

**AVAILABILITY AND USE OF MEDIA RESOURCES IN TEACHING AND
LEARNING: A CASE OF SELECTED SECONDARY SCHOOLS FOR THE HEARING
IMPAIRED IN WESTERN KENYA**

By

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of Philosophy in Curriculum and Instruction**

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DECLARATION

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RECOMMENDATION

To The Institute of Postgraduate Studies

The Thesis entitled “Availability and use of media resources in teaching and learning of the hearing impaired students” and written by Ondicho Rosemary M. Nyaundi is presented to the Institute of Postgraduate Studies and Research of Kabarak University. We have reviewed the thesis and recommend it be accepted in partial fulfillment of the requirements for the degree of **Doctor of Philosophy in Curriculum and Instruction**

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ABSTRACT

The use of media resources has an effect on students' content acquisition as they add value to learning outcomes. However, research has shown that media resources cannot be effectively used unless they are available in sufficient quantities. Little attention has been given to the use of media resources in secondary schools for the hearing impaired. In view of this, the study sought to investigate the availability and use of media resources in the selected special secondary schools. The study was guided by five specific objectives: To determine if there is a significant difference between students' and teachers' perceptions on the availability and use of media resources for teaching and learning in schools for the hearing impaired in western Kenya; To assess the adequacy and frequency of availability and use of media resources in schools for the hearing impaired; To compare the pre-lingual and post-lingual students' attitude towards the availability and use of media resources; To compare teachers' and students' attitudes towards the availability and use of media resources for teaching and learning in schools for the hearing impaired; To determine if there is an empirical relationship between the frequency of the availability and use of media resources and students' content acquisition. The study was also guided by two theories, namely: Sweller's (2005) Cognitive Load Theory, Dale's (1969) Instructional Theory and Piaget's (1964) Cognitive Development Theory. The study adopted a descriptive survey design. The target population was 498 respondents, comprising 3 principals, 40 teachers and 455 students and the sample size was 217 respondents consisting of 3 principals, 40 teachers and 174 students from the selected schools. Data were collected using questionnaires and observation check list. Test-retest method yielded Pearson product-moment correlation coefficients of 0.76, 0.78 and 0.71 for Principals', teachers' and students' questionnaires hence were considered reliable. Descriptive statistics such as frequency counts, percentages and weighted averages were used to analyze findings of respondents' views. The Chi-square test was used to test for independence of responses between Pre and post-lingual students and between teachers and students. Simple linear regression analysis was used to determine the relationship between students' attitude and level of content acquisition while Binary Logistic regression was used to determine the relationship between frequency of use of media resources and content acquisition. SPSS version 21 and STATA were used to generate the required statistics for analysis. Results were presented using tables and charts. The study established that chalkboards, Science labs, Textbooks, Specimens, Maps, Atlases, Graph papers and Charts were available but were not adequate and were old and unusable. The use of electronic media such as computers, overhead projectors and videos was inadequate despite the rapid technological change and this was attributed to non-availability, inaccessibility and lack of requisite training. A significant difference in attitude towards the use of media resources between pre-lingual and post-lingual hearing impaired was established ($\chi^2 = 4.0816$, $p < 0.05$). However, there was no statistically significant difference in attitude towards the use of media resources between teachers and students ($\chi^2 = 0.8556$, $p > 0.05$). Further, a positive relationship between frequency of use of media resources and content acquisition was established. The study recommends that the ministry of education through the quality Assurance office increases the frequency of inspection in public secondary schools for the hearing impaired to ensure compulsory use of media resources in the teaching process besides adequately financing their development or purchase and providing in-service training to the teachers so as to enhance their ability to effectively use media resources.

