy for Wealth and Employment Creation (2003-2007) and was developed by the Ministry of Information and Communications in January 2006. The Common Market for Eastern and Southern Africa (COMESA) model was adopted by COMESA Council of Ministers in March 2003. This policy aims at encouraging sustained economic growth and poverty reduction, promote social justice and equity, mainstream gender in national development, empower youth and disadvantaged groups, stimulate investment and innovation in media resources to achieve universal access. In general, this policy addresses market structure, policy objectives and targets, implementation strategies, universal access, broadcasting,

telecommunications, radio frequency spectrum, postal services and institutional framework for Information Communication Technology (IT).

It has also been observed that one of the key catalysts in the attainment of the Millennium Development Goals (MDGs) is inclusive access to and effective use of Information and Communication Technologies (media resources) by the entire populace of every country on the globe. Universal access and universal service have emerged as key strategies that governments are using in their attempts to bridge the digital divide within their countries and with the rest of the world. In general, the term "universal access" has come to be associated with enabling every person to have access to necessary media resources within a given distance for enhanced information and educational communication. However, this is notwithstanding the fact that the adoption of media resources at any level or sector of the society varies because of their unique conditions and experiences.

In Kenya, the Ministry of Education, Science and Technology (MoEST) was one of the initial beneficiaries of the adoption and use of media resources, especially at the higher education levels of universities, polytechnics, colleges and other tertiary institutions. However, the private and public universities, in particular, have been on the forefront when it comes to adoption and use of media resources in instruction.

According to the Daily Nation (2009), Kenya has 27 universities of which seven are public and chartered. In addition, there are 20 private universities of which four have received charter and three have letters of interim authority. Most of these universities are concentrated in few of the eight Provinces of Kenya. Rift Valley Province has several of the chartered private and public universities. These are: Egerton University and Moi University which are public, while Kabarak University and Baraton University are privately owned. Other public

universities are University of Nairobi, Kenyatta University in Nairobi Province and Jomo Kenyatta University of Agriculture and Technology in Central Province. In addition, there are also Maseno University (public) is in Nyanza Province and Masinde Muliro University in Western Province. Other chartered private universities in the country include Catholic University of Eastern Africa, the United States International University and Daystar University – all situated in Nairobi Province. In addition, there are Methodist University in Meru and the African Inland Church University in Machakos, both in Eastern Province (Agina, 2000).

Demand for university education in Kenya far exceeds the available places for all students who qualify for university admission. Despite the fairly large number of established universities in the country, there are 15,000 Kenyan students studying abroad.

The public universities in Kenya can only accommodate slightly over 16,000 students annually, while the student population that meets the basic university entry requirements in the Kenya Certificate of Secondary Education exceeds 60000 (Standard Group News Paper, 2007).

Currently, higher education in Kenya has been experiencing myriads of challenges ranging from the surging numbers of students, financial constraints, changes in curriculum and teaching/instruction strategies to competition from other regional institutions. One of the options out of these challenges has been the adoption and adaptation to modern media resources in the teaching and learning process. Accordingly, various media resources have been used with varied levels of effectiveness.

Moi University is a public university which has seven campuses, namely the Main Campus in Kesses, Chepkoilel Campus, Eldoret West, Annex, Town, Kabianga and Narok campuses. In addition, there are nine Satellite campuses in

Kitale, Rongo, Kericho, Yala, Kagochi, Mombasa, Tambach, Garissa and Nairobi. The Town Campus has the School of Medicine, School of Dentistry and the School of Public Health, which is the focus of this study. This School of Public Health was established in 1998 as the Institute of Public Health to run the Master's degree in Public Health among other short courses. Later on in July 2006, during the reorganization of the University into schools, the Institute of Public Health was renamed School of Public Health. The school has three (3) departments, namely Health management, Epidemiology and Environmental Health.

The philosophy of Moi University, which is embodied in the School of Public Health mission, is to produce graduates who are well equipped with appropriate, practical and intellectual skills to meet the needs of the present and future peoples of Kenya. The competence of the graduates is mainly acquired through the use of effective teaching and learning strategies, including media resources in instruction. However, Kafu (1976) and Amri (1993) observe that media resources are often under-utilized, stored away in dark cupboards, remote stores or locked in offices, and that staff turn-over creates loss of trace for media resources. It is on the basis of this background that this study sought to examine factors that determine media resource use in instruction in the School of Public Health of Moi University, Kenya.

1.3 Statement of the Problem

Generally the use of media resources in instruction has several problems as shown by the studies of Kafu (1976), CHE (1989), Amri (1993), Kangethe (1999) and Carpenter (2003).

Many governments, including Kenya, recognize the use of media resources in schools. This is because the choice of using media resources in the classroom is no longer an option but a necessity. Many international organizations as well as

the private sectors have supported the Kenya government's initiative to provide media resource infrastructure in the seven Public Universities. However, a review of literature reveals that lecturers, especially in the Public universities in Kenya, are not integrating media resources into instruction as teaching tools, and where media resources are used, the extent of usage is not only varied but also not consistent (Ndiku, 2003; Omwenga, 2006; Wims, & Locker, 2007).

Furthermore, evidence adduced by Momanyi *et al*. (2006) show that there is a need for studies to be done on factors that determine the adoption and use of media resources in teaching and learning process. This study sought to fill that gap by examining the determinants of media resources in instruction process in the School of Public Health at Moi University. In addition, practical observation has shown that the teaching and learning process at the School of Public Health integrates the traditional mode of teaching that does not involve the use of media resources. However, efforts have been made to encourage the use of modern media resources in the teaching and learning process with dismal success. Hence, the need to investigate factors behind the low level usage of the media resources in the teaching and learning process, especially for schools that have adopted Innovative medical Education strategies for teaching the undergraduate and post graduate students.

Fletcher (2006) and Kadzera (2006) observe that lecturers who use the media technologies effectively will inevitably raise their quality of teaching experience. Furthermore, if students are to become competent users of different media technologies in their own classes, then they need to see their lecturers use the various media technologies in their instruction. Several scholars, namely Rogers (1995), Gladhart (2001), Toledo (2005) and Chandler (2005), show that meaningful integration of media technology undergoes five stages of familiarity, foundation, fusion, transformation and facilitation. Perhaps most lecturers who shun the use of media resources are in the familiarity stage. These

stages provide a template for factors that would enhance the level of use of media resources in the implementation of the curriculum. Unfortunately, in Kenya, the factors influencing the level of media resources, adoption and integration in teaching and learning process are not yet scientifically and exhaustively established. Yet, data that provide insight into level of adoption, integration and transmission of media resources in the delivery of instruction would be helpful in planning and implementing appropriate curriculum strategies in the institutions of higher education. In fact, there has not been sufficient research to monitor the progress of this work in Kenya.

The purpose of this study was to examine the extent of media resources use in instruction in the School of Public Health. This is important not just for knowledge creation but also in provision of critical information for policy formulation in the use of media resources in the process of instruction.

1.4 Purpose of the Study

This study was designed to establish the use of media resources in instruction in the School of Public Health of Moi University.

1.5 Objectives of the Study

The main objective of the study was to examine the extent of the use of media resources in instruction in the School of Public Health, of Moi University.

Specific objectives were:

a) To identify the type of media resources used in instruction in the School of Public Health
b) To investigate the factors influencing the use of media resources in the School of Public Health of Moi University
c) To describe the challenges facing the use of media resources in instructional process in the School of Public Health of Moi University

1.6 Research Questions

The main research question that guided the study was: "What is the extent of the media resources use in instruction in the School of Public Health of Moi University?" Within this context, the following specific questions were addressed:

a) What are the types of media resources used in instruction in the School of Public Health?
b) Which factors influence the use of media resources in the School of Public Health of Moi University?
c) What are the challenges facing the use of media resources in the instructional process in the School of Public Health of Moi University?

1.7 Justification for the Study

The rationale for this study was:

a) The need to determine the challenges facing the use of media resources in instruction in order to justify time, effort, cost, efficiency and effectiveness of the teaching and learning process in the School of Public Health.
b) The problem of the use of media resources for instruction in the School of Public Health should be understood clearly in order to facilitate the formulation of appropriate strategies/policies for effective teaching and learning.
c) Since instructional media resources act as substitutes for the real life situations, it is, therefore, important to learn about the various factors affecting their use in the institutions of higher learning.

1.8 Significance of the Study

This study is important for policy design and formulation on the use of media resources in the process of instruction. Currently, the Government of Kenya is pursuing the implementation of its media resources policy established in 2006. Therefore, this study was conceptualized at a time when information on factors

influencing the adoption and use of media resources in Kenya was not yet exhaustive. Hence, through the findings of the study, the researcher sought to provide crucial information for media policy formulation and as a database for future studies.

In addition, as Momanyi *et al* (2006) have shown, there is need for studies to be done on factors that determine the adoption and use of media resources in teaching and learning process. This is the gap that this study sought to fill as a vital contribution to knowledge. The study is, therefore, important both for academicians and other stakeholders interested in the issues of media resources in Kenya.

1.9 Assumptions of the Study

The present study was designed and conducted with the following assumptions:

1) The respondents were familiar with type and use of media resources in the School of Public Health.
2) The information given by the respondents would provide valid and reliable data.

1.10 Scope and Limitations of the Study

The scope of the study covered the School of Public Health in Moi University; therefore, it was limited to one school in a University that has fifteen (15) schools. However, for the purpose of this study, the School of Public Health was sufficient in providing information necessary to achieve the research objectives and to answer questions raised. Again, the findings would still be applicable to other universities, schools or institutions with similar conditions.

The study covered three objectives in order to identify the type of media resources used in instruction at the School of Public Health; examine the factors influencing the adoption and use of media resources at the School of Public

Health, and describe the challenges facing the use of media resources in the instructional process in the School of Public Health.

1.11 Theoretical Framework

There was need to anchor this research on theoretical and conceptual framework in order to enhance validity. The theoretical framework adopted was the Human Communication Theory and the Theory of Adoption of Innovations.

1.11.1 Human Communication Theory

This study was guided by theoretical framework of the Human Communication Theory as espoused by Corttlel (1999) that there are important elements in the communication chain, namely:

a) *Encoder* who may be affected by factors such as competencies, presentations, continuing education and sensitivity to special needs.
b) *Message* which may be affected by relevance, hierarchy of objectives, streaming, theory-base, culture and acceptability.
c) *Channel* which involves cost-effectiveness, simplicity, maintenance, substitution, accessibility, versatility and duration of use.
d) *Supportive environment* for teaching and learning.
e) *Decoder* which may be affected by type, size, participation and feed-back.

This means that the teaching staff should carefully consider all the factors which may influence the use of media resources in order to meet the student expectations of a stimulating, interesting and enhanced learning session.

1.11.2 The Theory of Adoption of Innovations

The study was guided by Everret's (1995) Adoption of Innovation Theory. As a proponent of the neo-diffusion school, Everret (1995) argues that diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system. An innovation is an idea, practice

or object that is perceived as new by an individual or other unit of adoption. It is important to note that an innovation has to go through a period of gradual growth before experiencing a relatively dramatic growth. The rate of adoption is the culmination of the decision-making processes of users regarding their implementation of the innovation. Everret (1995) established that the rate at which new innovations in media resources are adopted depends on:

a) The relative advantage of the new innovation over the existing alternatives.
b) The cultural compatibility/acceptability.
c) The observability of the new innovations in terms of results.
d) The testability of the innovation in regard to the ease of use.

With regard to the present study, Everret's (1995) ideas are important; guiding the researcher in understanding that media resources are new and innovative ideas that are penetrating into the education sector and the learning process has to take time to be integrated and internalized. However, the theory also hints that even with integration of media resources, the rate at which individual users are willing to adopt and use them depends on a variety of factors. Hence, the present study's concern on the individual, organizational and technological factors that influences the use of media resources by lecturers teaching in the School of Public Health of Moi University.

1.12 The Conceptual Model

The independent variables of the study are Organization, Individual and Technological Factors. The independent variables were analyzed in relation to the dependent variable, which is media resources use in instruction in the School, as illustrated in Figure 1. The model shows that there is an inter-play of relationships between the three sets of factors which resultantly influence the use of media resources in instruction in the School of Public Health. Consequently, the integration and use of media resources depend on individual, organizational and technological conditions in the School of Public Health

which in turn influences the potential of lecturers and students to use the media resources in instructional process.

According to Ajuwon (2003), some factors which influence teaching staff use of information technology are: availability of equipment (media resources); promise of improved student learning; funds to purchase materials; compatibility with subject matter, and advantages over traditional methods. The other factors are: increased student interest; ease of use; time to learn; comfort level with the technology, and university training in the technology. Therefore, Figure 1 shows that the independent variables, of organizational, individual and technological factors, have direct influence amongst themselves and to the dependent variable for the use of media resources in instructional process.

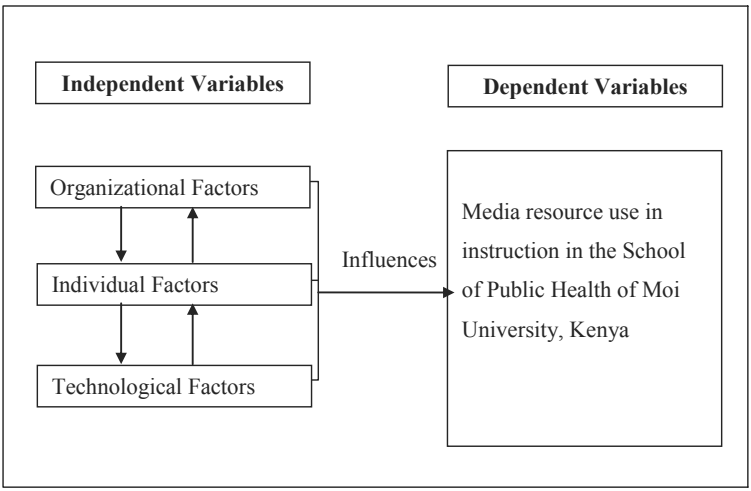

Figure 1: Conceptual Model

Source: Researcher (2010)

1.13 Summary

This chapter has provided the preliminaries to this study. The various aspects of the chapter have been adequately discussed and presented.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature relevant to the present study. The literature is presented focusing on the issues of availability, adequacy, use and the challenges of the media resources in instruction. Furthermore, theoretical and conceptual framework for the study is also discussed.

2.2 Availability of Media Resources

A variety of media resources should be available, adequate and accessible to lecturers and students in order to support teaching and learning objectives.

2.2.1 Selection of Media Resources

Curriculum objectives may provide guidance to the type of media resources needed to support teaching and learning. McGaghie (1978) recommends the establishment of study disciplines and their respective instructional media resources to serve the objectives. The curricula for the undergraduate and post-graduate programmes of this study have teaching blocks with no indication of respective instructional media resources to serve the objectives.

Gerlach (1971) recommends that a medium of instruction must be selected on the basis of its potential for attaining a stated objective. Again, the media resources should be selected for its appropriateness, availability, technical quality and level of sophistication. In addition, O'Neal (2003) emphasizes that media choices for each objective must be qualified by cost, availability and practical considerations of implementation within curriculum context.

2.2.2 Access to Media Resources

Brusca (2002) argues that potential multi-media developers need access to video and audio production equipment such as cameras, recorders, microphones,

editors and figureics production tools, like scanners, tablets and utility systems such as CD recorders plus tape back-ups. In this way, the system should be integrated in order to gain experience in its use.

Furthermore, one should consider maintenance, servicing, storage and inventory of media resources. This is supported by Amri (1983) who recommends the need for making the inventory of media resources for recording movement and change of stock in order to facilitate availability and utilization. The status of the media inventory for the two programmes will be determined by this study.

Erickson (1968) further suggests that media resources should meet the following criteria:

a) Be placed under specialized centralized leadership.
b) Publicly accessible and supported.
c) Provide a variety of media resources for teachers.
d) Conducted in a conducive environment.
e) Included in the strategic plan for the improvement of quantity and quality.

Again, Mullay (2005) observes that the design and evaluation of media resources involves the application of relevant theories, including:

a) Perception theory (learners are better able to visualize message).
b) Learning theory (information is retained).
c) Communication theory (learners willing to receive messages).
d) Systems theory (learners are problem solvers).

Generally, any educational media is only as effective as the delivery of the message it is intended to communicate.

2.2.3 Importance of Library and Information Services

The importance of library and information resources as the main media of teaching and learning in any Medical Education institution of higher learning needs not be emphasized. The primary purpose for library and information resources is to support teaching, learning and research through printed material or technological storage devices.

In addition, adequate resources and services appropriate for the degree offered should be available in order to support the intellectual, cultural and technical development of the students. These include sufficient holdings, equipment, personnel, media resources, production centres, computer centres, networks, telecommunication facilities and other repositories. The resources should be available in quality, level, depth, breadth, diversity and currency to meet the requirements of the educational programme.

The policies, regulations and procedures for systematic development and management of information resources in all formats should be documented, updated and made available to the users. In addition, co-operative arrangement with other library and information resources, including documented agreements, should be established in order to complement the institution's own adequate and accessible core collection and services. Lastly, the institution should regularly and systematically evaluate the availability, quality, adequacy and use of the library information resources and services, including those in co-operative arrangements.

2.2.4 Innovative Media Resources

Brusca (1995) observes that attention spans of students are decreasing in most learning environments and, therefore, innovative instructional materials should be stimulating, interesting and must engross the learner in the subject matter. Currently, the use of interactive multi-media and other technology-based media

satisfy some of these challenges. According to Microsoft Encarta (2002), the emergence of inexpensive computer technology and mass storage media, including optical video discs, compact discs and flash discs, has greatly improved instructional media technology. In addition, availability of innovative media resources for teaching and learning should be considered in terms of quantity, relevance, accessibility, currency, versatility, appropriateness and affordability, level of sophistication, capacity and supportive environment.

Mutema (1992) observes that computers, which are extensively used in developing countries, are increasingly used in urban areas where most of the institutions of higher learning are located. It may be useful to note that high technology is currently being used for innovative strategies such as tele-medicine and informatics. This facilitates quick transmission of medical data and information useful not only for medical diagnosis and patient management but also for the purpose of innovative medical education which ensures informed and highly competent health professionalism.

2.2.5 Financing for Media Resources

Spence and Humphrey (2005), while supporting South (2000), observe that integration of communication and information technologies is cost effective and competitive in the delivery of educational courses. However, this requires highly skilled computer and communication technologists. The scholars further argue that obtaining funding for instructional technology is a challenge facing colleges across Alberta. Rather than relying on government funding, some colleges opt for cost-recovery to fund the integration of media technology into college courses. This means that potential clients inside or outside the college can access the departments if they are able to pay for the services.

2.2.6 Maintenance of Media Resources

Erickson (1968) and Kafu (1976) observe that audio-visual media resources should be maintained in optimum condition to avoid deterioration. Teachers lose interest quickly when the materials they receive are worn out, dirty or break during utilization. They further advise that air-conditioning for media stores may be the most important of all care essentials. Therefore, maintenance of media stores in the institutions of higher learning is crucial to effective teaching and learning for all academic programmes.

2.3 Adequacy of Media Resources

Generally, adequacy of projected and non-projected media resources, including physical facilities, is central to effective teaching and learning in the institutions of higher learning.

2.3.1 Pertinent Concerns of Adequacy

Sax (1974) argues that rapid expansion of student population should go along with improved media resources and teacher effectiveness. The modern information communication technology poses a big challenge to all Medical education institutions when striving to keep abreast with information super-highway, adopting the technology and retraining the staff in order to remain relevant.

2.3.2 Adequacy of Physical Facilities

The standard template used by Florida Inventory of School Houses (2000) to determine adequacy of institutional portfolio includes the following specifications:

a) *Capacity* - that the facilities meet the needs of student population.
b) *Technology* - adequate Local Area Network, cabling, electric outlets, including video display screens.

c) *Instructional media* - availability of equipment/materials and storage spaces.
d) *Physical characteristics* - size of teaching spaces.
e) *Learning environment* - degree of comfort, lighting and noise free.
f) *Support for special programmes* - recreation space, technology and facilities for Special-needs students.
g) *Supervision and Security* - that external physical configurations should facilitate operations.
h) *Relationship of spaces* - proximity of instructional spaces to support other areas.

This template may be useful in assessing the adequacy of the teaching facilities for higher learning institutions in developing countries. Kafu (1976) indicates that Kenya Ministry of Education invests a lot of money in buildings, equipment and facilities, including media resources, for Basic education and Teacher Training Colleges. This necessitated the establishment of 45 Teacher's Advisory Centre (TAC), Educational Media Production Unit at the Kenya Institute of Education, Schools Broadcast Unit and Jomo Kenyatta Foundation, all to produce appropriate educational media resources. Perhaps, there is a need to have instructional media centres in all the Institutions of higher learning.

The Kenya Universities Act (1985) and the Commission for Higher Education (CHE) Standardization, Accreditation and Supervision Rules (1989) emphasize the need for adequate media resources, including library, equipment, classrooms, laboratories, workshops and tutorial rooms. Again, the need for adequate physical facilities to support teaching and learning was identified by several instructional media scholars. For instance, Brown (1983), Erickson (1968), Amri (1993) and WFME (2003) argue that physical facilities must be of adequate size, suitably sited, furnished and of high standard. Sometimes it is not

easy to achieve expected standards when student population increases disproportionately to the facilities available.

Generally, physical facilities are pre-requisite to effective instructional media administration and, therefore, there is need for proper siting and preparation of suitable building designs which meet the needs of the users, including instructional media specialists.

2.3.3 Adequacy of Teaching Space and Environment

Amri (1993) recommends that effective learning takes place when there are no distractions. That is, the physical environment should be quiet and at a comfortable temperature. Also, poor ventilation and lighting plus over-crowding may decrease the rate of learning. The author further states that an ideal room for a group of 20-25 students should have a floor area of 60-80m^2 and be approximately square. The rooms for projection should be easily darkened without stopping ventilation.

In addition, Brown (1983) argues that excellent media resources can become second-rate in their instructional effect when used in unsatisfactory environment with regard to acoustics, overheated rooms, vitiated air and noise. Kafu (1976) recommends that classrooms should be flexible, roomy, with adequate windows, lockable doors, adequate storage facilities and show-cases for exhibiting teaching aids. In addition, all teachers and supervisors should be given in-service seminars regularly on the selection and use of affordable teaching and learning media resources.

2.3.4 Legal Considerations on Adequacy

The Kenya Education Act, CAP: 211 (1962) section 57 on Health and Safety Rules provide the formula for calculating the number of students per class thus: Area of room in square feet minus 140 divided by 11.5; that is, (Area of room ft^2 -140) / 11.5). In addition, the law stipulates that the area of windows shall

not be less than one-tenth (1/10) of the floor area and should be more than three-quarters (¾) openable. The height of the wall to the ceiling should not be less than eight–and-a-half feet (8½ feet) high.

Furthermore, the Public Health Act CAP: 242 and the Building Code of the Laws of Kenya provides for the approval of building plans and satisfactory supervision of the construction. According to the Act, the problem of over-crowding, pollution and authorship of nuisance is an offence punishable by law. Therefore, this study will establish the extent to which these requirements are adhered to by the two academic programmes at the School of Public Health of Moi University.

2.3.5 Procurement of Adequate Media Resources

The media resources for the students should be improved through regular updating and extension of facilities to match development in educational practices. This is supported by Brown (1983), who advises that the adequacy of media resources should go along with sufficient purchase of media resources based on the criteria of content, purpose, appropriateness, cost, quality, circumstances of use, learner verification and validation. This authority further recommends the need for local production of media resources through instructor-produced and student–produced materials. This may be done through any of the three levels of productive effort, namely imitative, adaptive**,** and creative invention. This means that the teaching staff and students should be provided with appropriate tools for designing and developing instructional media resources.

2.3.6 Adaptation of Information Technology

Modern information technology may be used adaptively to support teaching and learning through interactive internet, local area network, computer-assisted instruction, computer assessment and computer managed instruction. A

correspondent for The Nation of 20th October, 2007 observes that Kenya United States International University delivers courses via a combination of e-learning and classroom interaction. This means that the students log in and download their courses on-line from the e-learning portal. The class notes are also downloaded and lecturers give assignments through internet and on-line discussion boards.

In addition, The Standard Newspaper issue of 1st August 2007 reported that the University of Nairobi has initiated an e-learning software – *wedusoft* - to enable the students access courses on-line within and outside the campus at their convenient time.

In the same way, Egerton University has developed e-platform for posting reading material to students through e-chalkboard. The students retrieve the material using passwords. It seems that Universities must adapt to new technology in order to remain relevant in the information age.

2.3.7 Judgment of the Adequacy of Media Resources

Erickson (1968) advocates for the evaluation of media resources and judgment about the adequacy of the present status of media facilities, the nature and extent of the services being rendered. The shortcomings and strengths could then be noted for building an improvement plan. This observation is supported by WFME (2003) who proposes the need to update the media resources according to the changing needs of the medical school, such as the student in-take, size, profile of the academic staff, programme and contemporary educational principles or policies. According to the University of New Mexico Instructional Media Centre (2004), the media collection may be evaluated in terms of circulation, content, currency, popularity and relevance to the student needs.

Knowles (1977) argues that evaluation should be continuously done while involving all the affected persons or stakeholders in order to validate the results. Therefore, the curriculum for medical education programmes should be regularly reviewed in order to judge the adequacy of media resources and effectiveness of the teaching methods.

2.4 Use of Media Resources

The use of media resources for instruction needs prior preparation, presentation feedback and skills in operating the various media resources.

2.4.1 Considerations for the Use of Media Resources

According to Brown *et al.* (1983), the use of instructional media involves the five steps of preparing self, environment/equipment, class, presentation and follow-up. In addition, Carpenter (2003) proposes that media requires consideration for the number of students, presentations, span of time, customization needs and hierarchy of objectives.

Mutema (1992) further suggests that while using media resources in instruction, one should consider simplicity, quality, cost, effectiveness, maintenance, storage, substitution and duration of use, among other factors.

It is generally known that to adapt materials to specific programme purposes, the instructor must know them thoroughly, including acquisition of relevant skills and their application. Media use procedures emphasize the need for instructors to provide an essential interface between materials produced and the requirements of students.

In the same way, National Health Communication Strategy (1988) recommends that one should select appropriate health education materials to meet the "7Cs" criteria of:

a) Command attention (be noticed).

b) Cater for the heart and mind (emotive).
c) Clarify message (one meaning).
d) Create trust (from trusted source).
e) Communicate benefits.
f) Call for action (what to do).
g) Consistency counts (repetitive message formats).

However, emergence of inexpensive computer technology has created interactive multi-media teaching and learning methods which stimulate interest and flexibility of learning, including making contents current.

2.4.2 Pre-testing Media Resources

NHCS (1988) argues that educational materials should be pre-tested with the audiences for which they are designed and be prepared to make substantial changes in response to audience reaction. It may be useful to use group or individual reactions to identify weak or controversial points. The need for pre- and post–test of instructional media resources is vital for effective teaching and learning. Supporting the above, Ley (1988) observes that patients should be given instructions in ways that they can understand and in line with their felt needs. This means that clinicians should seek feed-back from patients in order to improve communication with them.

Therefore, the choice of media resources should meet the needs of the students and thereby provide feed-back to improve the teaching and learning activities

2.4.3 Competencies for the Use of Media Resources

Erickson (1968) argues that the rush to technological development and high premium placed on the use of technological media resources creates the need to re-train teaching staff through in-service education programmes.

The use of instructional media resources as a focus for teacher competence was proposed by Erickson (1968) thus:

a) Teachers should base their selection of high quality media resources on valid teaching purposes and unique characteristics of specific group of learners.
b) The use of media resources should be preceded by the development of adequate learner readiness for effective participation.
c) The teacher should arrange physical facilities and conditions in a manner that safeguard media resources and provides for economy and optimum learner attention.
d) Teachers should guide the learners in taking the right actions on media utilization.
e) Lastly, the teacher should subject both the media and the application techniques to media evaluation.

The role of the teacher in preparing media resources, their application, concern for the students and evaluation calls for high commitment in order to realize effective use of media resources. Also, training opportunities enable teachers to build skills and confidence plus learning the strategies to integrate computers into their curriculum.

However, Hamn (2003) cautions that media resources should be handled with care, because they could develop drawbacks such as boring, over-use, time-consuming, false sense of mastery and may be difficult to co-ordinate. For this reason, there is need to develop contingency measures in order to provide effective use of media resources. Derived from the above, this study attempts to harness the views of the teaching staff and the students in the School of Public Health about the use of media resources and the challenges encountered.

2.4.4 *Effective Use of Media Resources*

Mayer (2002) observes that effective use of media resources enhances the teaching and learning in the Medical education programmes. Mutema (1992) argues that instructional media resources are useful in explaining and clarifying certain concepts and learning points. He further states that instructional media technology may overcome the problem of over-crowded classrooms, shortage of lecturers and enable students to enjoy the learning process. A feature writer (Kairu Kamuri), for The Standard News paper of 22nd July 2007 argues that multi-media tools sustain the learners' attention through the learning experience, often, with the desired results. Also, it allows for the manipulation of the speed of simulation, thereby ensuring that faster learners do not become uninterested and slower ones maintain control of their own rate of knowledge acquisition. Again, through the use of proper manipulation, pleasurable learning experiences can be recreated making teaching and learning process lively.

The commentator further argues that internet has motivational power through creating a sense of satisfaction, collaboration, flexibility of learning as well as making contents current.

2.4.5 Retention and Transfer Tests

Mayer (2002) shows that in 6 out of 9 tests in a classroom situation, students who received text and illustrations or narration and animation performed better on *retention tests* and posted better results on *transfer tests*, than did students who received text alone or narration alone. This means that teaching with the use of media resources enhances learning. Further, Mayer (2002) and Dale (1969) argue that the act of building connections between verbal and pictorial mental models is an important step in conceptual understanding. In this way, students who receive well constructed multi-media messages should perform better on *transfer tests* which are *designed to measure understanding* than do

students who receive text messages only. In some cases, media resources are a substitute for direct experience which is difficult to provide in certain settings.

Samoya (2006), while writing to the Network News Letter, observes that computer- assisted training in clinical skills enhances the practice of skills, self-directed learning plus mastery of the required skills during and after the laboratory sessions. In the same way, computer-aided teaching enhances learning.

2.4.6 Streaming the Media

Effective teaching and learning could be realized through *streaming the media*. This refers to the process of *electronically distributing digital content over a network*. This process uses selected audio and video media resources which are stored in a server for a specified classroom. This eliminates the need for traditional video equipment to be physically delivered to the classroom. The whole process requires network connection hub, laptop, LCD power projector, screen and speakers. Therefore, it provides quick access while the users can play the content almost immediately at their own scheduled time. The lecturers could also find streaming the media a convenient way of covering large classes in different rooms.

2.4.7 Optimum Use of Media Resources

NHCS (1988) reports that insufficient health communication skills among trainers of health professionals calls for specialized and empowering training in multi-media utilization. Therefore, suitable media resources should be identified, selected, designed, produced and applied appropriately in formal or informal situations in order to support teaching and learning sessions for health promotion.

However, Hurwitz (2002) argues that teachers could be influenced to use new instructional media resources when explained their benefits, relevance and when

allowed hands-on-experience coupled with a discussion on them. Erickson (1968) proposes that teaching staff should be motivated, recognized and given in-service education in order to be innovative in the development and use of media resources and technology. This would, therefore, help production of messages that are simple, clear, positive, specific, consistent, attention-getting, action-oriented and culturally compatible.

The main pre-requisite to effective use of media resources is the quality of media resources and appropriate use by skilled teaching staff. This may not be the case in many higher educational institutions because of the underlying problem of inadequacy of media resources and scarce technical know-how.

Brown (1983) and Kafu (1976) report that no one medium, procedure or experience is best for all learning and consistent with objectives at the same time. Each instructional objective calls for a specific media resource which meets the criteria of being selected: *planned, prepared, previewed, presented and then subjected to follow-up (4P-F) activities*. This is then evaluated to determine the extent of the usefulness of selected media resource. In addition, one should consider the environment, the type and size of the audience.

Russel (1985) recommends that lecturers should be oriented in media operations and also constantly use them in order to perfect their skill. The attitudes of personnel in media use can influence the extent to which a variety of media instruction is used because positive attitude instils confidence and willingness to use the media resources.

2.4.8 Application of Human Communication Theory

Effective use of media resources would require consideration of the elements of the Human Communication Theory as proposed by Corttlel (1999) thus:

a) *Encoder* who may be affected by factors such as competencies, presentations, continuing education and sensitivity to special needs.

b) *Message* which may be affected by relevance, hierarchy of objectives, streaming, theory-base, culture and acceptability.
c) *Channel* which involves cost-effectiveness, simplicity, maintenance, substitution, accessibility, versatility and duration of use.
d) *Supportive environment* for teaching and learning.
e) *Decoder* which may be affected by type, size, participation and feed-back.
f) *Reinforcement processes* which mitigate the problems encountered.

Therefore, Human Communication Theory is applicable to teaching and learning because the use of media resources involves the five steps of preparing self, environment/equipment, class, presentation and follow-up.

In addition, Corttlel (1999) recommends the use of the theory of Planned-behaviour in order to facilitate behavioural change for the success of health education. According to this theory, individual intentions to exhibit a given behaviour are a function of their attitude towards displaying the behaviour, their beliefs about what relevant others think they should do and their perception of the ease or difficulty of performing the behaviour.

This means that the teaching staff should be encouraged to enthusiastically use media resources in order to meet the student expectations of a stimulating, interesting and rewarding learning session.

In the same way, the Kenya National Health Communication Strategy for the Ministry of Health (NHCS, 1988) indicates that health communication uses innovative communication techniques, including selected teaching material, to reach defined audience in order to inform, educate, persuade, motivate and encourage them to adapt health promoting behaviours. Thus, health communication looks at enabling and reinforcing factors, including media resources that may encourage effective learning.

2.4.9 Instruction for Attitude Change

Amri (1993) observes that training programmes rarely assess attitudes, including attitudes towards media resources and yet they are critical to learning and delivery of service. According to Dede (1998), attitudes may be viewed as systems or constructs which vary in direction (positive or negative), degree (amount) and intensity (level of commitment). Attitudes are not observable but actions and behaviour reveal the kind of attitudes portrayed. This means that attitudes are conceived values and, therefore, positive attitudes towards media resources lead to the use of the media for the benefit of the students and, conversely, negative attitudes elude the use of the media resources.

Instruction for attitude change presents a persuasive message containing new information which relates to something the learner already experiences or wishes to experience. It involves the learner emotionally by presenting credible role-models which demonstrate a behaviour that is consistent with the desired attitude.

In addition, instruction for attitude change provides the learners with an opportunity to express or act out the target attitudes and respond to that expression with positive reinforcement. Any instruction that includes these qualities is likely to result in the desired attitude formation or change. Therefore, the use of media resources in instruction should be made easy choice and the only choice.

In addition, Dede (1998) argues that a major challenge in generalizing and scaling up an educational innovation is helping practitioners “unlearn” the beliefs, values, assumptions and cultures underlying their organization’s standard operating practices. In this way, emerging interactive media may enable virtual communities change behaviour.

Brown (1983) advises teachers to avoid their own preferences for particular media, but focus in the way of providing learning experiences which the students need. It is worthwhile to note that no one media, procedure or experience is best for developing a specified desirable attitude or level of appreciation (Erickson, 1968; Kafu, 1978).

Furthermore, the above authorities recommend that attitudes should be assessed during the course using rating scales as a feed-back to the students and staff. In this way, remedial action is instituted early enough in order to improve teaching and learning using media resources.

2.4.10 Media-Out-Come Functional Relationship

Gerlach (1971) recommends that teachers must determine whether a media outcome functional relationship exists. It is important to recognize the role of the students in appreciating media resources because the act of building connections between verbal and pictorial mental models is an important step in conceptual understanding.

Brown (1983) proposes that students should appraise media resources and media services which they have used. This may be on the aspects of communication value, technical quality and cost-effectiveness in order to judge the worth of time, energy and skill invested in them.

However, Brown (1983) further argues that student experiences, preferences, individual interests, capabilities and learning styles may influence results of the use of media. The worth of the media selected depends largely on how they are used than on the acclaimed advantages and disadvantages.

2.4.11 The Evaluation of Teaching by the Students

Sax (1974) argues that a number of Colleges and Universities encourage the staff members to use the student evaluations of their teaching to improve

instructional efficiency and effectiveness. Students typically rate instructors on both cognitive and non-cognitive factors, including the amount of student interest the instructor was able to engender and maintain. This is supported by WFME (2003) which outlines that the teacher and student feed-back must be systematically sought, analyzed and the findings used to improve teaching. Further, the stakeholders should have access to the results of evaluation and their views on relevance and development of curriculum considered.

Sax (1974) recommends that all teachers are obligated to evaluate the effectiveness of their teaching and, therefore, modify, improve upon or eliminate phases of curriculum that require such action in order to improve the training sessions. This is again supported by Bhola (1982), who observes that decisions will often demand quick pulse–taking activity to get a report card on training programmes through the strategies of monitoring, quick appraisals and network of informants, including alumni.

2.4.12 Policy Considerations for the Use of Media Resources

WFME (2003) recommends that a Medical school must have a policy which addresses the evaluation and effective use of media resources in academic programmes. In addition, the lecturers and students should be enabled to use media resources for self-learning, assessing information, managing patients and working in the health systems. It is important for the media resource to be adjusted to meet the needs of students with disabilities. Therefore, the development of media policy framework needs consideration for the type of curriculum and syllabus required, resources, training strategies, availability of staff, type of facilities, characteristics of students, source of funds and goodwill.

2.4.13 The CIPP Evaluation Model

The Context, In-put, Process, Product (CIPP) model was first developed by Daniel Stufflebeam of Ohio State University in 1967. It is close to formal

research models with its emphasis on clarification of evaluation objectives, structured observation and testing of achievements in training institutions. The model adopts the criteria of validity, reliability, objectivity, relevance, importance, scope, credibility, timeliness and efficiency of evaluative information produced.

This model was successfully used by Bhola (1982) to evaluate development training programmes. It presents four types of evaluation concerns thus:

Context Evaluation

This focuses on the entire environment and situation surrounding the programme under implementation. This includes vision, mission, goals, strategies, objectives, policies, organization structure, student characteristics/in-takes and staffing policies among other factors.

Input Evaluation

This examines critically all the resources that have been provided for the implementation of the programme. It includes curriculum, models, objectives, design, structure, duration, courses offered, teaching staff, student support services, laboratories and information technology. The others are physical facilities, finance, support staff and instructional media resources.

Process Evaluation

This looks at how the programme is being implemented; for instance, teaching methods, assessment methods, field practical, student performances, personnel management, discipline, mentoring, role modelling, evaluation methods and use of media resources in instruction

Product Evaluation

This is the evaluation of the achievement of objectives in order to make recycling decisions. It focuses on whether or not the education process has

realized the set goals and objectives. The product or outcome evaluation looks at the achievement of competencies, including technical, research, management or professional competencies. In addition, one may look at quality assurance, indicators of effectiveness, reform and change of teaching and learning using media resources.

2.5 Challenges of Media Resource Use

Generally, there are several difficulties/barriers encountered when using media resources for teaching and learning in the institutions of higher learning.

2.5.1 Advances in Computer Technology

Advances in computer technology bring new opportunities and challenges to teaching and learning in medical education institutions. Mooney *et al.* (1997) state that information technology (IT) is slowly moving away from institutions to workplaces and homes. This opens new opportunities and challenges of e-teaching and learning. In addition, the development of Virtual Universities in African countries, including Kenya, is an indication of the importance of information technology in education. Ward *et al.* (2001) observe that these challenges would, therefore, need re-designing of curricula plus media resources in order to effectively support teaching and learning modes. Corroborating with the above observations, Mutema *et al.* (1999) argue that innovative multi-media technology support teaching and learning for medical and allied health professionals. In this way, tele-medicine and informatics facilitate quick transmission of medical data and information which is useful for diagnosis and patient management.

2.5.2 Role of Information Technology in Distance Education

While discussing the role of information technology in medical education, Majeed (2003) states that distance education enables Medical Schools to cater for missed opportunities, especially for students in remote areas who need to

further studies and those who need to gain new competencies. For this purpose, information technology enables students to access curriculum, research and faculty on-line. Therefore, most medical education institutions may face the challenges of producing quality teaching materials to meet the needs of informal education. This mode of teaching and learning may create the challenges of procuring adequate modern education technologies, including computers, training of staff/students, re-designing assessments and quality assurance tools.

Ajuwon (2003) observes that availability of e-mail, websites, chat-rooms, internet cafes, multi-media presentations, internet-enabled phones and internet/video conferencing have rejuvenated teaching and learning for medical education. A study conducted by Ajuwon (2003) shows that 42.6% of Medical and nursing students could use a computer while 60% had used internet in the campus. This creates the need for greater exposure of students to information technology. He further reports that the factors which influence the lecturers to use the information technology include availability of equipment, promise of improved student learning, funds to purchase materials, compatibility with subject matter, advantages over traditional methods, increased student interest, ease of use, time to learn, university training in the technology and comfort level with the technology.

2.5.3 Integration of Information Technology in Teaching

Generally, there are several advantages of computer mediated communication in a variety of academic settings. Mutema (1999) recommends the use of computer-assisted teaching, assessments and computer-managed education for Innovative Medical education institutions. The authority further observes that integration of information technology in teaching and learning brings new opportunities and challenges for curriculum design and training.

The Sunday Standard of 12th October 2008 reported that the Commission for Higher Education was inducting lecturers on effective teaching methods through on-line digital material and urging lecturers to utilize internet in order to provide students with current information. In this way, there is need for continued professional development on information technology in order for the teaching staff to be relevant in the 21st century.

In addition, lecturers may need computers, software, modems and credit in order to access internet content. Furthermore, the Daily Nation of 25th September 2009 reported that the Kenya Government and development partners have committed seven hundred million shillings (Ksh 700 million) to improve up-take of information communication technology in education.

The project "Accelerating 21st century education" aims to deploy more than 6000 networked computers for student and teacher use, and also, to train seven thousand (7000) teachers in order to integrate technology in the class room and to train technical support staff in each school to maintain the technology.

In the same way, Wambugu (2010), while writing to the Sunday Nation, reported that the Kenya Government has launched a Ksh 32 million project to equip institutions serving persons with special needs with ICT facilities such as computers with assistive software for the visually impaired and the deaf. Digital books that are accessible on DVDs and that can be viewed through computers or TV sets increase retention of and appetite for difficult subjects by demystifying them. Also, children who are hard of hearing can now learn by watching videos while the blind can listen to audio books. The tools which facilitate these processes include talking word processors, big pointer facilities, screen magnifiers, screen readers, closed circuit television and electronic Braille.

Therefore, it seems that embracement of information communication technology in universities inevitable.

2.5.4 Barriers to the Use of Information Technology

Writing about Virtual Universities in Africa, Statlander (1998) states that poor tele-communication links, shortage of equipment, erratic power supply, inconsistent funding, cost of linkage, sustainability, shortage of trained technical staff and attitudes of educators all combine to stagnate use of information technology. The authority further observes that the barriers that affect the teaching staff include inadequate infrastructure, funding, lack of administrative support, lack of time, adherence to traditional methods, inadequate computers/software, poor projection capabilities, poor lighting system and lack of deep integration of the technology into the curriculum. The commentator further states that less than ten percent (10%) of the teaching staff utilize information technology in their teaching while others remain content with the traditional "chalk and talk" method. According to South (2000), other challenges of instructional media include core cost, storing, provision of infrastructure, creating meta-data for each object and maintaining standards of learning objects. However, the central benefit of the media resources is their potential for re-use in order to reduce production costs.

2.5.5 Creative Multiple Learning Environments

There is need to find creative ways of providing University education to more students without physical expansion, perhaps through campus distance education or on-line. However, these methods pose the constraints of selecting appropriate media resources because as technology continues to grow, more and more learning configurations arise, each with its own set of capabilities and constraints.

2.5.6 Rising Digital Media Development Costs

Generally, development costs grow parallel to the growth of digital media in order to support multiple learning environments. Digital media designers and programmers are in high demand and, therefore, expensive to hire on university wages. In the same way, multimedia production costs would rise with increasing complexity. For instance, instructional impact may be reduced by the students' preference for digital media in lieu of home-made media materials. Again, lack of sharing media resources may lower impact and increase investment costs.

2.*5.7 Inefficient Use of Media Technology*

Grayson (2004) says that e-learning is a rigid instructional method that forces educators to teach within the entirely new paradigm that may diminish educator's importance, specialized knowledge and pedagogical skills. In addition, inefficiency would occur when instructors use off-line technologies which may require incompatible media formats and players. This analogous nature of media precludes learners from accessing them outside the class due to logistical complexity of making copies and availability of appropriate players. Again, instructors may buy or produce instructional media in digital formats that are incompatible and inconsistent with each other.