Key words: *media resources, hearing impaired schools, students, content acquisition, attitude.*

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LIST OF ACRONYMS AND ABBREVIATIONS

| | | |
|--------------|---|--|
| B.Ed. | - | Bachelor of Education |
| CAI | - | Computer Assisted Instruction |
| CLT | - | Cognitive Load Theory |
| HoDs | - | Heads of Departments |
| IT | - | Instructional Technology |
| KCSE | - | Kenya Certificate of Secondary Education |
| KSL | - | Kenya Sign Language |
| LSWR | - | Listening, Speaking, Writing and Reading |
| OC | - | Observation Checklist |
| PQ | - | Principals' Questionnaire |
| SPSS | - | Statistical Package for Social Sciences |
| STATA | - | Statistical Analysis software Package |
| SQ | - | Students' Questionnaire |
| TQ | - | Teachers' Questionnaire |
| USAID | - | United States Agency for International Development |

OPERATIONAL DEFINITION OF TERMS

- Adequacy** : Refers to the mobilization of sufficient resources to support a designed level in terms of both and quantity of instructional processes.
- Availability** : Means media resources being physically found in the school environment. The resources should be of appropriate quality for students' use.
- Community Based resources** : This refers to a wide variety of instructional methods and programs that educators use to connect what is being taught in schools to their surrounding communities, including local institutions, history, literature, cultural heritage and natural environment.
- Deaf** : This group includes individuals who manifest moderately severe to profound degree loss. The degree of hearing loss ranges from mild, moderate, severe to profound.
- Hearing-impaired** : Include deaf and hard of hearing. Deaf children are those whose hearing loss is either severe or profound after all necessary medical or surgical treatment.
- Media** : Are the physical tools of instructional technology which includes printed materials, audio tapes, video tapes and films.
- Models** : Are productions of a real thing on small scale or exact size but made of paper or synthetic materials.
- Non-projected media** : Involves presentation of information that does not involve projection on a screen. These include the chalkboard, posters, globes and printed materials.
- Projected media** : Pictures shown upon a screen by use of a certain type of machine such as a film projector, slide projector or overhead projector.

- Post-lingual** : The term refers to the persons who acquired deafness after the age of four. This category is believed to have acquired a language before they became deaf.
- Pre-lingual** : The term refers to the persons who were either born deaf or became deaf before they attained the age of four.
- Resources** : They comprise any items living or non-living used during the teaching process to improve the learning situation.
- Sign language** : The term refers to any system of gestures of complexity sufficient for all or almost all the functions of a spoken language.
- Special Needs Education** :
- : Refer to the needs of learners, which constrain them from having access to the curriculum and co-curricular activities of a school or institution that are enjoyed by their counterparts.
 - : UNESCO Report, (1994) Special needs children include all children who, for whatever reasons are failing to benefit from regular school curriculum.
 - : Ozaji & Mugu cited by Unegbu (2006) defines special needs people as “those with significant sensory deficits or unusual high intellectual that are not properly addressed in the regular programme”.
 - : Kami (2008) defines special needs people as those generally referred to as exceptional persons and they comprise children, youths and adults with one form of disability or learning difficulty or the other.
 - : Mwachukwa (2006) defines special needs children as those who “deviates from the ordinary children such that they require special attention, special services and other areas that could make life more meaningful and worth living or those require special education service in order from the regular school curriculum” (p. 278).

- Use** : Means presence of materials in class and their being manipulated as resources for teaching and learning by teachers, students or both.
- Western Kenya** : This covers parts of former Rift Valley province, former Nyanza province and former Western province from where Bomet, Migori and Kakamega Counties were derived from to form a study area for the current study.

CHAPTER ONE

INTRODUCTION

This chapter presents the background to the study, statement of the problem, the purpose, research objectives, hypotheses, assumptions of the study, the scope, the limitations and significance.

1.1 Background to the Study

Teaching at any level requires that the students be exposed to some form of simulation. Adekunle (2008) pointed out that media resources means anything that can assist the teacher in promoting teaching and learning. When the students are given the chance to learn through more than one sense, they can learn faster and easier. In addition, the use of instructional materials provides the teacher with interesting and compelling platforms for conveying information since they motivate learners to learn more. Also, the teacher is assisted in overcoming physical difficulties that could have hindered the effective presentation of a given subject matter (Okobia, 2011).