It is generally known that internet could be used for plagiarism through copy and paste job by students. Also, web-enabled phones could be used to conduct searches under the desks. Therefore, cheating through internet is a threat to teaching and learning for academic programmes.

2.*5.8 Complex Media Partnership*

The challenges mentioned above may create management problems in which cumulative effects cause anti-media bias. However, the Standard Media Group issue of 18th November 2007 reported partnership of Google with Kenya

Education Network (KENET) to provide free communication tools, including e-mail, shared calendars, instant messaging, computer-to-computer voice calls, shared spreadsheets and word-processing under institutions' domain name. Therefore, this may provide opportunity for Universities to share teaching and learning materials more efficiently.

2.5.9 Integration of Students in Media Development

Students should be integrated into the process of developing media resources to keep wages down while providing invaluable practical experience for students seeking work in media-related fields. By so doing, they acquire professional skills guided by instructional media designers, artists, animators, audio/video producers and programmers.

The use of technology in education can no longer be ignored because instructors are using it and students are demanding it. Insufficient support of technologists for media resources can be a major deterrent of implementing change. Since the role of the technologists is not clearly understood, they face the challenge of remaining current with the modern information communication technology. However, with increased training of media technologists, their role and recognition would be enhanced.

2.5.10 Approaches to the Mitigation of Media Challenges

South (2000) observes that the challenges of instructional media may be mitigated by various approaches, including:

a) *Meeting present needs while anticipating future adaptation.* The new technology chosen should reach into and improve the present teaching methods without requiring extensive training for the instructors and learners.

b) *Leverage of innovation for broad audience.* This means that the media project should have instructional impact that would transcend departmental boundaries.

c) *Streamlining design, development and delivery*. This may be achieved through engaging more technical expertise to bear and implement a more disciplined development process. Again, streaming the media may greatly reduce the complexities associated with storing, caring, delivery and eliminate the need for hoarding and protecting personal or departmental stashes of media. It also opens the door for parallel development of classroom and on-line environments.

d) *Improving quality and maintenance of standards*. It may be useful to involve instructional designers in order to enhance quality assurance. In this way, digital media would be standardized across campuses to help reduce technical support requirements and increase compatibilities from one area to another. In addition, one database should be created to allow for one-stop updating and correction of media in many venues.

Supporting the above argument, Spence and Humphrey (2005) propose more mitigation measures to be taken including:

a) Colleges need to review their mandate in terms of the integration of instructional media technologies and make sure it is spread to all the staff.

b) Instructional media technology units need to have solid support in mandate, funding and strategic plan so that all departments have access to the opportunities that technology-enhanced courses offer.

c) Developing courses for on-line delivery is expensive and, therefore, policies need to be introduced to encourage collaboration among instructors and institutions in the development of materials to take advantage of the economies of scale.

d) Colleges need to prepare for increased demand in the use of technology in teaching by planning for capital expenditures on computer labs, software, multimedia as well as allocating funds for instructor support.
e) Information Technology unit needs an integrated plan for evaluations that include accountability and opportunities to learn from their activities through on-going evaluation.
f) Technology skills that an instructor requires to be successful in teaching courses using media technology need to be established and programmes developed to provide these skills.
g) Information Technology specialists require understanding and expertise in both the technology and pedagogy in order to ensure high quality materials and processes. In this way, colleges need to ensure that their Information Technology specialists are conversant in the areas of teaching and development of media resources.

2.6 Summary

This chapter covered literature relevant to the issues of availability, adequacy, use and the challenges of media resource use in instruction.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the procedure used in conducting the study. That is, the design and methodology. The areas covered are the study design, study area, study population, sampling procedures, methods of data collection, data collection procedures, data analysis and ethical considerations.

3.2 The Study Design

The study was guided by the Survey design. According to Fraenkel and Warren (1993), survey research is used when a researcher seeks opinion. Also, Neuman (2000) defines survey research as qualitative social research in which one asks many people the same questions then records and analyzes responses. Therefore, survey design was selected as a suitable method of gathering views about the use of media resources in the School of Public Health.

3.3 The Study Area

The study was carried out in the School of Public Health of Moi University which is situated in Eldoret Town near Moi Teaching and Referral Hospital. The School of Public Health was started in 1988 as an Institute of Public Health to offer Masters Degrees in Public Health. Later, in July 2006, during reorganization of the University into schools, the Institute was renamed School of Public Health. The school now offers both undergraduate and postgraduate programmes in three departments, namely Health Management, Epidemiology and Environmental Health. The undergraduate programme leading to BSc Environmental Health was started in 1995 with three lecturers and 14 students. Currently, there are eight lecturers and 143 undergraduates. Teaching, for the undergraduates, is conducted through Innovative Medical Education methods, which include overview lectures, problem analysis, self-directed learning

tutorials, field visits, practical, electives, projects and attachments. The media resources for teaching and learning are shared and coordinated from the skills laboratory and Learning Resource Centre of the School of Medicine. However, some media resources are managed from the departments. In addition, the School of Public Health has four lecture rooms and five tutorial rooms which are inadequate for both undergraduates and post-graduate students. The School was selected because it was among the first Faculties to adopt media resources in instructional process for the Innovative Medical Education Strategy. However, the media resources, which were thought to be more valuable than the traditional teaching and learning methods, seem to have been abandoned in preference to the former. Notwithstanding this pitfall, Moi University has continued allocating funds for media resources development without evaluating their effectiveness.

3.4 The Study Population

The target population of the study was students and lecturers at the School of Public Health. The entire lecturer population, both the full-time and part-time lecturers, and of postgraduate and undergraduate students was used. Currently, the School of Public Health has a total of 24 lecturers – 14 of them teaching undergraduate programmes, while the remaining 10 teach the postgraduate programmes. There were 143 undergraduate students and 70 postgraduate students by the time the study was being conducted.

Lecturers were selected because they are directly involved in the teaching of the various academic programmes in their respective departments. They are thus, the actual selectors and users of the media resources in the school. Students, on the other hand, are the beneficiaries of the media resource initiatives. They are the ones who consume the use of media resources in the teaching and learning process. Consequently, both the lecturers and students were well placed as the most knowledgeable on issues concerning the study. The researcher used

observation checklists and interview schedules to engage the various Heads of Departments, the Dean, the Librarians, and Technicians for in-depth data collection as key informants, but not as part of the target population because they are concerned with policy matters, procurement and maintenance of media resources.

3.5 The Selection of Study Subjects

The researcher, first and foremost, chose the population of the study and the study area conveniently. The key informants were thus selected in order to participate in the in-depth interviews during data collection. Census was then used to select the respondents that would participate in the study. According to Fraenkel and Warren (1993), census is the total enumeration of the study population. The method is used when the target population is small. In this case, we had 24 lecturers and 213 students, which is a manageable number for a doctoral research study. Total enumeration was advantageous because it increased the level of accuracy for generalization since all the elements of the population are represented by the data, not a sample of the target population. Therefore, a total of 237 respondents, all the lecturers and students, were used.

3.6 Data Collection Tools

The tools used were structured questionnaires, interview schedules and observation checklists. The following were the data collection methods used in this study:

3.6.1 The Survey Method

This research used survey method of data collection that relies on the questionnaire as the main tool of data collection. The information from the respondents and their responses were used to make a generalization about the experience at the School of Public Health on the use of media resources in instructional process.

Neuman (2000) defines survey research as quantitative social research in which one systematically asks many people the same questions then records and analyzes the responses. He argues that surveys are appropriate for research questions about self-reported beliefs or behaviours. They are strongest when the answers respondents give measure variables. The questionnaire that was used in this study was structured and had both open and closed-ended question items. The questionnaire produced both qualitative and quantitative data. The main advantage of the instrument was that it allowed the researcher to control and focus responses to the research objectives. In this way, reliability and validity of the data collected was enhanced.

The concept of validity refers to the degree to which results obtained from the analysis of the data actually represent the phenomena under study. Kothari (1990) describes validity as the degree to which an instrument measures what it is supposed to measure. On the other hand, the concept of reliability is described by Mugenda and Mugenda (1999) as a measure of the degree to which an instrument yields consistent data after repeated results.

To determine and improve the validity and reliability of the questionnaire, a pilot study was carried out with 30 copies or sets of questionnaire which were issued to students and lecturers (similar to the study population) at the School of Medicine, Moi University. Validation of instruments was also sought from the supervisors and lecturers in the School of Medicine. All these allowed for the preparation of the final questionnaire by correcting items with ambiguities in the questionnaire.

3.6.2 Observation

Observation involves a situation where the researcher's presence in a social context is maintained for scientific investigation/purpose. During visits to the various departments, the researcher observed the status and nature of various

media resources available, including physical facilities and the actual teaching, to see if the lecturers were using the Media resources. Detailed observation was important because it was used to verify some of the information collected using interview and questionnaire tools. In this way, observation produced qualitative data.

3.6.3 Key Informant Interviews

Key informant interview technique took the form of a face-to-face inquiry between the researcher and the informants. The key informants for this study were two Librarians, three Heads of departments, the Dean and three Technicians. These were selected on the basis of their knowledge of issues concerning the study. The method was advantageous in the sense that the key informants expounded and clarified on most of the study issues.

3.7 Data Collection Procedures

The researcher sought permission to carry out the research from the Ministry of Higher Education and the Institutional Research and Ethics committee (IREC) of Moi Teaching and Referral Hospital, Town Campus. With the official permit, the researcher then went to the Dean and Heads of Department in the School of Public Health to seek further permission to be allowed to, conduct the study in the target population. The researcher then administered the questionnaire to the lecturers and students on the appointed dates. For the lecturers, he used the drop and pick method- where, a questionnaire was dropped in the lecturer's office and left for him/her to fill. The researcher would then come on at a later date to collect the filled questionnaire. The same procedure was used for most of the post-graduate students although for others, the researcher would wait for them to fill the instrument in class and collect it immediately. Data and information was also collected through observation and interviewing the key informants.

3.8 Data Analysis Procedure

The data collected was then coded accordingly to facilitate analysis. The coded data was then transferred into the computer Excel spreadsheet and analysis was carried out using the Statistical Package for Social Sciences (SPSS-version12). Using the SPSS package, data sets were generated to facilitate discussion and interpretation.

The summaries of descriptive statistics in the form of figures and tables on responses were obtained using the means, percentages and frequencies and standard deviation of various parameters.

3.9 Ethical Considerations

Permission to do research was sought from the Ministry of Higher Education, Institutional Research and Ethics Committee (IREC) and the Deans and Heads of Departments from the two schools of Public Health and Medicine. All the respondents were asked to give informed consent. There were no payments or rewards to the respondents. However, the School of Public Health may later use the results to improve the teaching/learning methods and decision-making on policy matters pertaining to the use of media resources. Confidentiality, privacy and other ethical issues, including sharing results with the stakeholders were respected throughout the study.

3.10 Summary

The Chapter has discussed and presented the procedure used in conducting the study and the various aspects have been clearly described.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents and discusses the results of the study which are based on the collected, analyzed and interpreted data. The results are presented according to the themes of the study. The themes are: type of media resources, factors influencing the use of media resources and challenges to the use of media resources. Data is presented in tables and figures in order to provide clarity.

4.1.1 Background Information of the Respondents

Before embarking on the main objectives of the study, it was important to understand the background information of the respondents. This was ascertained by looking at the following variables: sex of the respondents, age, designation of the respondents and teaching experience of the lecturers.

Background information was sought to lay a foundation on which interpretation of the study is based. As a result, it was established that there were more male than female members of staff and students in the School of Public Health of Moi University. However, the majority of the respondents were students. The summary of this information is contained in Table 1. From this table, it is clear that the majority, 147(62%), of the respondents were male while 90(38%), were female. This was so because courses related to Public Health are believed to be tough and many females tend to shy away from them. It was also established that the majority, 200(84.4%), of the respondents from the School of Public Health were in the age bracket of 19-24 years. This was because majority of the respondents were undergraduate students who fell in this age group with, 31(15.6%), being post-graduate students. In the case of designation, it was established that majority, 213(89.9%), of the respondents were students while,

24(10.1%) were lecturers. Students constituted both undergraduates and post-graduates while lecturers were both full-time and part-time.

Lecturers were selected because they are the ones who are directly involved in the actual teaching of the various academic programmes in the three departments of the School of Public Health. They are thus, the actual users of the media resources at the school. Students on the other hand, are the beneficiaries of the media resource initiatives. Consequently, both the lecturers and students were thought to provide the required information on the media use as sought by this study. It was further established that a slightly large proportion, 10(41.7%), of the lecturers had teaching experience of more than nine years and, therefore, were thought better placed to adopt media resources in instruction in the School of Public Health. Therefore, the study targeted them as potential providers of relevant and reliable information on this aspect of instructional process. The results are presented in three themes in-order to adequately cover the study objectives. Table 1 presents the background information of the respondents.

4.2 Type of Media Resources

The first objective of the study was to identify the type of media resources available in the School of Public Health. The teaching and learning process is enhanced by the use of instructional media resources which are used to assist learners in acquiring knowledge, skills and attitudes. Therefore, Miller (1990) argues that instructional media are part and parcel of the information communication technologies.

Table 1: Background Information of the Respondents

VARIABLE	FREQUENCY	PERCENTAGES
Gender		
Male	147	62.0
Female	90	38.0
Total	**237**	**100.0**
Age in Years		
19-24	200	84.4
25-30	13	5.5
31-35	5	2.1
36-39	8	3.4
40-45	4	1.7
46-50	3	1.3
Above 50 Years	4	1.7
Total	**237**	**100.0**
Designation		
Student	213	89.9
Lecturer	24	10.1
Total	**237**	**100.0**
Teaching Experience for lecturers		
4-6 Years	6	25.0
7-9 Years	8	33.3
Above 9 Years	10	41.7
Total	**24**	**100**

Therefore, availability of media resources in any learning institution is a great advantage to both students and lecturers in the current society. When respondents were asked to state whether Media resources were available in the School of Public Health, it was established that projected and non-projected media resources were available in varying degrees as described in the foregoing.

4.2.1 Types of Projected Media Resources Available

Projected media resources are learning equipment used by casting on a screen or other surface an image on film or slide by the use of projectors. As a result, the study sought to establish types of projected media resources available in the School of Public Health. The summary of the findings are presented in Table 2. From Table 2, it is observed that over-head projector with a frequency of (24.4%), LCD-projector (24.4%) and their accessories were much more

available than other projected media resources. This was followed by slide projector (16.5%) and video projector (10.3%).

Currently, over-head projector, LCD-projector and internet computers are common types of media resources used in teaching and learning in modern technology. Therefore, lecturers and students should use them in order to improve teaching and learning.

4.2.2 Types of Non-Projected Media Resources Available

Table 3 shows the types of non- projected media resources available in the School of Public Health for use by lecturers and students. From this table, chalkboard with a frequency of (18.6%) and printed visuals (18.6%) were the common types of non- projected media resources available for use.

Table 2: Types of Projected Media Resources Available in the School

Projected Media Resources	*Responses*	*Percentage*
Overhead Projector (OHP)	237	24.4
LCD- Projector	237	24.4
Internet Computers	237	24.4
Slide Projectors	160	16.5
Video Projectors	100	10.3
Total responses	**971**	**100.0**

NB: *971*=cumulative responses

Table 3: Types of Non-Projected Media Resources Available for Use in the School

Non Projected Media Resources	*Responses*	*Percentage*
Real Objects	100	7.8
Models	200	15.7
Printed Text (Books/Journals)	180	14.2
Chalk Board	237	18.6
White Board	200	15.7
Audio Tapes	40	3.1
Butcher papers	80	6.3
Printed Visuals /Charts	237	18.6
Total responses	**1274**	**100.0**

NB: *1274*=cumulative responses

4.2.3 The Level of Availability of Projected Media Resources

The respondents were asked to rank the level of availability of projected media resources. These were followed by models (15.7%) and white boards (15.7%), print texts (14.2%), real objects (7.8%), news prints (6.3%) and finally, audio tapes (3.1%). The chalkboards and print visuals were readily available because they are cheap and easy to maintain using modified Likert scale.

From Table 4 and Figure 2, over-head projectors were ranked first with a mean value of 3.18; LCD projectors were ranked second (2.65); slide projectors were third (2.39); internet computers were fourth (2.24) while video projectors were ranked fifth (1.91). As a result, the extent of availability of over-head projectors was high as compared to other projected media resources found in the School of Public Health. Overhead projector was commonly available since it is easy to use than LCD and slide projectors. This gadget meets the criteria for selection proposed by Gerlach (1971); that a medium of instruction should be selected for appropriateness, availability, technical quality and level of sophistication. Video projector, on the other hand, is cumbersome and, in cases where the screen is small, then it is not suitable for teaching a large class. Internet computers

require that everybody has a computer so that lecture notes are relayed through e-mails and other tutorials. This is an expensive and highly technical process of teaching and learning.

Table 4: The Level of Availability of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Overhead Projector	3.18	0.68	1
LCD Projector	2.65	0.74	2
Slides Projector	2.39	1.18	3
Internet Computers	2.24	0.59	4
Video Projector Equipment	1.91	1.18	5

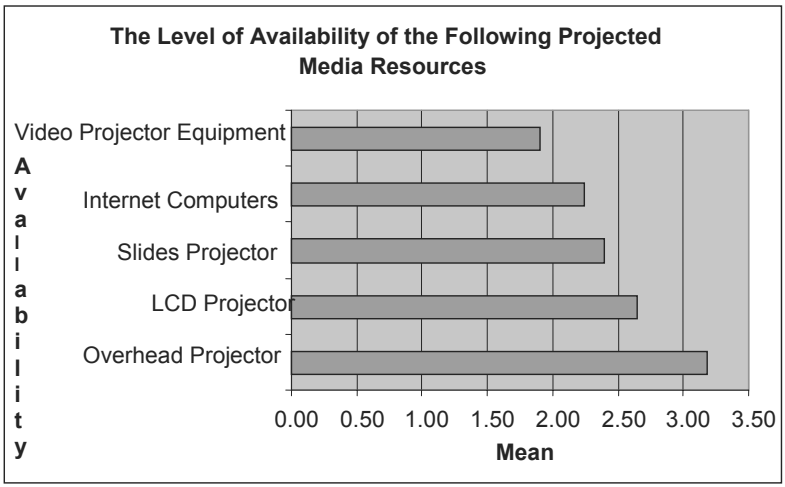

Figure 2: The Level of Availability of Projected Media Resources

4.2.4 The level of Availability of Non- Projected Media Resources

This question was analyzed using the mean to identify the rank of each attribute. As a result, it was established that chalk boards were available as they were given the first rank by the respondents. This is as shown in Table 5 and Figure 3. From Table 5 and Figure 3, chalk board was ranked first with a mean value of 3.76; print visuals was second (3.10); white board was ranked third (2.90);

model was fourth (2.29); print texts was ranked fifth (2.27); real objects were ranked sixth (1.68); news print (1.44) and finally, audio tape (1.17).

As a result, it was established that chalk boards was more available than other types of non-projected media in the School of Public Health. This was so because chalk board plays a vital role as far as learning and teaching are concerned and therefore they are planned and fixed in every classroom and laboratory immediately after or during construction. In addition, chalk boards are readily available because they are cheap and easy to maintain compared to real objects, models and printed texts.

This agrees with O'Neal (2003), that media choices for each objective must be qualified by cost, availability and practical consideration for implementation. Supporting this finding, Amri (1983) and Erickson (1968) suggest that there should be an inventory of media resources for determining their circulation and change of stock in order to facilitate availability, accessibility and usage.

Respondents also agreed that print visuals, like charts were available. While models, print texts and real objects were fairly available. Perhaps audio tapes were not available because they require competence to use them.

Table 5: The Level of Availability of Non-Projected Media Resources

Non -Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Chalk board	3.76	0.59	1
Printed Visuals (Charts)	3.10	0.76	2
White board	2.90	1.04	3
Models	2.29	0.90	4
Printed Text (Books/Journals)	2.27	1.01	5
Real Objects	1.68	0.95	6
Butcher Papers	1.44	0.71	7
Audio Tapes	1.17	0.38	8

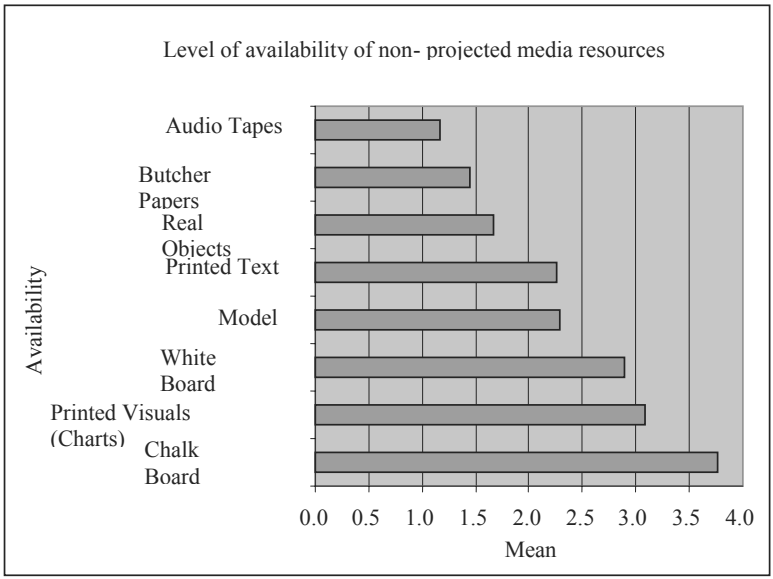

Figure 3: The Degree of Availability of Non Projected Media Resources

4.2.5 Adequacy of Projected Media Resources

The question as to whether or not media resources used in instruction are adequate is very crucial because adequacy of media resources determines its use during learning. Following this premise, the study sought to find out whether projected media resources were adequate. This item was analyzed by using the mean to identify the rank of each attribute. As a result, it was established that almost all projected media resources were not adequate, as shown in Table 6 and Figure 4. The concern for adequacy was argued by Sax (1974), that increase in student population should be matched with improved media resources and teacher effectiveness. Also Knowles (1977) and Erickson (1968) advocated for re-evaluation of media resources and judgment about adequacy. A supporting observation was also made by the University of New Mexico Instructional Media Centre (2004), which called for evaluation of media resources in terms of circulation, content, currency, popularity and relevance to the student needs.

From Table 6 and Figure 4, LCD projector was ranked first with a mean value of 1.32, Video projector was second (1.44), slides projector was third (1.72), internet computers were fourth (2.08) while over-head projector was ranked fifth (2.12). From this finding, it was clear that all projected media resources in the School of Public Health were not adequate as reflected by the mean values.

However, based on the rank, it was established that LCD projectors were scarcer than other forms of projected media resources. Projected media resources were found not to be adequate because of various reasons. First, they are costly to buy as well as to maintain. Secondly, these items require specialized competencies in the users. Therefore, their effective use required qualified personnel.

Table 6: Adequacy of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
LCD Projector	1.32	0.85	1
Video Projector	1.44	1.01	2
Slides Projector	1.72	1.21	3
Internet Computers	2.08	1.23	4
Overhead Projector	2.12	0.67	5

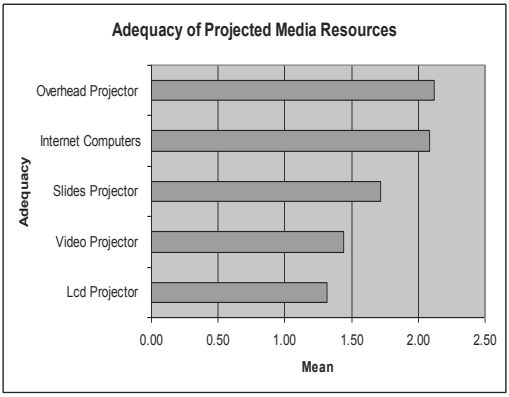

Figure 4: Adequacy of Projected Media Resources in the School

A close scrutiny of the above findings indicates that all projected media resources available in the School of Public Health were not adequate. Perhaps this means that lecturers resorted to traditional methods of teaching using chalkboards.

4.2.6 Adequacy of Non-Projected Media Resources

When respondents were asked to rate the adequacy of non-projected media resources available at the School of Public Health, the findings showed that chalk boards and print visuals were adequate. This question was analyzed by using the mean values to identify the rank for each attribute. This is shown in Table 7 and Figure 5.

When information on whether non-projected media resources were adequate, the analysis showed that chalk board was ranked the first with a mean value of 4.16. Print visuals was ranked second (3.91), white board was ranked third (3.24), print texts were ranked fourth (3.22), models were fifth (3.11), real objects were ranked sixth (1.93), butcher papers was seventh (1.84) while audio tapes was ranked eighth with a mean of 1.63. As a result, among the non-projected media resources available in the School of Public Health, respondents indicated that chalk boards were adequate.

Kafu (1976) observed that chalk boards are cheap to construct, easy to maintain and require little knowledge and skills to use. Print visuals are also adequate since they are affordable and easy to use. Some of the respondents said that text-books in the library were not adequate compared to the number of students while others said that some of the books were out-dated and therefore, irrelevant. However, respondents agreed that real objects, newsprint and audio tapes were not adequate.

Table 7: Adequacy of Non-Projected Media Resources in School

Non-=Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Chalk boards	4.16	0.89	1
Printed Visuals	3.91	1.16	2
White boards	3.24	1.49	3
Printed Texts	3.22	1.53	4
Models	3.11	1.31	5
Real Objects	1.93	1.24	6
Butcher Papers	1.84	1.35	7
Audio Tapes	1.63	1.26	8

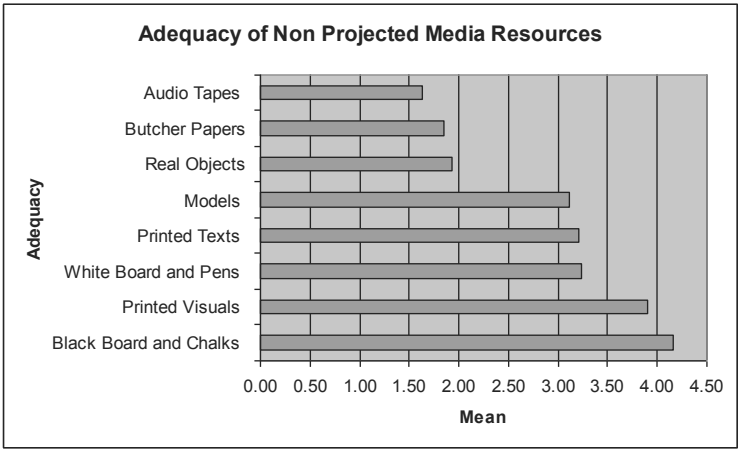

Figure 5: Adequacy of Non-Projected Media

Examination of the above finding reveal that among the non-projected media resources available at the School of Public Health, chalk boards and printed visuals were adequate. Moreover, it was established that real objects, newsprint and audio tapes were inadequate. However, Carpenter (2003) states that the selection of media resources require consideration of the number of students, presentations, span of time, customization needs and hierarchy of objectives.

4.2.7 Frequency of the Use of Projected Media Resources

Frequency of use of projected media resources is determined by many factors, including their availability and adequacy. The present study sought to find out how often, projected Media resources were used in the School of Public Health. The analysis of the relevant item using modified Likert scale reveals that LCD projector was ranked first with a mean value of 3.06; overhead projector was ranked second (2.84); slides projector was third (2.10); video projector was fourth (2.08) while internet computers were ranked fifth with a mean of 2.00, as shown in Table 8 and Figure 6.

As a result, it was established that although LCD projectors and overhead projectors were ranked first and second respectively, they were not often used due to their complex nature which required experts in fixing and setting up equipment. Moreover, LCD and overhead projectors demand that the user (lecturer) should have skills and experience of using them before s/he can be able to use them in teaching. This limits its frequency of use.

However, respondents said that slide projector, video projector and internet computers were rarely used. This was so because slides and video projectors are being replaced by more sophisticated projected media resource like overhead and LCD projectors. Use of Internet computers in instruction requires that every student has a computer that is connected to the mother server for internet services. This project is very expensive in terms of installation and individual student needs.

The examination of the above finding shows that LCD and overhead projectors are sometimes used while slides projector, video projector and internet computers are rarely used. However, Hurwitz (2002) argues that teachers could be influenced to use new instructional media resources if clearly explained their benefits, relevance and practicability.

In summary, the above analysis shows that projected media resources were not frequently used. This may have been brought about by lack of expertise and the high cost involved in developing and administering them in instruction.

4.2.8 Relevance of Projected Media to the Objectives of the School

The School of Public Health has curriculum objectives which guide the use of media resources. The study sought to establish whether or not the use of projected media resources is relevant to the set objectives. Using the Likert scale to gather the data on the relevant item, the findings showed that overhead projector was ranked high by the respondents to other forms of projected Media resources. Table 9 and Figure 7 show the summary of the findings.

Table 8: Frequency of Use of Projected Media Resources

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
LCD Projector	3.06	1.00	1
Overhead Projector	2.84	1.10	2
Slides Projector	2.10	1.08	3
Video Projector Equipment	2.08	1.44	4
Internet Computers	2.00	0.64	5

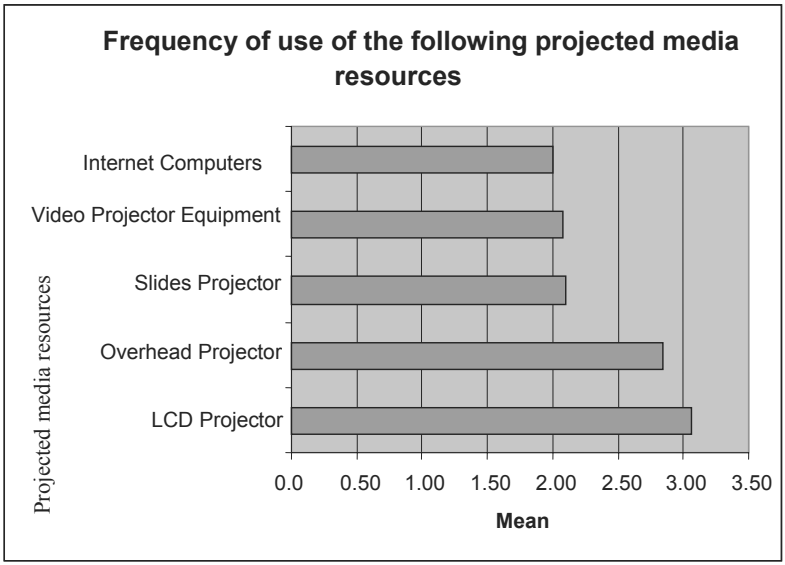

Figure 6: Frequency of use of projected media resources in the School

On whether or not projected Media resources were relevant to the objectives, overhead projector was ranked first with a mean value of 4.37; LCD projector was second (4.27); internet computers were third (3.78); slides projectors were fourth (3.44) while video projectors were ranked fifth (1.97).

As a result, among the projected media resources available at the School of Public Health, it was established that overhead projector, LCD projector and internet computers were relevant to the objectives. This was because the School of Public Health is embracing new changes in the field of Information Communication Technology through innovative medical education strategy while discarding the traditional forms of teaching.

This was highlighted by the Daily Nation of 20th October, 2007 and the Standard of 1st August, 2007 which reported that University of Nairobi, Egerton and United States International University are forging ahead with e-learning. It seems that Universities must adapt to new technology in order to remain

relevant in the current information age. Overhead projectors, LCD projectors and internet computers are the most sophisticated projected media resources which, when properly used in teaching, yield effective and quality results. Video projector on the other hand, was least ranked because the school rarely use it due to its outdated application and cumbersomeness where one has to physically carry it to the classroom before other operations are made.

A close scrutiny of the above findings indicates that overhead projector; LCD projector and internet computers are relevant to the objectives.

Table 9: Relevance of Projected Media to the Objectives of the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Overhead Projector	4.37	0.82	1
LCD Projector	4.27	0.85	2
Internet Computers	3.78	0.82	3
Slides Projector	3.44	1.75	4
Video Projector	1.97	1.35	5

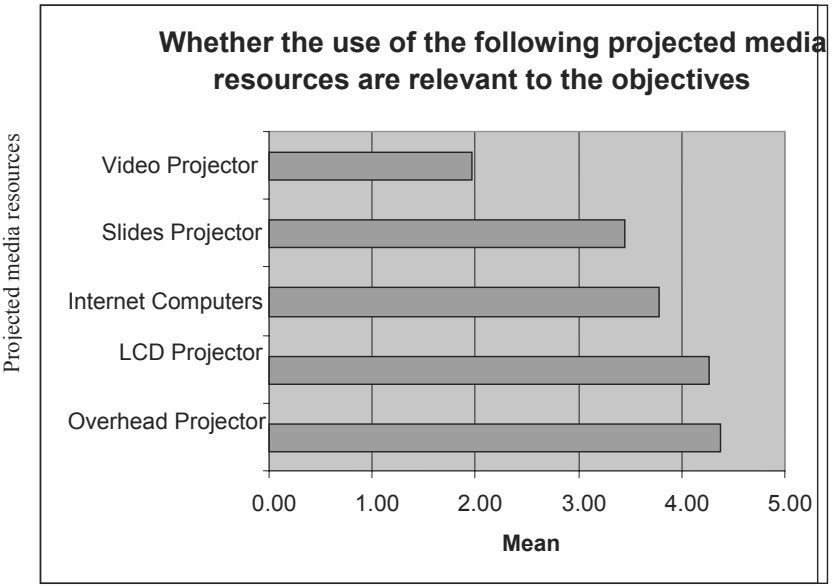

Figure 7: Relevance of Projected Media to the Objectives of the School

4.2.9 Simplicity of Projected Media Resources

For projected media resources to be frequently used in any learning institutions, they should be simple to operate. Sometimes, simplicity can be achieved when the user holds certain required skills in operation of the Media resources. Brown (1983) argues that the use of instructional media involves the five steps of preparing self, environment/equipment, class, presentation and follow-up. Following this premise, the study sought to establish whether or not projected media resources were simple to use. Thus, this question was analyzed using the mean values to identify the rank of each attribute. As a result, it was established that video projector was simple to use than other forms of projected media. This is summarized in Table 10 and Figure 8.

Concerning the simplicity of projected media resources, video projector was ranked first with a mean value of 3.43; overhead projector was second (3.11);

internet computers was third (3.02); LCD projector was fourth (2.32) while slides projector was ranked fifth with a mean value of 1.93.

From the above findings, it is clear that respondents ranked video projectors as the simplest forms of projected media resources. However, they were not certain about its simplicity, as represented by a mean of 3.43. This was similar to overhead projector and internet computers. On the other hand, it was established that LCD and slides projectors were the hardest forms of projected media resources to use. Majority of the projected media resources are complex to operate (for instance, LCD, overhead and slides projector) and as stated earlier, they require that the user, who is a lecturer, be trained in order to acquire the relevant skills and knowledge for him/her to use them effectively. However, the School of Public Health should hire or employ support staff to help the lecturers in the operation of the projected media resources.

Supporting the above argument, Russel (1985) recommends that lecturers should be oriented in media operations and also constantly use them in order to perfect their skills.

A close scrutiny of the above findings indicates that respondents were not categorical on the simplicity of use of the video projector, overhead projector and internet computers. They, however, indicated that LCD and slides projectors were not simple to use.

In summary, it was established that projected media resources are complex and sophisticated electronics which call for the relevant skills, experience and exposure for them to be used with ease.

4.2.10 Accessibility of Projected Media Resources

For media resources to be accessible, it must be available, adequate and simple to use. The study, therefore, sought to find out whether or not media resources

were accessible to both lecturers and students. This question was analyzed using the mean values to identify the rank for each attribute. As a result, it was established that internet computer was easily accessible than other forms of projected media resources. Table 11 and Figure 9 summarize the findings. According to Table 11, internet computer was ranked first with a mean value of 3.22; overhead projector was second (2.70); slides projector was ranked third (2.52); video projector was fourth (2.47) while LCD projectors was ranked fifth with a mean value of 2.34.

Table 10: Simplicity of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Video Projector	3.43	0.82	1
Overhead Projector	3.11	1.37	2
Internet Computer	3.02	0.61	3
LCD Projector	2.32	1.29	4
Slides Projector	1.93	1.16	5

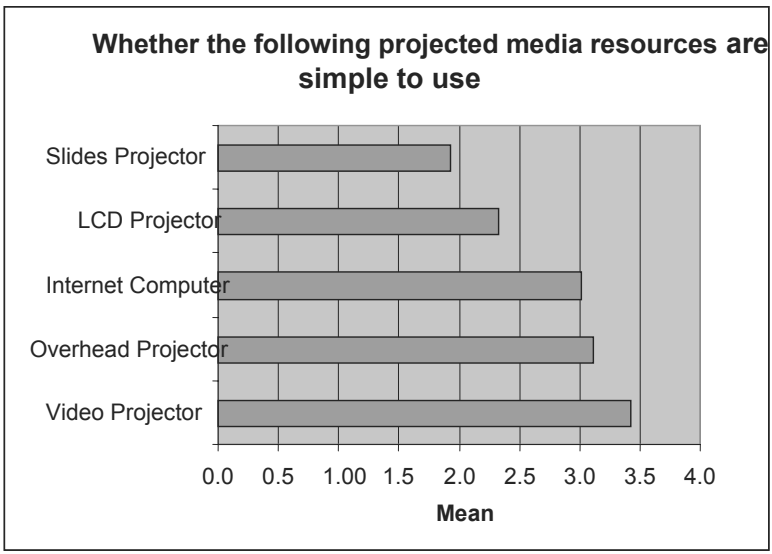

Figure 8: Simplicity of Projected Media Resources

From Table 11 and Figure 9, it was established that projected media resources were not easily accessible. However, some respondents said that they accessed the internet computers in the library although it was not adequate to accommodate all of them. On the same note, respondents were not sure whether overhead, slides and video projectors were accessible or not. This is because the resources were not enough for students to access and use them since they are expensive, require technological know-how on their use and should be handled with care. In the same way, Mutema (1992) suggests that while using media resources in instruction, one should consider simplicity, quality, cost, effectiveness, maintenance, storage, substitution and duration of use amongst others.

A close scrutiny of the above findings indicates that respondents were not categorical about internet computers, overhead projectors, slides projector and video projectors being accessible. However, they said that LCD projector was not accessible.

In summary, it was established that majority of the projected media resources were not accessible due to their costly nature; thus, they were limited, they require certain skills, for instance, one has to be computer literate before using an internet, and finally, it was established that they require tender care and maintenance due to their fragility.

4.2.11 Acceptability of Projected Media Resources

For media resources to be adopted and integrated in any learning institution, they must first be accepted in that institution. Following this premise, the study sought to establish whether the projected media resources are acceptable at the School of Public Health or not.

Likert scale was used to analyze the options in this item. Thus, this question was analyzed by using the mean values to identify the rank for each attribute. As a

result, internet computers were ranked first by respondents. This is shown in Table 12 and Figure 10.

From the above findings, internet computer was ranked first with a mean value of 3.55; LCD projector was second (3.07); overhead projector was third (2.89); slides projector was fourth (2.69) and video projector was ranked fifth with a mean value of 2.05. From Table 12 and Figure 10, it is evident that among the projected Media resources, respondents agreed that internet computers are highly acceptable. This is because the internet is a global network that is used to transfer materials and information from different places of the world and is, therefore, suitable for both students and lecturers who are still searching for knowledge.

The internet is a good source of current and updated information which is relevant to both students and lecturers. However, respondents were not sure whether or not LCD projectors, overhead projector and slides projector were acceptable. This is due to the fact that majority of the students and lecturers are still naïve on how to use them. They lack of experience, skills and exposure drives away the level of confidence of using projected media resources.

Table 11: Accessibility of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Internet Computer	3.22	0.71	1
Overhead Projector	2.70	1.20	2
Slides Projector	2.52	1.06	3
Video Projector	2.47	1.09	4
LCD Projector	2.34	1.16	5

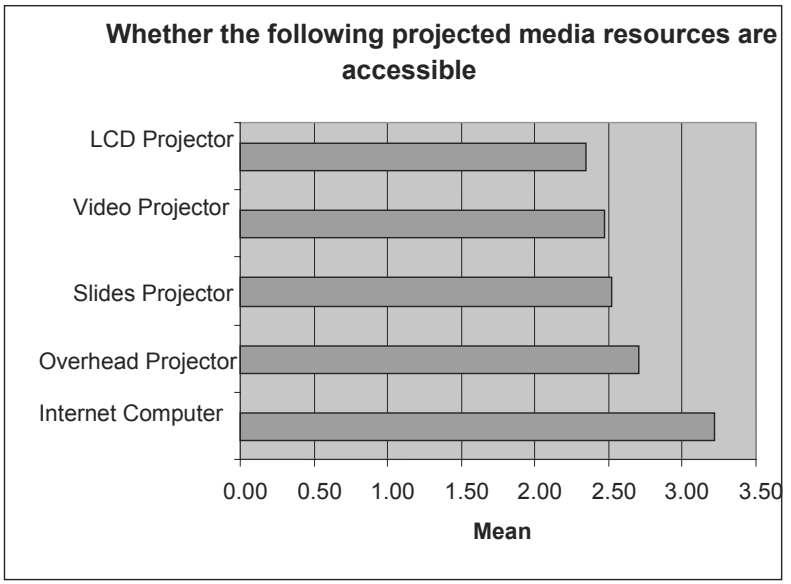

Figure 9: Accessibility of Projected Media Resources in the School

Brown (1983) advices teachers to avoid their own preferences for particular media and to focus on the way of providing learning experiences which the students need. Dede (1998) also states that a major challenge in generalizing educational innovation is helping lecturers "unlearn" the beliefs, values, assumptions and culture underlying their organizations' standard operating practices.

A close scrutiny of the above findings indicates that internet computers are acceptable in the School of Public Health.

4.2.12 Effectiveness of Projected Media Resources

To establish the effectiveness of the projected media resources available in the School of Public Health, the respondents were asked to rank the options on the Likert scale. Thus, this question was analyzed by using the mean values to identify the rank for each attribute. It was found that LCD projector was ranked

first. This is shown in Table 13 and Figure 11. From Table 13, LCD projector was ranked first (3.00); overhead projector was second (2.92); slides projector was ranked third (2.46); internet computer was ranked fourth (2.20) while video projector was ranked fifth with a mean value of 2.05.

Table 12: Acceptability of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Internet Computers	3.55	1.20	1
LCD Projector	3.07	1.48	2
Overhead Projector	2.89	1.37	3
Slides Projector	2.69	1.49	4
Video Projector	2.05	1.44	5

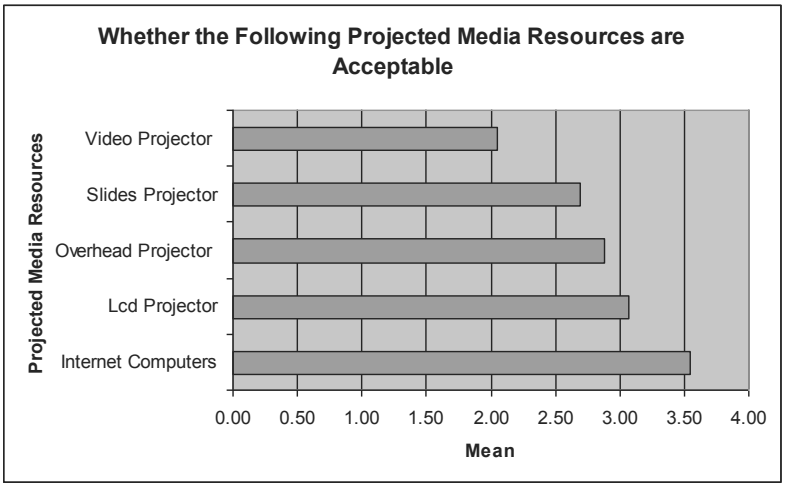

Figure 10: Acceptability of Projected Media Resources in the School

The findings from Table 13 and Figure 11 show that projected media resources were not so much effective. Respondents were not sure as to whether LCD, overhead and slides projectors were effective. This is because they are products of technology and as it is always known, you cannot rely on technology because

it sometimes fails. Lack of power, for example, can render the services infective as nothing will be done.

Internet computers are not effective because internet depends on the kind of network that provides the services which at times fails due to congestion or lack of signal. Moreover, projected media resources, like LCD, slides and overhead projectors require special halls for quality images to be cast or projected. This finding supports Brown (1983) who argues that excellent media resources can become second-rate in their instruction effect when used in unsatisfactory environment with regard to acoustics, poor lighting, overheated rooms, vitiated air and noise.

However, Mayer (2002) and Dale (1969) support this finding by emphasizing that the act of building connections between verbal and pictorial mental models is an important step in conceptual understanding.