The purpose of media resources is to promote efficiency of education by improving the quality of teaching and learning. Incorporating media resources available, teaching and learning is supported and reinforced. Aduwa-Ogigbaen & Imogie (2005) note that media resources including videos, slide projectors, overhead projectors, still pictures, programmed instructions, filmstrips, maps, charts and graphs offer variety of learning experiences individually or in combination to meet different teaching and learning experiences. All these media resources when made available in large quantities play a critical role in enhancing students' learning outcomes. Selection and use of media resources form a vital ingredient in the instructional process and ultimately reflects

on the overall students' content acquisition in academic subjects. The vital role of media resources in the success of secondary curriculum cannot be over emphasized. Jimo (2009) noted that the use of media resources in teaching is a necessary practice for effecting learners' behavior change in all fields of learning. With a variety of media resources in the classroom, both teaching and learning becomes pleasant experiences and therefore teachers go through less stressful moments when teaching since media resources bring reality in the classroom.

According to Onyango (2001: 51), media resources include those items so designed, modified and prepared to assist teaching/learning operations. He gives examples as: textbooks, reference books, teacher guides, manuals, magazines, charts, maps, raw materials such as wood and metal. Kinyua (2007) used the instructional media to refer to audio-visual and related materials that serve instructional functions for education and training. According to Masibi & Kiiro (2005), learning resources are also commonly known as teaching aids, educational media or instructional materials. They maintain that these resources are important in education because they motivate learners by linking instructions with reality. Masibi & Kiiro (2005) further note that instructional materials also encourage learners to utilize more than one sense hence increasing their attention and retention capacity. A textbook for example, remains after the teacher as the pupils' companion throughout the course. Ng'ang'a (2008) concurs with Masibi and Kiiro that teaching/learning resources enhance effective learning. Simiyu (2007) on the other hand, posits that students' attention is sustained through the use of media resources.

Ogbandah (2008: 12) in his study on an appraisal of instructional materials, used to educate migrant fishermen's children in River State, Nigeria found that instructional materials extend the range of experiences available to learners. He noted that they supplement and complement the teacher's verbal explanation thereby enriching learning experience. He further notes that instructional materials motivate learners to learn more, help to broaden their knowledge and increase their level of understanding. On the other hand, he found that instructional materials help the teacher in overcoming physical difficulties in delivering his or her lesson.

Studies by Jimo (2009) and Ogbundah (2008) have similarly emphasized the importance of the available media resources in the effective delivery of teaching. These views have been echoed by Kadzera (2006), Abdo & Semela (2010), Jotia & Matlale and Dahar & Faize (2011). In a study of primary school teachers' training colleges in Nigeria, Onasanya (2008) confirmed that media resources stimulate learning because firstly, students get more attentive. Secondly, student teachers' positive attitude generates more interest for lessons they learn to teach. Also, Kadzera (2006) observes that the use of media resources arouses students' interest and enhances their participation in class activities. In addition, use of media resources in instruction can also provide teachers' access to new ideas such as ways to study themes, how to access information that is difficult to find, classification of difficult terms or concepts and how to present information using different media resources (Mwalongo, 2010). Further, many teachers who use media resources find that they can help improve student learning and motivation, address students with different learning abilities, and expose students to a wider world of information (Mwalongo, 2011).

Kenya has in the recent past renewed its quest to provide quality education by providing teaching and learning resources in learning institutions since 2003 (Ministry of Education, 2007). This is in response to several commissions of education reports which documented the need for learning institutions to acquire, maintain and use suitable media resources to improve the quality and relevance of education (Republic of Kenya, 1988).

The projected and the non-projected resources available for teaching and learning are many and varied. In most multimedia resources can be used to teach a particular concept. This therefore calls for the ability of the teacher to select the most relevant and appropriate media that can convey the message accurately. The selection of the appropriate media resource is determined by a number of factors that have been studied by several authors and are discussed below.

According to Ambuko & Odera (2013), the whole teaching and learning process becomes accessible if the aids are effectively used without making a mess of them. Hence the selection and adoption of aids for teaching will depend mainly upon the needs and interests of the students, their previous experiences and type of materials or activities to be demonstrated. The selection of media resources to be used therefore must take into consideration the learner

characteristics such as needs, motivations, interests, abilities and past experiences. Romiszowski (1988) has listed the criteria that should be used in media selection. These are purpose, content, appropriateness of the item for the message, evidence of valid field-testing, cost and circumstances or use. In order to make a good selection of the media resources, the teacher must therefore be able to: state the purpose of the lesson, be knowledgeable of the lesson content, judge the appropriateness of the items of the lesson, use the media resource i.e. have technical-know-how on the use of the media resource and assess the cost and also determine the relevance of the item to the circumstance in his or her school. It is therefore important that the teacher be trained to be equipped with the relevant knowledge and skills to be able to select and use media resources appropriately.