Table 13: Effectiveness of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
LCD Projector	3.00	1.40	1
Overhead Projector	2.92	1.39	2
Slides Projector	2.46	1.29	3
Internet Computer	2.20	1.08	4
Video Projector	2.05	1.44	5

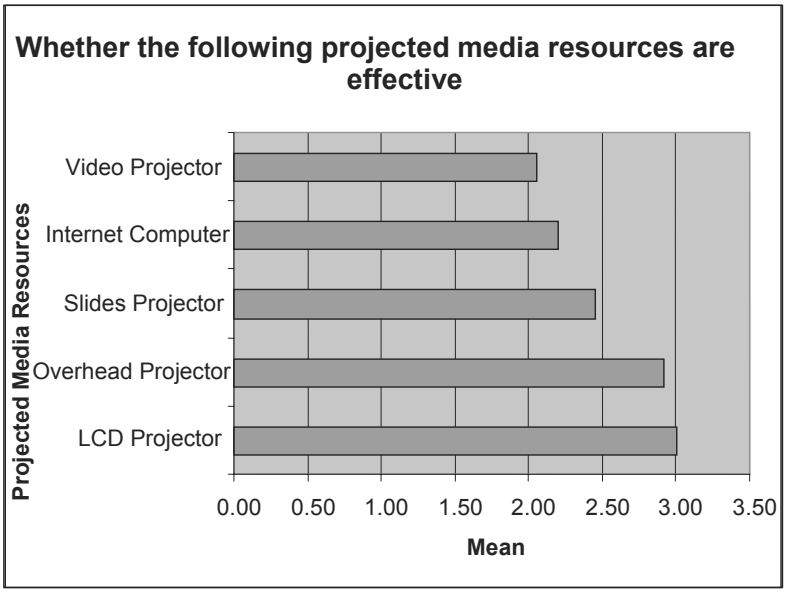

Figure 11: Effectiveness of Projected Media Resources in the School

4.2.13 Affordability of Projected Media Resources

The study further sought to find out if the projected media resources available at the School of Public Health were affordable. Thus, this question was analyzed using the mean values to identify the rank for each attribute. As a result it was established that video projectors were more affordable than other projected Media resources. Table 14 and Figure 12 show the summary of the findings. From Table 14 and Figure 12, video projector was ranked first with a mean value of 4.46, internet computer was ranked second (4.11), slides projector was third (3.76), LCD projector was ranked fourth (2.24) and overhead projector was ranked fifth with a mean value of 1.92.

As a result, among the projected media resources available at the School of Public Health, it was established that video projector, internet computers and slides projector were affordable. Video projector, compared to other projected media resources, is less complex and less sophisticated hence cheap to acquire

and easy to operate than other projected media resources. Internet is also affordable due to stiff competition brought about by different firms which provide the network and which, therefore, lower the cost of their services in order to win more customers/clients. Again, the University has established Local Area Network in the Town campus.

However, the respondents indicated that LCD and overhead projectors were affordable. This was indicated by means of 2.24 and 1.92 respectively. This is because LCD and overhead projectors are sophisticated/complex and hi-tech hence expensive to acquire. They also require certain skills and knowledge for their operation and use which can be obtained through training.

A close scrutiny of the above findings indicates that video projectors, internet computers and slide projectors were affordable. However, respondents said that LCD and overhead projectors were expensive. A solution is proposed by Brown (1983), that there is a need for local production of media resources through instructor-produced and student-produced materials. This finding supports Erickson (1968), who proposes that the teaching staff should be motivated, recognized and given in-service education in order to be innovative in the development and use of media resources and technology.

4.2.14 Maintenance of Projected Media Resources

Maintenance level depends on how sophisticated projected media resources are. The more complex, the more difficult it is to maintain. Following this premise, the study sought to find out how easy or hard it was to maintain projected media resources at the School. This question was analyzed using the mean values to identify the rank for each attribute. As a result, internet computers were ranked first. This is shown in Table 15 and Figure 13.

Over the issue of maintenance of projected Media resources, internet computer was ranked first (2.96), slides projector was ranked second (2.67), LCD

projector was third (2.35), overhead projector was fourth (2.03) while video projector was ranked fifth (1.95). From the above finding, it was established that the projected media resources were not easy to maintain.

Table 14: Affordability of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Video Projector	4.46	0.83	1
Internet Computer	4.11	1.22	2
Slides Projector	3.76	1.52	3
LCD Projector	2.24	1.52	4
Overhead Projector	1.92	1.20	5

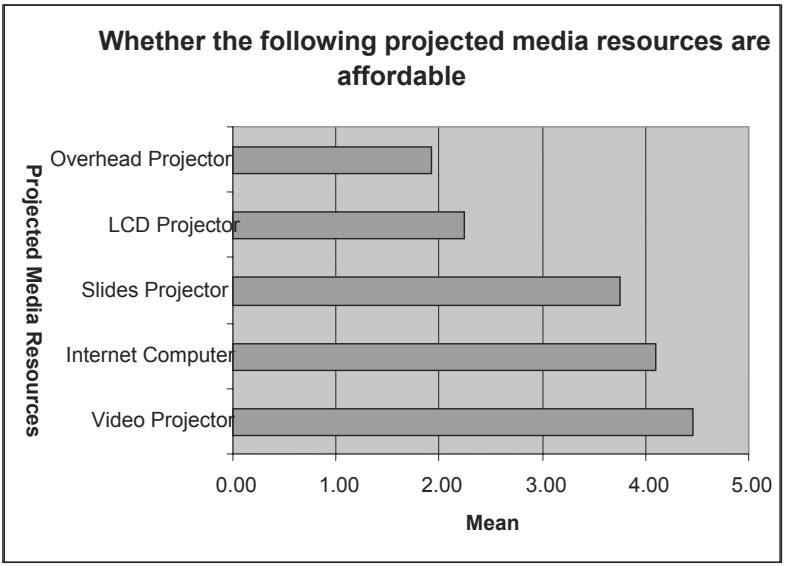

Figure 12: Affordability of Projected Media Resources in the School

This was indicated by means of 2.96 and 2.67 which stood for "not sure" on the Likert scale. However, being ranked the first indicated that internet computers, compared to other projected media resources, could easily be maintained. The

major problem with computers was the issue of computer virus which could destroy important files from the system. However, this problem could be solved by installing an anti-virus and ensuring that it is updated every day.

In support of the above, Erickson (1968) observes that media resources should be maintained in optimum condition to avoid deterioration. He further advices that air-conditioning of media stores may be the most important of all core essentials.

On the other hand, according to the respondents, sophisticated projected media resources, like over-head projector and LCD projector, were very hard to maintain since majority (>50%) of the users had little knowledge about them. A close scrutiny of the above finding indicated that respondents were not categorical that internet computers and slides projectors were easy to maintain.

In summary, it was established that projected media resources are not easy to maintain. This follows the fact that most of them are complex and sophisticated in nature and, therefore, a technician or an expert is required for efficient maintenance of projected media resources.

Table 15: Maintenance of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Internet Computers	2.96	1.09	1
Slides Projector	2.67	1.38	2
LCD Projector	2.35	1.32	3
Overhead Projector	2.03	1.25	4
Video Projector	1.95	1.34	5

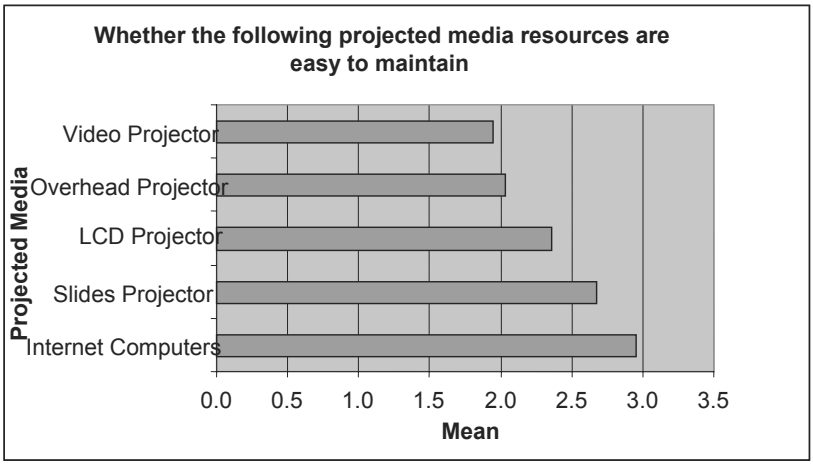

Figure 13: Maintenance of Projected Media Resources in the School

4.2.15 Quality of Projected Media Resources

The quality of projected media resources is judged from their output content. As a result, the study sought to find out the quality of projected media resources available at the School of Public Health. Likert scale was used for ranking the variables. This item was analyzed by using the mean variables to identify the rank for each attribute. It was established that overhead projector was the first in terms of good quality. This is shown in the Table 16 and Figure 14.

On matters of quality, overhead projector was ranked first with a mean value of 3.89, video projector was second (3.77), LCD projector was third (3.69), slides projector and internet computers were ranked fifth (2.62). Furthermore, it was established that respondents agreed with overhead projector being of good quality. This is because when properly installed, overhead projector casts real information and it can be adjusted to ensure that everybody in the hall can be able to see clearly. Respondents further agreed that video and LCD projectors of good quality. Internet, for instance, is interrupted by network jam and virus attacks that render it ineffective. This agrees with Gerlach (1991), who

recommends for teachers to determine whether or not a media outcome functional relationship exists.

Table 16: Quality of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Overhead Projector	3.89	1.40	1
Video Projector	3.77	1.46	2
LCD Projector	3.60	1.29	3
Slides Projector	2.62	1.05	4
Internet Computer	2.62	1.11	4

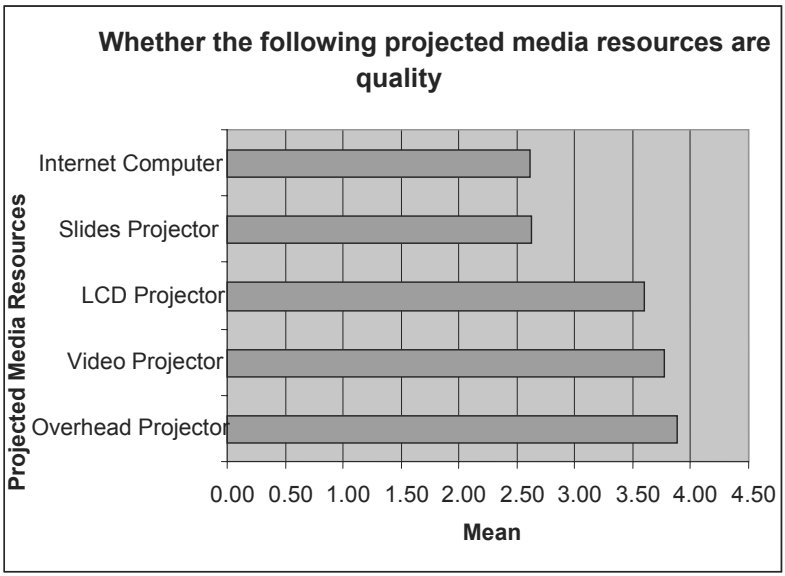

Figure 14: Quality of Projected Media Resources in the School

In support of this finding, Brown (1983) proposes that students should appraise media resources to determine their quality. A close scrutiny of the above findings indicates that in overall, video and LCD projectors are of good quality due to their efficient output in terms of image and information they deliver to

the audience. Respondents were, however, not sure of slides projector and internet computer as being of good quality.

4.2.16 Sophistication Level of Projected Media Resources

Sophistication level implies the level of complexity and difficulty of projected media resources. The study sought to find out whether or not projected media resources are sophisticated. Likert scale was used to analyze the responses. The mean was used to identify the rank of each attribute. It was established that LCD projectors were more sophisticated than other projected media resources. Table 17 and Figure 15 summarize the findings.

On sophistication level of projected media resources, LCD projector was ranked first with a mean value of 4.10, internet computer was second (3.86), overhead projector was third (3.56), slides projector was fourth (2.32) and video projector was fifth (1.91).

From Table 17 and Figure 15, it was established that LCD projectors were more sophisticated followed by internet computers and overhead projectors. Sophistication describes a kind of hi-tech technology which puts emphasis on quality and efficiency when used by consumers. Respondents, however, indicated that video projector and slides projector were not sophisticated.

Table 17: Sophistication Level of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
LCD Projectors	4.10	1.40	1
Internet Computer	3.86	1.45	2
Overhead Projector	3.56	1.55	3
Slides Projector	2.32	1.41	4
Video Projector	1.91	1.54	5

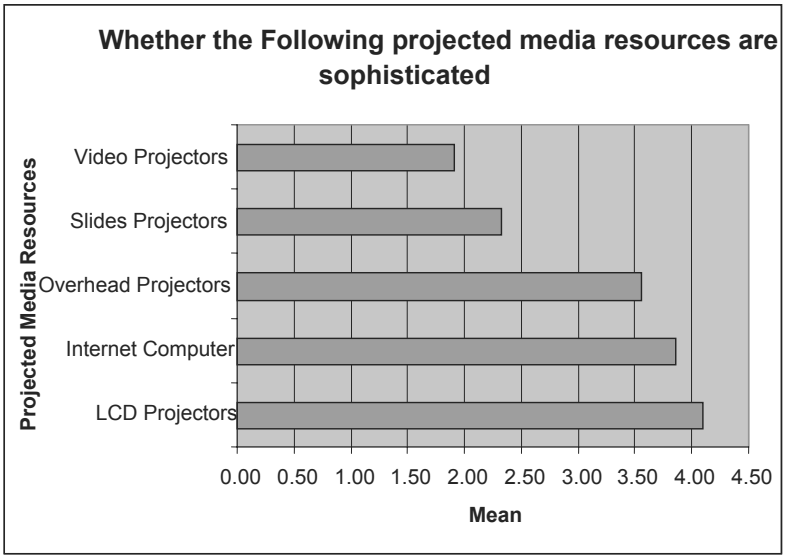

Figure 15: Sophistication Level of Projected Media Resources in the School

A close scrutiny of the above findings indicates that respondents agreed with LCD projectors, internet computers and overhead projectors as being sophisticated while at the same time they disagreed with slides and video projectors as being sophisticated.

4.2.17 Coordination of Projected Media Resources

Coordination of projected media resources implies how well the user can harmonize these resources for effective and efficient results. The study, therefore, sought to find out whether projected media resources were well coordinated or not. Likert scale was used for analyzing the options. The mean was used to identify the rank of each attribute. As a result, coordination of overhead projectors was ranked first. This is shown in the Table 18 and Figure 16.

From Table 18 and Figure 16, overhead projector was ranked first with a mean value of 3.20, LCD projector was second (2.70), internet computer and slides

projector were third (2.69), while video projector was ranked fifth (2.51). This is evidenced by the fact that all the statements scored the mean ranges of 3.20 to 2.51, which shows "Not Sure" on the Likert Scale. For projected media to be well coordinated, one should be skilled and possess knowledge of how projected media resources are operated. In view of the above, Hamn (2003) posits that media resources should be handled with care because they could develop drawbacks such as boring, over use, time-consuming, false sense of mastery and may be difficult to coordinate.

Table 18: Coordination of Projected Media Resources in the School

Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Overhead Projector	3.20	1.41	1
LCD Projector	2.70	1.12	2
Internet Computer	2.69	0.98	3
Slides Projector	2.69	1.49	3
Video Projector	2.51	1.47	5

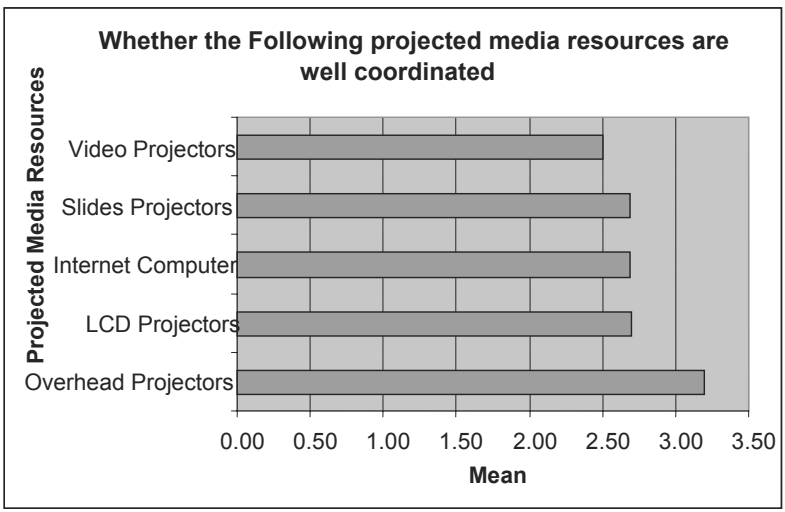

Figure 16: Coordination of Projected Media Resources in the School

4.2.18 Frequency of Usage of Non-projected Media Resources

Frequency of use, as explained earlier, depends on the availability and quality of media resources. Thus, the study sought to establish whether or not non-projected media resources were frequently used. Likert scale was used to analyze the results. Therefore, the mean ranges were used to rank the respective attributes. As a result, respondents agreed that models are frequently used in the School of Public Health. The results are summarized in the Table 19 and Figure 17. On the frequency of usage of non-projected Media resources, models were ranked first with a mean value of 3.81, chalk board was second (3.78), white board was third (3.68), audio tapes was fourth (3.24), butcher papers was fifth (3.11), real objects was sixth (2.12), reference books were ranked seventh (2.10) while printed visuals were ranked eighth with a mean value of 1.42.

From Table 19 and Figure 17, it is clear that among the non-projected media resources, models were highly ranked with a mean of 3.81 on a Likert scale. The School of Public Health emphasizes more on integrating theory with practical because models provide a replica of what is being taught in theory. This enables students to clearly understand what is taught. Respondents also agreed that chalk and white boards were frequently used. Chalk and white boards were frequently used because they are less costly, effective in terms of vision (colour contrast) and above all, are centrally placed in a classroom. Operating white and chalk boards is easy and it needs no training.

Table 19: Frequency of Usage of Non-Projected Media Resources

Non-Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
Models	3.81	1.47	1
Chalk Board	3.78	1.72	2
White Board	3.68	0.92	3
Audio Tapes	3.24	0.89	4
Butcher Papers	3.11	1.37	5
Real Objects	2.12	1.45	6
Reference Books	2.10	1.56	7
Printed Visuals	1.42	1.05	8

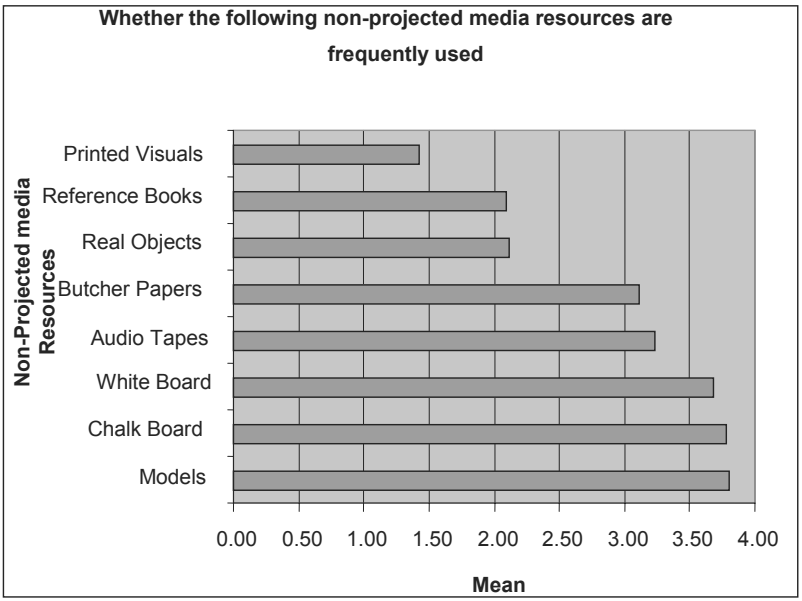

Figure 17: Frequency of Usage of Non-Projected Media Resources

However, respondents said that audio tapes and butcher papers were sometimes used. This follows the fact that they were not adequately available in the school and perhaps some students taped the lectures using mobiles. On the other hand, they disagreed that real objects, reference books and printed visuals were frequently used. This was so because these materials are costly and therefore not adequate for use.

A close scrutiny of the above findings indicates that respondents agreed with models, chalk boards and white boards as being frequently used.

4.2.19 Relevance of Non-Projected Media Resources to Objectives

The study sought to find out whether non projected media resources were relevant to the objectives or not. This question was analyzed by using the mean values to identify the rank for each attribute on the Likert scale. As a result, it

was established that white board was relevant and it was ranked first by the respondents. Table 20 and Figure 18 summarize the findings.

From Table 20 and Figure 18, white board was ranked first with a mean value of 3.91, chalk board was ranked second (3.38), model was third (3.17), butcher paper was fourth (3.11), audio tape was fifth (2.29), real objects were ranked seventh (2.20) and finally printed visuals were ranked eighth (1.57).

In addition, respondents agreed that white board was relevant to the objectives. As it was explained earlier, white boards are recommended since they are cheap and, therefore, every student can be able to access and use them.

Table 20: Relevance of Non- projected Media Resources to Objectives

Non-Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
White Board	3.91	0.99	1
Chalk Board	3.38	1.61	2
Model	3.17	1.28	3
Butcher Paper	3.11	1.37	4
Audio Tape	2.29	0.88	5
Real Object	2.20	1.58	6
Reference Book	2.10	1.63	7
Printed Visual	1.57	1.28	8

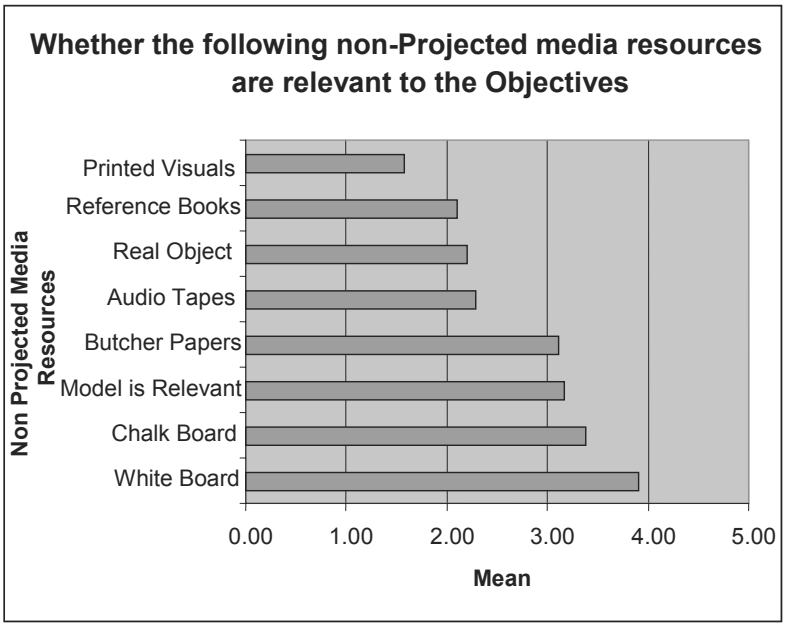

Figure 18: Relevance of Non-projected Media Resources to Objectives

White boards are effective and of good quality, unlike the black chalk boards which generate a lot of chalk dust (which may bring health problems). White boards are dustless (since an ink-pen is used instead of a chalk) and therefore, white boards are easy to work with.

According to some respondents, models were relevant because they assisted students to understand deeply what was being emphasized. To others, chalk boards were not relevant because they were tedious to use and the chalk dust might cause health problems. They, however, said that audio tapes, real objects, reference books and printed visuals were not relevant. This is because audio tapes are outdated and are no longer efficient in learning while real objects are costly to acquire.

A close scrutiny of the above findings indicates that respondents agreed that white boards were relevant to the objectives. They further said that audio tapes, real objects, reference books and print visuals were not relevant to the objectives.

These findings agree with Gerlach (1971) and O'Neal (2003) who recommend that a medium of instruction must be selected on the basis of its potential for implementing a stated objective and that media choice for each objective must be qualified by cost, availability and practical implementation within the curriculum content.

4.2.20 Simplicity of Non-Projected Media Resources

Non-projected media resources are simple to operate compared to projected media resources which are complex and sophisticated. The study therefore sought to find out whether or not non-projected media resources are simple to use. Thus, this question was analyzed by using the mean values to identify the rank for each attribute. As a result, respondents agreed that white boards and models were simple to use. This is shown in Table 21 and Figure 19. On the issue of simplicity of non-projected media resources, white board was ranked first with a mean value of 4.02, model was ranked second (3.51), chalk board was ranked third (3.19), butcher paper was ranked fourth (3.07), audio tape was fifth (2.43), real object was ranked sixth (2.14), reference books were ranked seventh (2.04) while printed visuals were ranked eighth (1.61).

Moreover, it was established that the white board and models are simple to use. Majority of the respondents were familiar with using the white board. White boards do not require training. Models, on the other hand, represent what is being taught and therefore simplify learning. However, respondents disagreed with the statement that audio tapes, real objects, reference books and print visuals were easy to use.

Table 21: Simplicity of Non-projected Media Resources in the School

Non-Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
White Board	4.02	1.16	1
Model	3.51	1.38	2
Chalk Board	3.19	1.57	3
Butcher Paper	3.07	1.16	4
Audio Tape	2.43	0.95	5
Real Object	2.14	1.49	6
Reference Book	2.04	1.56	7
Printed Visual	1.61	1.37	8

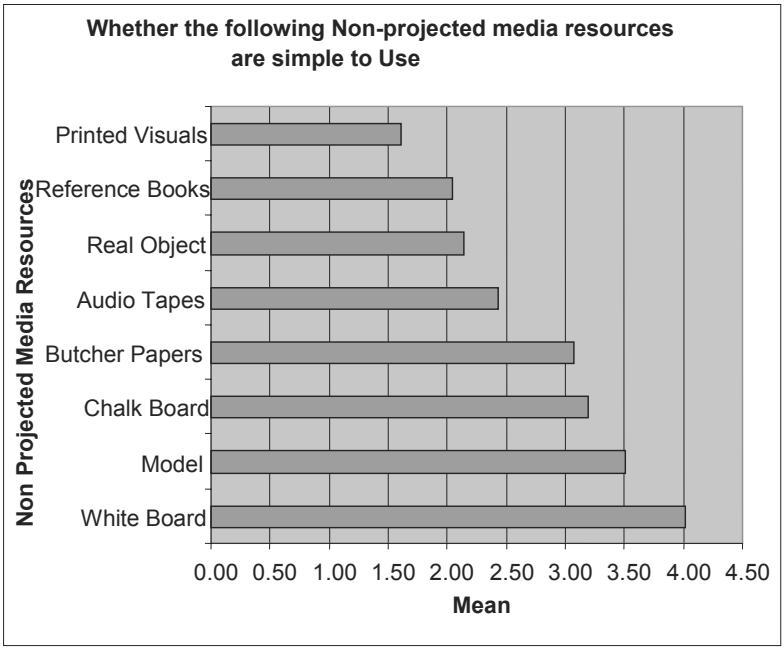

Figure 19: Simplicity of Non-projected Media Resources in the School

4.2.21 Accessibility of Non-Projected Media Resources

Media resources can only be accessed by students and lecturers of any institutions if they are available. The study thus, sought to find out whether non-projected media resources were accessible. Likert scale was used to analyze the responses. Thus, this question was analyzed by using the mean values to identify the rank of each attribute. It was established that white board was more accessible than other non projected media resources. This is summarized in Table 22 and Figure 20.

Concerning the issue of accessibility of non-projected media resources, white board was ranked first with a mean value of 3.91, chalk board was ranked second (3.38), model was ranked third (3.30), audio tape was ranked fourth (2.92), butcher paper was fifth (2.27), real object was ranked sixth (2.10), reference books were ranked seventh (1.62) while printed visual was ranked eighth (1.43).

From Table 22 and Figure 20, it was established that the white board is more easily accessible than other non-projected media resources. This is because white boards are built onto the wall, are less costly and are abundant for respondents to access and use. On the other hand, some reference books are so expensive and that the school cannot purchase enough text books for all students to access. It was also established that it was hard to access some books because they were torn by the earlier users.

Table 22: Accessibility of Non-projected Media Resources in the School

Non Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
White Board	3.91	0.99	1
Chalk Board	3.38	1.66	2
Model	3.30	1.50	3
Audio Tape	2.92	1.35	4
Butcher Paper	2.27	1.01	5
Real Object	2.10	1.33	6
Reference Book	1.62	1.02	7
Printed Visual	1.43	1.03	8

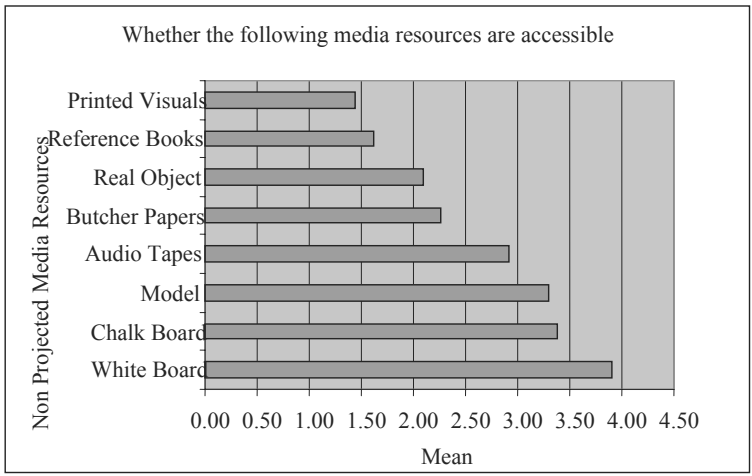

Figure 20: Accessibility of Non-projected Media Resources in the School

However, respondents said that print visuals were not accessible. This is because they were few and therefore they were locked to avoid losses. In the same way, Amri (1983) recommends the need to make the inventory of media resources (including reference books) for recording movement, and change of stock in order to facilitate availability and utilization. Supporting this finding, Erickson (1968) emphasizes the need for maintenance of media resources in optimal condition to avoid deterioration and hence facilitate accessibility.

A close scrutiny of the above findings indicates that white board is easily accessible to the respondents. It was further established that printed visuals were hard to access.

4.2.22 Acceptability of Non-projected Media Resources

Media resources are acceptable basing on the fact that they give an efficient and quality feed back to the audience. Hence, the study sought to find out whether or not non projected media resources were acceptable for use in the School of Public Health. Likert scale was used for analyzing the results. The mean values were used to identify the rank for each attribute. As a result, it was established that white board and chalk board were acceptable. This is shown in the Table 23 and Figure 21. On matters of acceptability of non-projected media resources, white board was ranked first with a mean value of 4.57, chalk board was ranked second (3.47), model was ranked third (2.77), audio tape was ranked fourth (2.75), butcher paper was fifth (2.74), real object was ranked sixth (1.92), reference book was ranked seventh (1.65) while printed visual were ranked eighth (1.42).

Table 23: Acceptability of Non-projected Media Resources in the School

Non-projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
White Board	4.57	1.11	1
Chalk Board	3.47	1.65	2
Model	2.77	1.23	3
Audio Tape	2.75	1.08	4
Butcher Paper	2.74	1.33	5
Real Object	1.92	1.29	6
Reference Book	1.65	1.05	7
Printed Visual	1.42	1.05	8

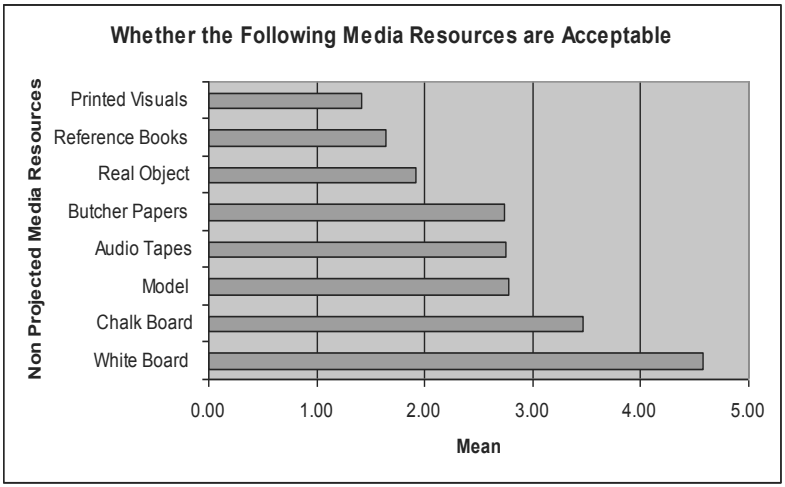

Figure 21: Acceptability of Non-projected Media Resources in the School

4.2.23 Affordability of Non-projected Media Resources

The study further sought to find out if non-projected media resources available at the School of Public Health were affordable. This question was analyzed using the mean values to identify the rank for each attribute. As a result, it was established that white boards, chalk boards and audio tapes were affordable. This is shown in the Table 24 and Figure 22.

Concerning the issue of affordability of non projected media resources, white board was ranked first with a mean value of 4.10, chalk board was ranked second (3.78), audio tape was ranked third (3.66), model was ranked fourth (3.26), newsprints were fifth (3.22), reference book were ranked sixth (2.35), real object was ranked seventh (2.29) while printed visual were ranked eighth (1.68).

From the above findings, respondents agreed that white boards, chalk boards and audio tapes were affordable. Part of the material used for making chalk and white boards is the same materials that are used for the construction of classes

for example, cement. Therefore, chalk and white boards are cheaply constructed during construction of lecture halls. Audio-tapes on the other hand, are not so expensive due to competition in the market which has kept their prices down and therefore they are easy to afford. Reference books and real objects are costly and therefore, making it hard for the School of Public Health to afford them for every student. Brown (1983) advises that affordability of media resources should be based on the criteria for content, purpose, appropriateness, quality, circumstances of use, learner verification and cost.

Table 24: Affordability of Non-projected Media Resources in the School

Non-Projected Media Resources	*Mean*	*Std. Deviation*	*Rank*
White Board	4.10	1.04	1
Chalk Board	3.78	1.62	2
Audio Tape	3.66	1.33	3
Model	3.26	1.45	4
Butcher Paper	3.22	1.24	5
Reference Book	2.35	1.90	6
Real Object	2.29	1.61	7
Printed Visual	1.68	1.50	8

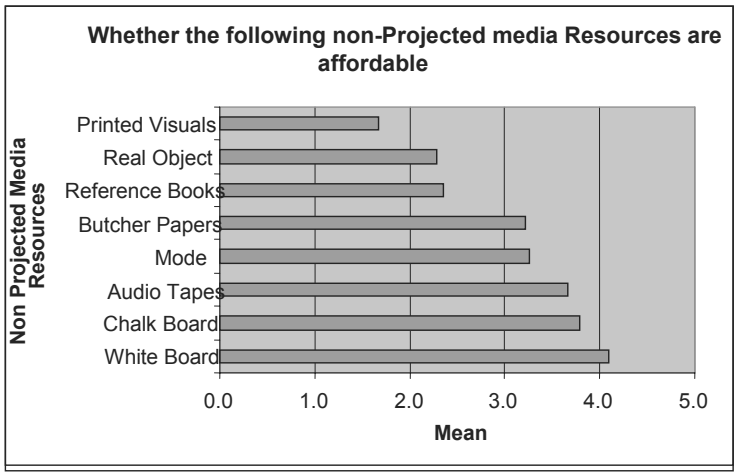

Figure 22: Affordability of Non-projected Media Resources in the School

A close scrutiny of the above findings indicates that white boards, chalk boards and audio tapes are affordable. Consequently, it was established that reference books, real objects and printed visuals were not affordable because of high cost and increasing demand for adequate copies for all the students.

4.2.24 Maintenance of Non-projected Media Resources

Non-projected media resources can be maintained easily compared to projected media resources due to their low level of sophistication. The study sought to find out whether non-projected media resources at the School of Public Health are maintainable. This was analyzed using the mean values to identify the rank for each attribute. It was established that white board, audio tapes, chalk boards and models were maintainable. This is summarized in Table 25 and Figure 23.

From Table 25 and Figure 23, white board was ranked first with a mean value of 4.00, audio tape was ranked second (3.80), chalk board was ranked third (3.64), model was ranked fourth (3.45), butcher paper was fifth (3.28), real object was ranked sixth (2.05), reference book were ranked seventh (1.59) while printed visual was ranked eighth (1.34).

In view of the above, respondents agreed that white boards, audio tapes, chalk board and models are maintainable. This is because chalk boards and white boards are made of solid material which requires preservation from scratches.

White and chalk boards can be maintained through re-painting after the initial paint has been defaced. Audio tapes and models, on the other hand, can be maintained by locking them in a safer place like cupboards and only taken out when demand arises. Audio tapes can be preserved better when they are kept clean free of dust and other particles.

Consequently, respondents said that it was not easy to maintain real objects, reference books and printed visuals. This is indicated by means ranging from

2.05 to 1.34 from Table 25. It is expensive to maintain and sustain real objects since special care and attention is required. Reference books, on the other hand, are constantly in use by both students and lecturers; therefore, a lot of wear and tear is experienced. Print visuals are also difficult to maintain because after some time of their use, they start to deface and media resources become blurred and distorted.

A close scrutiny of the above findings indicates that it is easy to maintain white boards, video tapes, chalk board and printed visuals. However, they agreed that it was not easy to maintain reference books, print visuals and real objects.

In summary, it was established that, unlike projected media resources which are hard to maintain due to their complex nature, majority of non-projected media resources are easy to maintain and use.

Table 25: Maintenance of Non-projected Media Resources in the School

Non -Projected Media Resources	Mean	Std. Deviation	Rank
White Board	4.00	0.94	1
Audio Tape	3.80	1.28	2
Chalk Board	3.64	1.71	3
Model	3.45	1.43	4
Butcher Paper	3.28	1.40	5
Real Object	2.05	1.44	6
Reference Book	1.59	0.98	7
Printed Visual	1.34	0.75	8

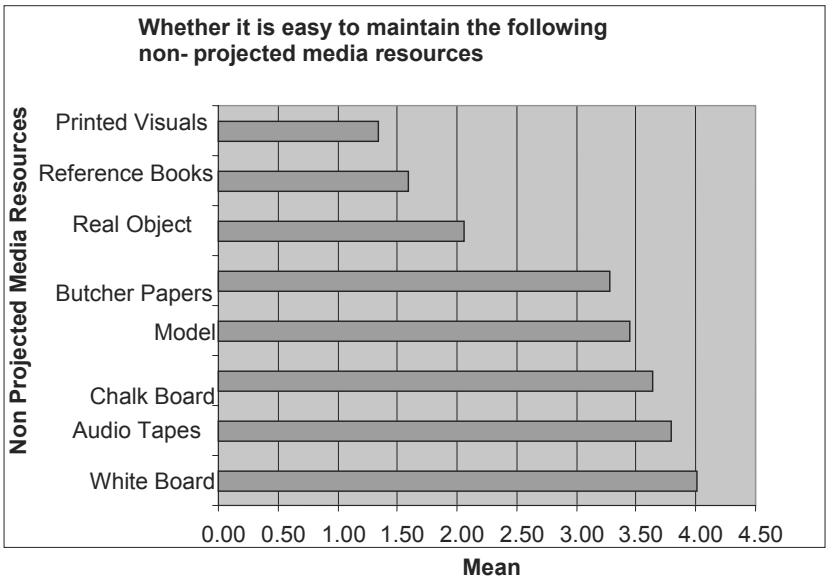

Figure 23: Maintenance of Non-projected Media Resources in the School

4.2.25 Quality of Non-projected Media Resources

When respondents were asked to rank the quality of non-projected media resources, white board was ranked first. This question was analyzed using the mean to identify the rank of each attribute. Table 26 and Figure 24 provide the summary of the findings.

Concerning the issue of quality of non-projected media resources, white boards were ranked first with a mean value of 4.46, chalk board was ranked second (3.13), audio tape was ranked third (3.08), butcher paper was ranked fourth (3.05), model was fifth (2.86), real object was ranked sixth (2.10), reference book was ranked seventh (1.84) while printed visual was ranked eighth (1.42).

From the above findings, it was established that among the non-projected media resources available at the School of Public Health, respondents agreed that white boards were of good quality than other non-projected media resources. As

explained earlier, using white board is more effective because the writings in black absorb light and therefore numbers/writings are seen clearly than white writings on the chalk board due to reflection of light. Moreover, white boards are of high quality compared to chalk boards because there is no chalk dust emitted (which may be harmful to health).

Table 26: Quality of Non-projected Media Resources in the School

Non -Projected Media Resources	Mean	Std. Deviation	Rank
White Board	4.46	1.04	1
Chalk Board	3.13	1.39	2
Audio Tape	3.08	1.25	3
Butcher Paper	3.05	1.35	4
Model	2.86	1.06	5
Real Object	2.10	1.45	6
Reference Book	1.84	1.35	7
Printed Visual	1.42	1.05	8

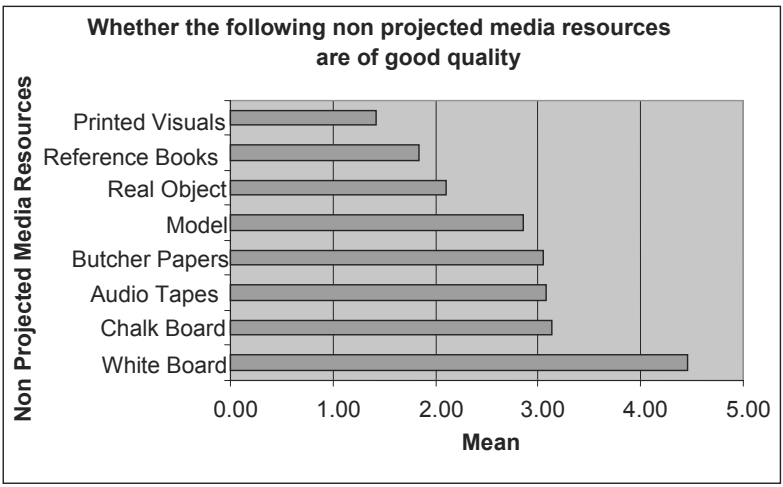

Figure 24: Quality of Non-projected Media Resources in the School

The respondents argued that if models, butcher papers and audio tapes were not well maintained, they could easily loose information. Audio tapes, for instance, if left with dust, could not be used to record any information or it will be hard to retrieve the information that was once stored.

A close scrutiny of the above findings indicates that white boards are of good quality for use at the School of Public Health; however, the respondents were undecided as to whether or not chalk boards, audio tapes, butcher papers and models were of quality, while respondents disagreed that real objects, reference books and printed visuals as being of good quality.

4.2.26 Sophistication Level of Non-projected Media Resources

Sophistication level of non-projected media resources implies how complex the resources are during their operation and usage. Non-projected media resources are not as complex as projected media resources. To verify this premise, the study sought to establish whether or not non projected media resources are sophisticated. This question was analyzed using the mean values to identify the rank for each attribute. As a result, it was established that models were ranked first. This is shown in Table 27 and Figure 25.

From Table 27 and Figure 25, model was ranked first with a mean value of 3.29, audio tape was ranked second (3.11), butcher paper was ranked third (3.06), white board was ranked fourth (2.23), chalk board was fifth (2.14), real object was ranked sixth (2.05), reference books were ranked seventh (2.01) while printed visual were ranked eighth (1.42).

As a result, it was established that non-projected media resources were not as complex as projected media resources and, therefore, had a low sophistication level. Respondents were not sure whether models, audio tapes and butcher papers were sophisticated. However, they are considered to have a high sophisticated level than other forms of non projected media resources.

However, it was identified that white boards, chalk boards, real objects, reference books and print visuals were not sophisticated. White and chalk boards, for instance, are constructed in a simple way without any complications. This, therefore, enables their easy usage. Real objects, on the other hand, are natural made and therefore, there is no sophistication for them. It was established that white board, chalk board, real objects, reference books and printed visuals were not sophisticated.

In summary, it was established that in case of projected media resources where majority are sophisticated, most of non-projected media resources are less sophisticated.

4.2.27 Customization Needs of Non-projected Media Resources

Customization needs imply making of media resources to suit certain individual, group or organization, bearing in mind their special needs. Hence, the study sought to find out whether or not non-projected media resources have customized needs. This question was analyzed using the mean values to identify the rank for each attribute. As a result, it was established that audio tapes were ranked first by the respondents. This is shown in the Table 28 and Figure 26.