Bozimo (2002) identified consistency with objectives, familiarization with media content, appropriateness with the mode of teaching, students learning capabilities and learning style as the generalized principles of media selection. Abdo and Semela (2010) also say that a teaching aid should be selected and used at the right time, at the right place and in the right manner. Further, the aid should be chosen for its function and for its predicted effect on the audience. Thus media resources can be used to deliver different messages. Therefore careful selection is an essential component. Waigera (2013) asserts that “In selecting pictures, consider your purpose, the viewers and the theme of the subject.” Dahar & Faize (2011) say that in selecting media resources consideration should be given to the objective, the learning style, practicability, variety and availability. The latter criteria take into consideration the methodology (learning style) and availability which are the very basic factors that determine the use of the selected media for teaching and learning. This is because unless the media resources are available, the teacher may not be able to use them in teaching. In selecting the media resources for instruction use, the teacher must also consider the students’ motivational level and select media resources that are able to arouse interest in the pupils and give accurate information.

Jimo (2009), states that use of media like pictures and charts must be large enough for the required details to be seen clearly by every child in the class. This will enable the children to follow the teacher while using this in teaching. Echoing the same view, Mwololo (2009) says that each picture should have a simple and direct message to convey to the learners. While the focus of this study was on the availability and use of media resources, there was need to establish the criteria used by teachers in the schools for the hearing impaired to select media resources and the utilization of the media resources in the teaching and learning process.

Although some studies have been done on special education little attention has been given to the use of media resources in the teaching of learners with special needs. Studies carried out by Ndurumo (1993) and Ondicho (2007) show that little research has been done on special education in Kenya. This has resulted in the development or use of inadequate assessment tools for comprehensive assessment and diagnosis of degree of handicap and hence, failure to develop appropriate intervention programs. The studies further show that education authorities have largely been unable to cope with the changing curricula or emphasis on educational system because they lack an in-depth understanding of exceptional children. Lack of research has also led to the continued exposure of learners with handicaps to outdated vocational programs which hardly assist them get employment. This has led to the provision of poor quality education services leading to lower performance levels by children with special needs education in national examinations. As much as there is need to give quality education to learners with special needs, few studies have been devoted to evaluating the availability and use of media resources for teaching and learning in the schools for the hearing impaired. At the threshold of the 21st century teachers in schools for the hearing impaired need to evolve strategies to engage learners in activities that are active, meaningful and challenging. This study sort to fill the void through addressing the availability and use of media resources in schools for the hearing impaired in western Kenya. Based on this observation, the present study sought to establish whether the availability and use of media resources would have an effect on content acquisition of the special needs learners, particularly the hearing impaired. In this study, the term media resources was frequently used alongside instructional media, instructional materials and instructional technology to mean all the equipment and resources used to enhance the teaching and learning process.

1.1.1 Education for Special Needs Learners

For a long time, children with special needs were educated along with other regular children in schools. The notion of special education was a western phenomenon and concept in Africa (Obidiya, 2012). So, how were children with special needs educated without special education programs? As it appears, special education has made some progress in Africa. However, the more things change, the more they remain the same. Obidiya (2012) noted that while special education programs have embraced some slight recognition in some parts of Africa, they have failed in other parts of the continent. Eskai (2001; 2009) noted that cultural beliefs, division among ethnically diverse Nigerians, environment divisive politics still accounted for the unequal representation and treatment of learners with special needs. Munya (2002) indicated that many people do not see any significance in educating people with special needs, and thus, there exists division among policy makers.

The Sessional Paper No. 1 (2005) states in part the overall government policy direction on learners with special needs and disabilities. It provides the overall policy framework for the education sector and references the necessary legal context within which education and training including special needs education, shall be designed, developed and implemented in Kenya.

The gender-policy in education singles out that education for learners with special needs and disabilities as an area of specific focus. This policy states that to increase participation, retention and completion for learners with special needs, the government should provide an enabling environment. This should be done through flexing curriculum, providing trained personnel, equipment and learning resources (MoE, 2010).