Table 27: Sophistication Level of Non-projected Media Resources in the School

Non Projected Media Resources	Mean	Std. Deviation	Rank
Model	3.29	1.41	1
Audio Tape	3.11	1.37	2
Butcher Paper	3.06	1.41	3
White Board	2.23	0.66	4
Chalk Board	2.14	1.01	5
Real Object	2.05	1.44	6
Reference Book	2.01	1.52	7
Printed Visual	1.42	1.05	8

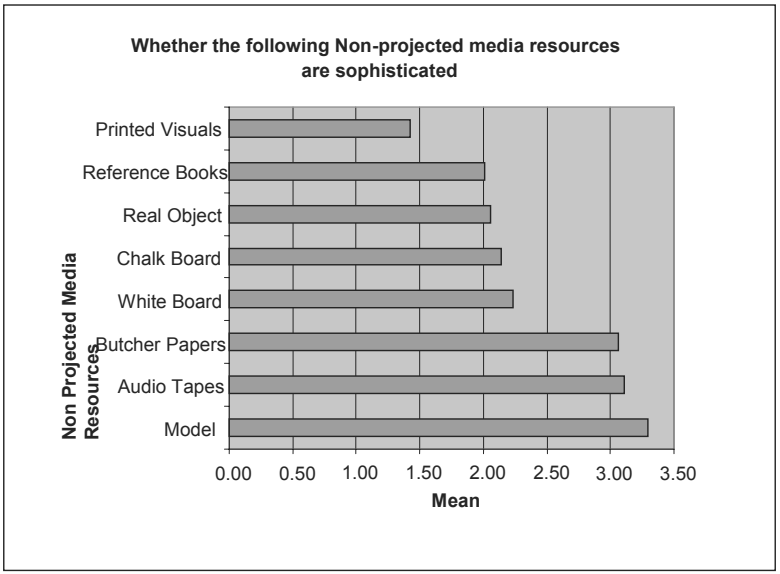

Figure 25: Sophistication Level of Non-projected Media Resources in the School

From Table 28 and Figure 26, audio tapes were ranked first with a mean value of 3.07, butcher paper was ranked second (3.05), white board was ranked third (2.84), chalk board was ranked fourth (2.62), model was fifth (2.46), real object was ranked sixth (2.31), reference book was ranked seventh (1.82) while printed visual were ranked eighth (1.42).

From the above findings, it was established that almost 50% of respondents indicated that audio tapes, butcher papers, white board, chalk board and models have customized needs. This was because these media resources are acquired without considering the special needs of consumer. According to some respondents, audio tapes can be used to serve various students with special needs including the blind who cannot be able to see the writings on the board and slow learners who cannot match with other students. However, respondents indicated that real objects, reference books and printed visuals have no customized needs.

Supporting the above, the Standard template used by Florida Inventory of School Houses (2000) for determining adequacy of instructional media resources recommend the provision of the facilities for special need students.

Table 28: Customization Needs of Non-projected Media Resources in the School

Non Projected Media Resources	Mean	Std. Deviation	Rank
Audio Tape	3.07	1.30	1
Butcher Paper	3.05	1.35	2
White Board	2.84	0.83	3
Chalk Board	2.62	1.11	4
Model	2.46	1.24	5
Real Object	2.31	1.65	6
Reference Book	1.82	1.37	7
Printed Visual	1.42	1.05	8

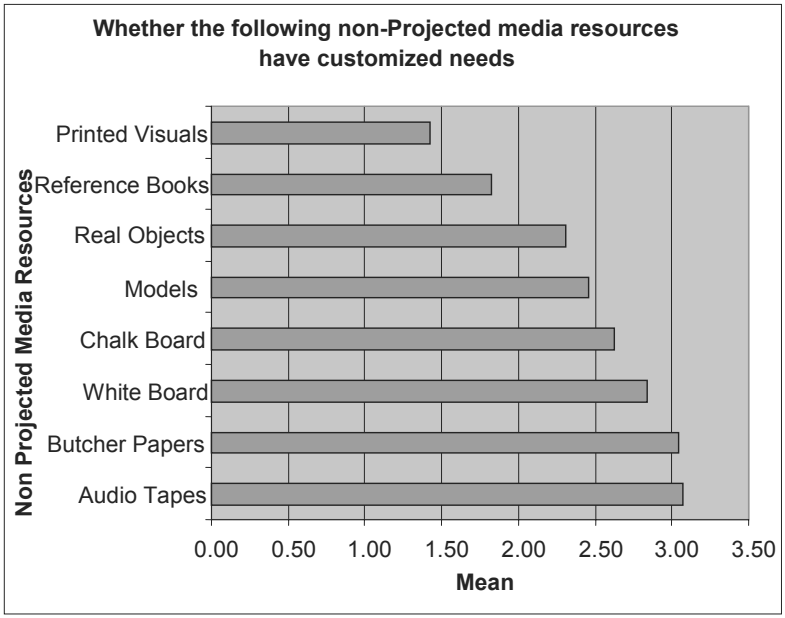

Figure 26: Customization Needs of Non-projected Media Resources in the School

4.2.28 Co-ordination of Non-projected Media Resources

As explained earlier, Co-ordination of media resources implies how well the user can harmonize, organize and put together the resources for effective and efficient results. The study therefore sought to find out the coordination of non projected media resources. This question was analyzed using the mean values to identify the rank for each attribute. As a result, coordination of audio tapes was ranked first. This is as shown in the Table 29 and Figure 27.

From Table 29 and Figure 27, audio tape was ranked first with a mean value of 3.11, butcher paper was ranked second (3.07), model was ranked third (2.81), chalk board was ranked fourth (2.65), white board was fifth (2.23), real objects were ranked sixth (1.91), reference book was ranked seventh (1.82) while printed visuals were ranked eighth (1.38).

However, compared to projected media resources, non-projected media resources require little or no level of coordination in order for them to operate. Little coordination is required on the audio tapes whereby there is need to harmonize different instruments like a cassette/tape and a radio or video deck for it to function. However, there is no coordination required on the white boards, real objects, reference books and print visuals.

Table 29: Coordination of Non-projected Media Resources in the School

Non-projected Media Resources	Mean	Std. Deviation	Rank
Audio Tape	3.11	1.37	1
Butcher Paper	3.07	1.44	2
Model	2.81	1.04	3
Chalk Board	2.65	1.14	4
White Board	2.23	0.66	5
Real Object	1.91	1.15	6
Reference Book	1.82	1.34	7
Printed Visual	1.38	0.90	8

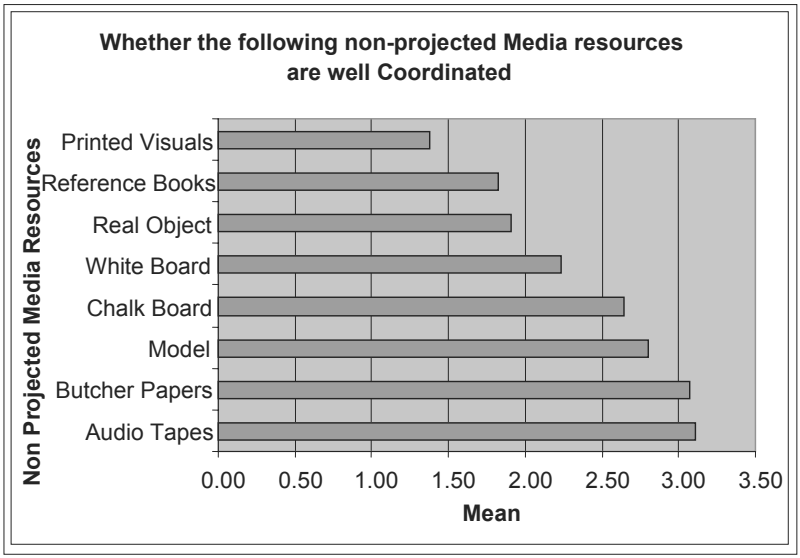

Figure 27: Coordination of Non-projected Media Resources in the School

For instance, giving students an assignment a lecturer will just mention the kind of reference books to use; after that, it is the duty of students to find those materials but the lecturer will not search for reference books on behalf of the students.

In summary, it was established that the level of coordination of non-projected media resources are very low compared to projected media resources. This is due to the complexity and intricacy of projected media resources.

4.2.29 Competence in Operation of Projected Media Resources

How well one is capable of operating projected media resources depends on his/her skills, experience and the general know-how they have on these resources. As a result, the study sought to establish if the respondents were competent in operating projected media resources.

This question was analyzed by using the mean values to identify the ranks of each attribute. It was established that respondents were incompetent in operating

projected media resources. This is summarized in Table 30 and Figure 28. Concerning the issue of competence in operating projected media resources in the School of Public Health, internet search was ranked first with a mean value of 3.08, slides projector was ranked second (3.31), LCD projector was third (3.51), overhead projector was fourth (3.53) and video projector was ranked fifth with a mean of 3.95.

Table 30: Competence in Operation of Projected Media Resources in the School

Projected Media Resources	Mean	Std. Deviation	Rank
Internet Search	3.08	0.85	1
Slides Projector	3.31	1.49	2
LCD Projector	3.51	1.05	3
Overhead Projector	3.53	1.27	4
Video Projector	3.95	1.44	5

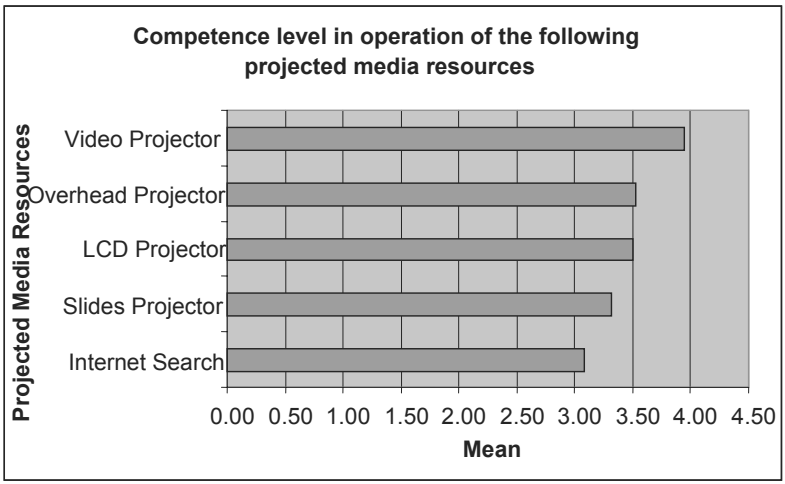

Figure 28: Competence in Operation of Projected Media Resources in the School

From Table 30 and Figure 28, it was established that majority of the respondents were incompetent in operating projected media resources. However, it was established that respondents were fairly competent in video

projectors and overhead projectors. Moreover, it was discovered that respondents did not know how to operate LCD, slides and internet search. This is evidenced by means ranging from 3.08 to 3.51, which shows "Poorly Competent" on the Likert scale. Projected media resources, as discussed earlier, are more complex and sophisticated and require one to be trained before using them confidently. In this way, NHCS (1988) observes that insufficient communication skills among teachers call for specialized and empowered training in multimedia utilization.

A close scrutiny of the above findings shows that respondents were fairly competent in operating video and overhead projectors while at the same time they were incompetent in operating LCD, slides projectors and internet search.

In summary, it was established that projected media resources are not easy to operate due to the lack of knowledge and skills of their operation.

4.2.30 Competence in Operation of Non projected Media Resources

Unlike projected media resources which are more difficult to operate due to their complexity in nature, non-projected media resources are less complex and, therefore, assumed to be simple to operate. To verify this statement, the study sought to find out whether or not respondents were competent in operating non-projected media resources. This question was analyzed by using the mean values to identify the rank for each attribute. As a result, it was established that respondents were competent in operating majority of the non-projected media resources in the school. This is shown in Table 31 and Figure 29.

From Table 31 and Figure 29, chalk board, white board, audio tapes and reference books were ranked first with a mean value of 1.00, newsprints were ranked fifth (2.47), models were sixth (2.89), real objects was ranked seventh (3.95) and printed visuals were ranked eighth (4.32).

As a result, it was established that respondents were competent in operating chalk board, white board, audio tapes and reference books. Majority of non-projected media resources do not require training of any kind. The chalk and white boards for example, are always available in the lecture halls and easily accessible by respondents. During the opening of the University, first year students are taught on how to access books from the library either by using catalogue or online (OPAC). This is intended to simplify resource search and use of reference books by students.

A close scrutiny of the above findings suggests that respondents were competent in using chalk board, white board, audio tapes and reference books.

Table 31: Competence in Operation of Non-projected Media Resources in the School

Non-Projected Media Resources	Mean	Std. Deviation	Rank
Chalk Board	1.00	0.00	1
White Board	1.00	0.00	1
Audio Tapes	1.00	0.00	1
Reference Books	1.00	0.00	1
Butcher Papers	2.47	1.09	5
Models	2.89	1.37	6
Real Objects	3.95	1.44	7
Printed Visuals	4.32	1.50	8

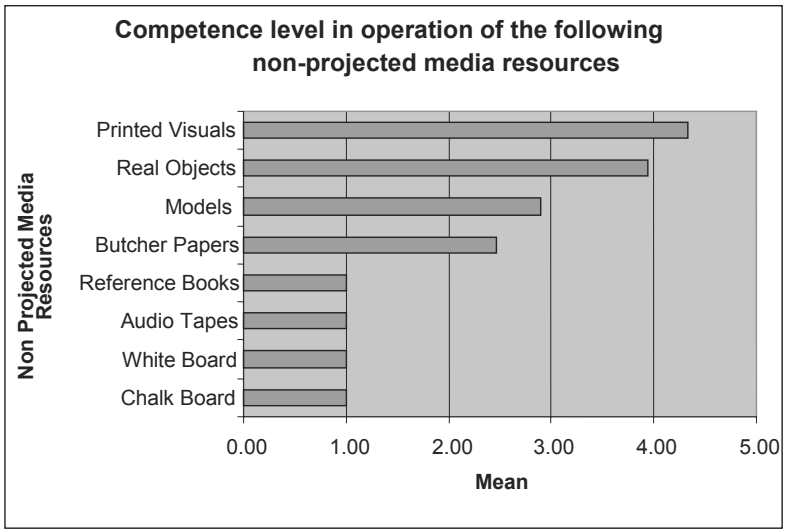

Figure 29: Competence in Operation of Non-projected Media Resources

In summary, it was established that non-projected media resources are easy to operate than projected media resources. Unlike projected media resources, non-projected media resources are simple and need no training to operate; instead, exposure and access to them is what matters most.

When respondents were asked to state whether or not they were trained on how to use media resources, majority (62.0%) said that they were not trained. This explains why majority of them said they were incompetent in operating projected media resources.

When respondents were further asked to state whether or not there were policies governing the use of media resources at the School of Public Health, majority (89.9%) said that there were no media resources policies in the University. This means that adoption and usage rate of media resources at the School of Public Heath was not effective due to lack of guidelines and policies to guide its implementation.

Erickson (1968) argues that the rush to technological development and high premium placed on the use of media resources create the need to re-train teaching staff through in-service educational programmes. Bhola (1982) also recommends evaluation of training programmes in order to determine the effectiveness of policies.

4.3 Factors Influencing Media Resources Use

The second objective of the study was to examine the factors influencing the use of media resources at the School of Public Health. This was measured by looking at individual factors, organizational factors and technological factors.

4.3.1 Individual Factors Influencing the Use of Media Resources

There are a lot of personal issues which can determine the use of media resources in any institution of learning. As such, the study sought to find out individual factors that influenced adoption and usage of media resources. This question was analyzed by using the mean values to identify the rank for each attribute. It was established that exposure, educational level and literacy on media resources among other factors influences media resource adaptation. This information is summarized in Table 32 and Figure 29.

From Table 32 and Figure 29, exposure was ranked first with a mean value of 4.11, educational level was ranked second (3.95), literacy on media resources was ranked third (3.94), knowledgeability was fourth (3.86), personal preference was fifth (3.78), age was ranked sixth (3.68), personal attitude was seventh (3.53), teaching experience was eighth (3.30), innovativeness was ranked ninth (2.69) while gender was ranked tenth (2.25).

As a result, respondents agreed that exposure, educational level, literacy on media resources, knowledgeability, personal preference, age and personal attitudes influenced the adoption and usage of media resources in the University. Exposure to media resources is very vital as it increases one's level

of confidence in using media resources. It cultivates appetite and curiosity in an individual who feels the need of using those media resources.

Educational level plays another important role as far as adoption and usage of media resources in the University is concerned. When one is educated, s/he will find it very interesting using media resources than uneducated individual. In fact, the more educated an individual is, the higher the chances of using media resources.

Table 32: Individual Factors Influencing Use of Media Resources

Individual Factors	*Mean*	*Std. Deviation*	*Rank*
Exposure	4.11	1.16	1
Education Level	3.95	1.38	2
Literacy on Media resources	3.94	0.83	3
Knowledgeability	3.86	1.27	4
Personal Preference	3.78	1.09	5
Age	3.68	1.19	6
Personal Attitudes	3.53	1.13	7
Teaching Experience	3.30	0.83	8
Innovativeness	2.69	1.21	9
Gender	2.25	1.37	10

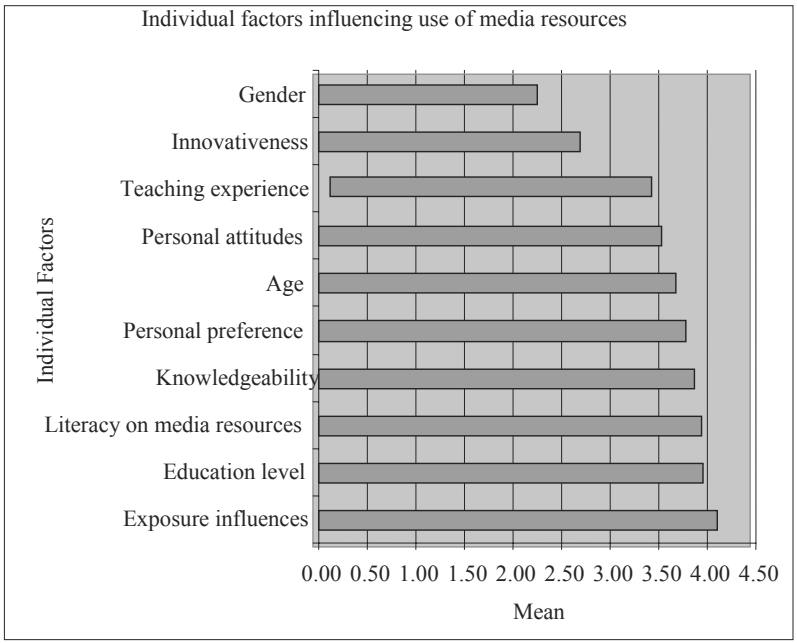

Figure 30: Individual Factors Influencing Use of Media Resources

Literacy on media resources motivates an individual to adopt and use media resources. Literacy can be obtained through training where an individual is educated on how to use and operate media resources. One is confident using media resources when s/he knows what to do. Personal preference, on the other hand, depends with one's choice. An individual may choose to or not to use media resources. A person with high preference on media resources is more likely to adopt and use them than one with low preference. Moreover, the young upcoming generation is more likely to embrace the adoption and use of media resources than the aging population. This is because young people are more eager and want to know much about new ideas than old people.

Teaching experience may not be used to determine the adoption of media resources, especially when the teacher/lecturer does not use projected media

resources like overhead projector in class. This means that no matter how many years one has taught without using overhead projector, one will never know how to use it. On the other hand, the same teacher/lecturer will be familiar with the non-projected media resources, like white and chalk boards which are used daily. Respondents said that gender did not influence usage of media resources.

A close scrutiny of the above factors indicates that exposure, educational level, literacy on media resources, knowledgeability, personal preference, age and personal attitudes influences the adoption and usage of media resources in the University. This observation agrees with the concerns of Corttlel (1999) who outlined the factors affecting encoder, message, channel, supportive environment and decoder of Human Communication Theory.

In addition, Ajuwon (2003) observes that the factors which influence teachers to use information technology are availability of equipment (media resources), promise of improved student learning, funds to purchase materials, compatibility with subject matter, advantages over traditional methods, increased student interest, ease of use, time to learn, comfort level in the technology and university training in the technology.

4.3.2 Organizational Factors Influencing the Use of Media Resources

Organizational factors are those factors within the institution which either support or discourage the use of media resources. The study, therefore, sought to establish organizational factors which influenced use of media resources. This question was analyzed by using the mean values to identify the rank for each attribute. As a result, University integrating media resources in its programmes was given the first priority by respondents. Table 33 and Figure 31 summarize the findings.

From Table 4.33 and Figure 30, University integration of media resources in its programmes was ranked first with a mean value of 3.89, University budgeting

for media resources was ranked second (3.74), size of the University was third (3.62), University having media resource use Policy was fourth (3.53), training of support Staff on media resources was fifth (3.52), University management was ranked sixth (3.36), University making compulsory the use of media resources was seventh (3.10), University hiring support for lecturers and University having quality media resources were ranked eighth (3.00) while provision of space (Labs and Rooms) for media resources by the University was ranked ninth (2.82).

In addition, it was established that University integrating media resources in its programmes, University budgeting for media resources, size of the University, University having media resource use Policy and training of subordinate staff on media resources influences the use of media resources in the school. When the University integrates media resources in its programme, it will become a habit whereby every person will be using media resources and hence, encouraging its use by all teaching staff and students. Therefore, budgeting for media resources is a noble idea towards the use of media resources in the university. Moreover, having media resources use policy helps to encourage the use of media resources as well as their maintenance. It was also established that leaving lecturers alone to fix and set media resources (projected) is time consuming and discouraging. Therefore, the university training more support staff to give assistance to lecturers will positively influence the use of media resources.

However, respondents were not categorical on whether or not University management, University making Compulsory the Use of media resources, University hiring support for lecturers, University having quality media resources and provision of space (Labs and Rooms) for media resources by the University influences adoption of media resources. This was evidenced by means ranging from 3.36 to 2.82 which show “Not Sure” on the Likert Scale.

Table 33: Organizational Factors Influencing the Use of Media Resources in the School

Organizational Factors	Mean	Std. Deviation	Rank
University integrating media resources in its programs	3.89	1.28	1
University budgeting for media resources	3.74	0.81	2
Size of the university	3.62	1.20	3
University having media resource use policy	3.53	1.07	4
Training of support staff on media resources	3.52	1.18	5
University management	3.36	1.16	6
University making compulsory the use of media resources	3.10	0.73	7
University hiring support for lecturers	3.00	0.75	8
University having quality media resources	3.00	0.99	8
Provision of space (labs and rooms) for media resources by the university	2.82	1.03	10

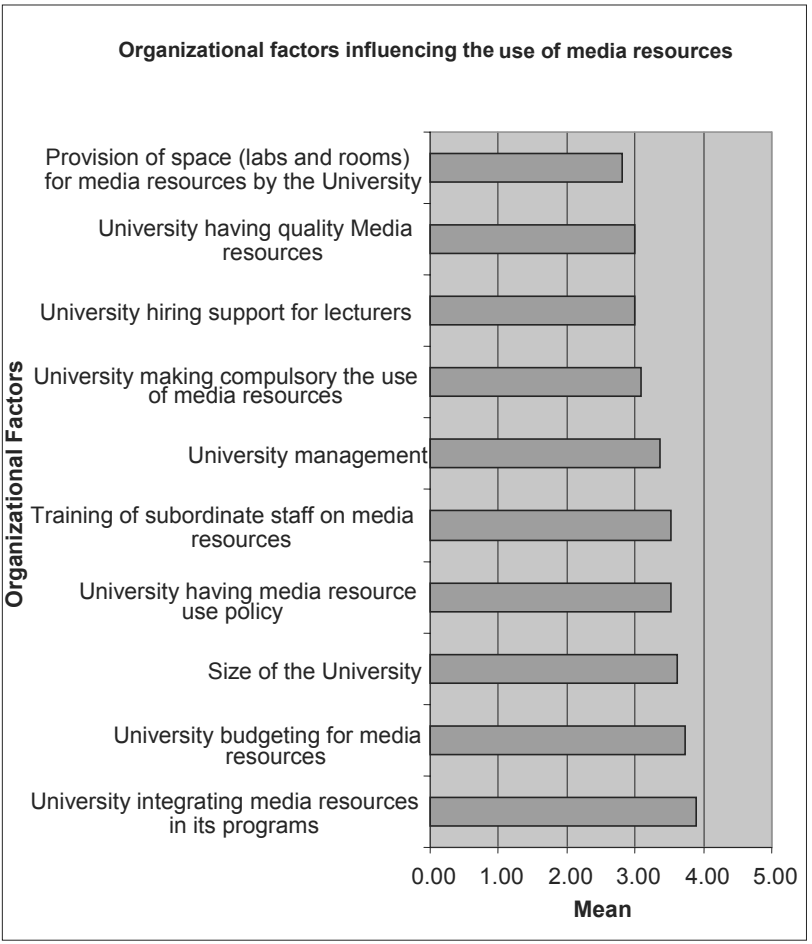

Figure 31: Organizational Factors Influencing the Use of Media Resources in the School

For instance, people should not be forced (making compulsory the use of media resources) to use media resources since majority of them may develop negative attitudes towards media resources. Instead, they should be educated on the importance of adopting and using media resources in the learning environment. Moreover, hiring of support staff alone is not enough; lecturers should also be given training on the operation and use of media resources so as to instil confidence in them when using media resources in class.

A close scrutiny of the above factors indicates that University integrating media resources in its programme, University budgeting for media resources, size of the University, University having media resource use Policy and training of support Staff on media resources influences the use of media resources in the school.

This is supported by WFME (2003) which recommends that medical schools must have policies which address the evaluation and effective use of media resources in academic programmes. Again, the Moi University Act (1985) and the Commission for Higher Education Standardization, Accreditation and Supervision Rules (1989) emphasize the need for adequate media resources, including the physical facilities and strategic planning. In addition, Kafu (1976), Spence and Humphrey (2005) recommend the same need for providing adequate media resources in training institutions.

4.3.3 Technological Factors Influencing the Use of Media Resources

Respondents were asked to rank technological factors influencing the adoption and usage of media resources. This question was analyzed by using the mean values to identify the rank for each attribute. This is shown in Table 34 and Figure 32.

From Table 34 and Figure 32, cost of media resources was ranked first with a mean value of 3.61, complexity was ranked second (3.57), relative advantage was third (3.49), compatibility was ranked fourth (3.32) while image was ranked fifth (2.81). From these results, it may be concluded that cost, complexity and relative advantage were technological factors influencing the adoption and usage of media resources in the school. The cost of acquiring media resources determines whether to adopt or not. High costs will automatically discourage media resource consumers. When costs are high, the University may purchase only few media resources which may not be adequate

to cater for the demand of its population. Hence, students' and lecturers' exposure to media resources will be limited which negatively influence media resource adoption.

Moreover, complex and highly sophisticated media resources also discourage adoption because people, including the staff and students, should be trained first before operating and using the media resources. Less complex media resources are simple to operate and use which positively influences its adoption in the University. In addition, Mayer (2002) argues that the act of building connections between verbal and pictorial mental models is an important step in conceptual understanding.

Table 34: Technological Factors Influencing Adoption and Use of Media Resources

Technological Factors	Mean	Std. Deviation	Rank
Cost	3.61	1.10	1
Complexity	3.57	0.97	2
Relative advantage	3.49	1.05	3
Compatibility of media resources in the Program	3.32	1.11	4
Image	2.81	0.94	5

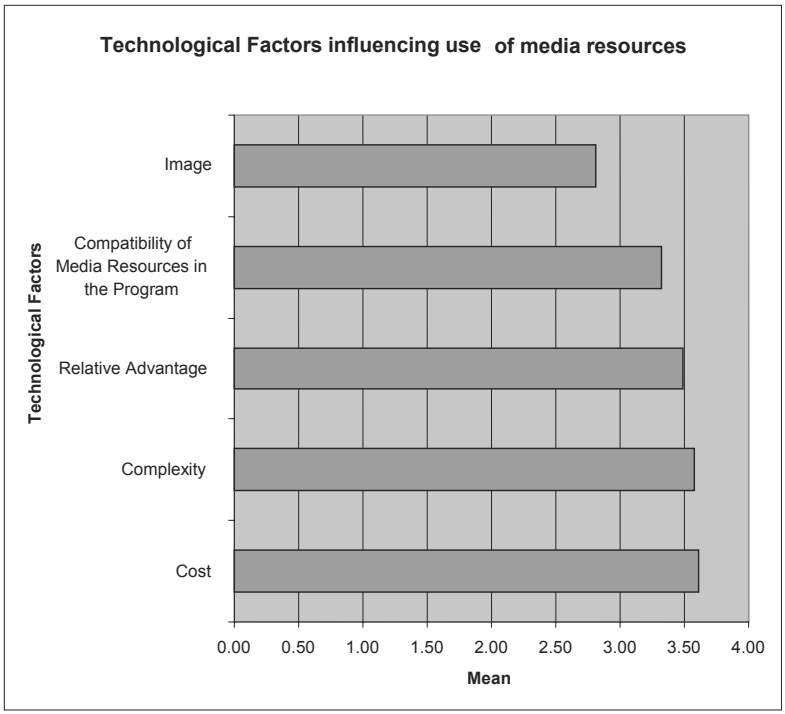

Figure 32: Technological Factors Influencing Use of Media Resources

A close scrutiny of the above factors indicates that cost, complexity and relative advantage were technological factors influencing the adoption and usage of media resources in the University.

In conclusion, it was established that exposure to media resources due to its availability, accessibility and educational level, promote adoption and usage of media resources. It was also established that literacy and knowledgeability on media resources influenced adoption. Training raises the level of confidence of the media resource user thus, positively influencing adoption of media resources. Personal preference, age and personal attitudes were also other factors that influenced the adoption and usage of media resources in the school.

The study further established that University integration of media resources in its programme and University budgeting for media resources enhanced availability and accessibility. The study further established that size of the University, University having media resource use policy and training of support staff on media resources influenced the adoption and usage of media resources in the school.

Concerning technological factors, it was established that cost (high cost discourages adoption of media resources), complexity brought about by sophistication level and relative advantage were among the technological factors influencing the adoption and usage of media resources in the School of Public Health.

4.3.4 Ranking of Factors that Influence the Use of Media Resources

When respondents were asked to rank factors that influenced the use of media resources in the School of Public Health, Technological factors were given the first priority. Table 35 and Figure 33 summarize the findings.

From Table 35 and Figure 33, Technological factors were ranked first with a mean value of (2.73), individual factors were ranked second (1.82) while organizational factors were third (1.50).

As a result, it was established that technological factors play a vital role towards usage of media resources. It is through individual initiatives that media resources are budgeted for and acquired. Moreover, it is through organization factors and sound policies that media resources are adopted and used. However, the study established that organizational factors played a minor role in influencing the use of media resources in the School of Public Health.

4.4 Challenges to the Use of Media Resources

The third objective of the study was to describe challenges facing use of media resources in the instruction process at the School of Public Health. It was measured by the cost of media resources, media resources being considerate of student with disability, lack of skills and literacy, inadequate computers, limited option, few media resources, few support staff, lack of awareness and knowledgeability, poor staff attitude, limited space and poor attitude of students amongst others.

Table 35: Ranking of Factors that Influence the Use of Media Resources in the School

Factors	Mean	Std. Deviation	Rank
Technological factors	2.73	0.65	1
Individual factors	1.82	0.68	2
Organizational factors	1.50	0.59	3

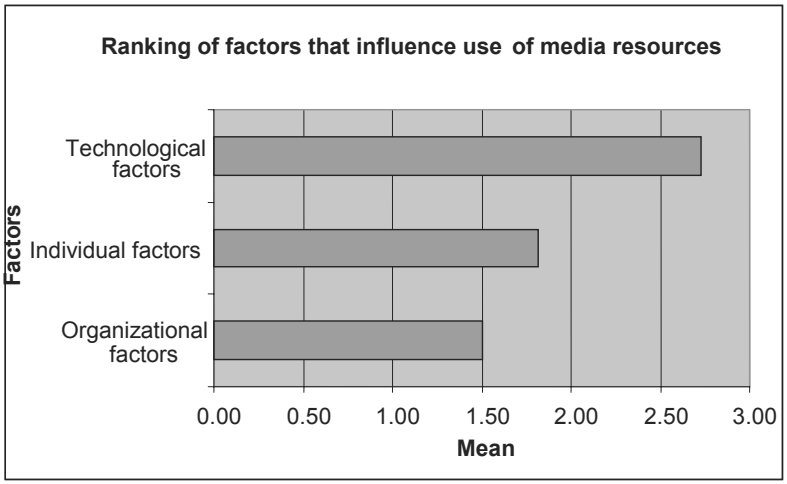

Figure 33: Ranking of Factors that Influence the Use of Media Resources

There are various obstacles which hamper the use of media resources in any learning institution. The study, therefore, sought to verify whether or not this

premise was true. This question was analyzed by using the mean values to identify the rank for each attribute. It was established that high cost of media resources is major hindrance to the adoption of media resources. This is summarized in Table 36 and Figure 34.

From Table 36 and Figure 34, high cost of media resources was ranked first with a mean value of 3.71, media resources not taking into consideration student with disability was ranked second (3.61), lack of skills and literacy on media resources was ranked third (3.59), inadequate computers was ranked fourth (3.38), few media resources was ranked fifth (3.24), limited option of media resources was ranked sixth (3.02), few support staff was seventh (3.00), lack of awareness and knowledgeability was eighth (2.94), poor attitude was ranked ninth (2.91), limited space was ranked tenth (2.73) while poor attitudes of students was ranked eleventh with a mean value of 2.32.

As a result, it was established that high cost of media resources, media resources not taking into consideration student with disability and lack of skills and literacy on media resources were the major barriers influencing adoption and usage of media resources in the University. High costs of media resources, as explained earlier, discourage the school from acquiring adequate media resources since they will be expensive to purchase media resources which cater for the school population. Moreover, due to high costs, limited media resources may be acquired which in the end leads to inappropriate and inefficient teaching/learning.

Table 36: Challenges to the Use of Media Resources in the School

Challenges	Mean	Std. Deviation	Rank
High cost of media resources	3.71	1.15	1
Media resources does not take into consideration student with disabilities	3.61	1.13	2
Lack of skills and literacy	3.59	1.29	3
Internet and computers are inadequate	3.38	1.07	4
Few media resources	3.24	1.25	5
Limited option of media resources	3.02	1.52	6
Few support staff to help staff and students who want to use media resources	3.00	0.81	7
Lack of awareness and knowledgeability	2.94	1.48	8
Poor attitude of staff	2.91	1.09	9
Lack of enough space to mount media resources when lecturing	2.73	1.09	10
Poor attitude of students	2.32	1.08	11

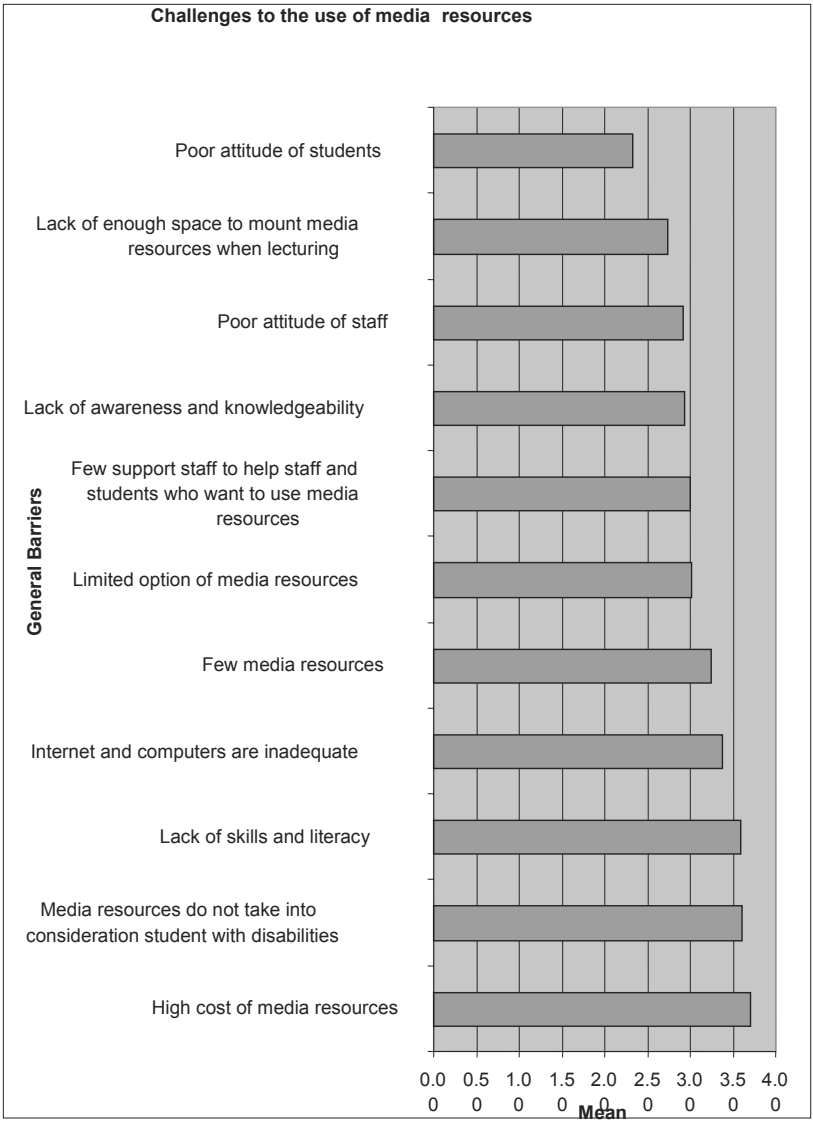

Figure 34: Challenges to the Use of Media Resources in the School

Most media resources acquired in the School like computers and projectors overlook students with disabilities. Supporting this finding Wambugu (2010)

while writing to Sunday Nation of 4th April, 2010 reported that children who are hard of hearing can now learn by watching video books while the blind can listen to audio books. The tools which facilitate these processes include talking word processors, big pointer utilities, screen magnifiers, screen readers, closed circuit television and electronic Braille. For example, projectors and computers have no benefit to a blind student because s/he cannot see what is being projected. On the same note, lack of skills and literacy on the use of media resources also blocks the use of media resources.

When one is ignorant about how media resources operate, adoption of the resources becomes difficult. However, it was established that poor attitudes of students did not influence usage of media resources. A close scrutiny of the above factors indicate that high cost of media resources, media resources not taking into consideration student with disabilities, lack of skills plus literacy on media resources were the major barriers influencing use of media resources in the School of Public Health.

In addition, and while writing on Virtual Universities in Africa, Statlander (1998) states that poor telecommunication links, shortage of equipment, erratic power supply, inconsistent funding, cost of linkage, sustainability, shortage of trained technical staff and attitude of educators all combine to stagnate use of media resources. Again, South (2000) argues that challenges of instructional media include core-cost, storing, provision of infrastructure, creating meta-data for each object and maintaining standards of learning objects. However, the central benefit of the media resources is their potential for re-use in order to reduce production costs.

It was established that high costs of media resources hinder the use of media resources in the school as it makes the project to be expensive. Other factors which barred the smooth use of media resources includes; media resources not

taking into consideration student with disabilities and lack of skills and literacy on media resources. As a result, skills and knowledge on media resources should be obtained from training, accessibility and exposure to media resources.

Miller (1990) argues that instructional media are part and parcel of the information communication technologies. Other researchers, such as Erickson (1968), Sax (1974), Kafu (1976), Amri (1983), CHE (1983) and WFME (2003) recommend integration of projected and non-projected media resources to support teaching and learning. In addition, Kafu (1976), CHE (1985) and Humprey (2005) support the need for adequate Media resources in training institutions. Therefore, lecturers and students should use Media resources in-order to improve teaching and learning. However, due to lack of skills in operating them the traditional chalk board and printed visuals are still in vogue.

WFME (2003) agrees with the establishment of policies on Media resources and Mutema (1992) who argue that cost should be considered when selecting and using Media resources. Lastly, Hurwitz (2002) indicates that teachers may be influenced to use Media resources when explained their benefits, relevance, and when allowed hands-on-experience. In view of the above, this study found that integrating Media resources in teaching and learning programmes, budgeting and training of support staff would influence the use of Media resources.

Statlander (1998) agrees with some of the findings but adds that poor telecommunication links, shortage of equipment, erratic power supply, inconsistent funding, cost of linkage, sustainability and shortage of trained technical staff all combine to stampede use of Media resources. In addition, South (2000) adds that the challenges of instructional Media resources include core-cost, storing, provision of infrastructure, creating meta data for each object and maintaining standards of learning objects.

Catering for the students with disabilities was one of the main findings perhaps for the future consideration because the respondents were not limited to the present situation only. For this purpose we may need video books and audio books (Sunday Nation 4th April, 2010). As established earlier, the central benefit of Media resources is their potential for re-use in order to reduce production costs and at the same time enhance teaching and learning. These challenges could be mitigated upon through training, increasing availability and exposure to Media resources through a functional Instructional Media Centre.

4.5 Summary

Data and information from all the lecturers and students was analyzed, interpreted, discussed and presented in tables and figures to provide clarity in this chapter. It was established that available projected and non-projected media resources were inadequate. However, projected media resources available were not frequently used due to lack of knowledge and skills to operate them notwithstanding the high cost of procurement.

In addition, projected and non-projected media resources were also analyzed in terms of simplicity, accessibility, frequency of use, maintenance, effectiveness, affordability, quality, sophistication level, coordination, customization needs and competency in operation.

It was further established that the factors influencing the use of media resources are Technological, Individual and Organizational in that order of magnitude. Also, the main challenges to the use of media resources are the high cost of media resources, not considering students with disabilities and lack of skills and literacy on media resources.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The general objective of this study was to examine the extent of media resources use in instruction in the School of Public Health of Moi University. Following the analysis, interpretation of data and discussion, this chapter presents conclusions and subsequent recommendations of the study. These are thematically presented on the basis of the stated objectives. The procedure will be to present thematic conclusions and recommendations and then the overall conclusions in the chapter summary.

5.2 Conclusions

The first objective of the study was to identify the type of media resources used in instruction at the School of Public Health. It was established that the School uses several projected and non projected media resources. The use of projected media resources was still very low due to limited knowledge and skills used in operating them. However, it was established that projected media resources were not frequently used. This may have been brought about by the lack of experts to run the media resources and the high capital required to own the projected media resources. On the other hand, non-projected media resources were frequently used because they are simple to operate. It was further established that projected media resources were not easy to maintain. This follows the fact that most of them were complex and sophisticated in nature and therefore, a technician or an expert was required for efficient maintenance of projected media resources.

It was also established that respondents were not competent in operating projected media resources. Supporting this finding, Russel (1985) recommends

that lecturers should be oriented in media operations and also constantly use them in-order to perfect the skill.

The second objective of the study was to examine the factors influencing the use of media resources in the School of Public Health. It was established that individual factors of exposure to media resources due to availability, accessibility and educational level influences the rate of using media resources. It was also established that literacy and knowledgeability on media resources influences their use. Training raises the level of confidence of the media resource user thus, positively influencing use of media resources. Personal preference, age and personal attitudes were also other factors that influence the use of media resources in the School of Public Health.

The study further established that organizational factors such as University integration of media resources in its programmes and University budgeting for media resources enhance availability and accessibility of media resources. The study further established that size of the University, University having media resource use Policy and training of lecturers on media resources influenced the use of media resources in the school.

In addition, it was established that technological factors, such as the high cost (high cost discourages use of Media resources) and complexity brought about by sophistication level plus relative advantage, all were among the technological factors influencing the use of media resources in the School of Public Health. Following the above findings, it can be concluded that Technological, Individual, Organizational and factors influence the use of media resources in the School of Public Health.

The third objective of the study was to describe the challenges facing the use of media resources in instruction process in the School of Public Health. It was established that high cost of media resources hindered the use of media

resources in the School as it makes the project to be expensive. Other factors which barred the smooth use of media resources included media resources not taking into consideration students with disabilities and lack of skills and literacy on media resources. As a result, skills and knowledge on media resources should be obtained from training, accessibility and exposure to media resources.

5.3 Recommendations

Emerging from the findings, the study makes the following recommendations:

a) Lecturers should be trained on how to operate and use media resources, especially projected media resources where majority of the respondents were incompetent in operating them. The Department of media technology in the School of education (Moi University) could facilitate the training.

b) The School of Public Health should formulate sound procedures which will guide the procurement, use and maintenance of media resources and the establishment of Instruction media centre. This may be done through a workshops sponsored by the school where Educational media specialists are invited.

In addition, the following recommendations are hereby made for further research:

a) The school should carry out a study over its population before adopting media resources. This will help to put the factors (technological, individual and organizational) into consideration and also cater for students with special needs.

b) Further research should be done on how e-learning and streaming the media (*electronically distributing digital audio and video content over network to classrooms)* could be promoted in the School of Public Health.

5.4 Summary

The general objective of the study was to examine the determinants of media resource use in instruction in the School of Public Health in Moi University. In summary, the School of Public Health has several projected and non-projected media resources, but the lecturers lack the knowledge and skills in operating them especially the projected media resources. Again, it was established that the factors influencing the use of media resources in the school are technological, individual and organizational factors. These factors should be mitigated upon in order to effectively use media resources in instruction in the School of Public Health of Moi University.

The study established that the main challenges facing the use of media resources in instruction included high cost of projected media resources, not considering students with disability and lack of knowledge and lack of necessary skills to operate them. Lastly, it was found necessary for the school to carry out a study over its population before adopting media resources in order to mitigate over negative factors.

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