Mbui (2003) and Ndurumo, (2006) noted that over 78, 000 children had been identified then, by the assessment centres as needing special needs education. However, Wambugu (2010) and Kiaritha (2011) assert that the exact number of children with special needs in schools in Kenya is not known. However, using the estimate of 10-16% given by Sessional Paper No.1 (2005), and the estimate that only a quarter of these individuals acquire formal education, then Kenya has a guess estimate of 1-1.2 million individuals with special needs with substantial amount of formal

education. However, a smaller percentage of individual are in integration and only 6% are in special schools. The rest being left out of formal education training (Kiaritha, 2010; 2011).

Kiaritha (2010) noted that even with the legal framework, government recommendations and establishment of the Children's Act (2001) and the persons with Disabilities Act (2003) there are numerous challenges that are faced by students with disabilities in learning institutions. These challenges have been identified to range from academic, financial, emotional to social in nature. This study therefore realized this knowledge gap and sought to contribute towards filling it. This brought a need for this study to investigate the availability and use of media resources for teaching and learning in schools for the hearing impaired with an ultimate goal of improving content acquisition.

1.1.2 Education for the Hearing Impaired Learners

Education for the hearing impaired caters for the persons with various degrees of hearing loss and includes children who are unable to hear within normal limits due to the dysfunction of the auditory mechanism distinguished by deafness (R.o.K, 1988). However, the entire hearing impaired are not homogeneous group but the greater the hearing loss, the more the linguistic and academic difficulties.

According to the Republic of Kenya (1988), special education for the hearing impaired was provided in 22 residential primary schools, 2 units in regular primary schools, and 2 vocational training institutions. The report noted that children with hearing impairment were lumped up and taught together in one class regardless of the severity of the hearing loss or age at onset of the impairment. The report further observes that there was also the tendency to concentrate on the development of communicative skills at the expense of the academic subjects which resulted in some children finishing school almost semi-illiterate. The working party report also noted that one of the problems experienced in teaching the hearing impaired was lack of a definite sign language in Kenya. While appreciating the attempt being made to improve the teaching of the hearing impaired, it was considered that research be undertaken to enable Kenya to provide the most appropriate sign language. The working part therefore recommended that:

- a) An appropriate curriculum be developed for the hearing impaired aimed at developing balanced academic knowledge and communicative skills;
- b) Teachers be guided on proper placement of hearing impaired children based on the severity of their hearing loss, the age at onset of deafness and their learning needs;
- c) Research be undertaken to develop the most appropriate sign language for Kenya taking into account the varied cultural diversity.

Interestingly, the provision of instructional materials for the teaching and learning of the hearing impaired did not feature much in this report. This made the current study to become handy by availing the information on the media resource in the selected secondary schools for the hearing impaired in Western Kenya.

However, Republic of Kenya (2007) in its Vision 2030 projection admits the challenges for meeting the instructional materials and providing for learners with special needs and special talents. To enhance quality, the project aims at improving the ratio of textbook to learners by increasing the textbook grants to school. Whether this mission comes to reality, time will tell.

Teaching without media resources to enhance learning negatively affects learning outcomes. This negative effect is reflected on student content acquisition and ultimately on the academic achievements. For instance, the recent years have shown a steady decline of grades in the Kenya Certificate of Secondary Examination (KCSE) results in schools for the hearing impaired. This is evident in Table 1.1 for Kuja Secondary School for the hearing impaired for the years 2001 to 2010.

Table 1.1: KCSE Performance for Kuja Secondary School for the Deaf.

| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quality Grades (≥ B-) (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 4.5 |
| Average grades C- to C+ (%) | 28.6 | 0.0 | 7.1 | 6.7 | 11.8 | 0.0 | 5.9 | 23.1 | 23.1 | 13.6 |
| Below average grades (≤ D+) (%) | 71.4 | 100 | 92.9 | 93.3 | 88.2 | 100 | 94.1 | 76.9 | 73.1 | 81.9 |
| Mean Scores | 3.00 | 2.73 | 2.14 | 2.00 | 2.18 | 1.50 | 2.65 | 3.12 | 3.89 | 3.50 |

(Source: Kenya National Examination Council (KNEC) Examination Statistics)

The above performance clearly indicates that hearing impaired students perform below average. In spite of specialized strategies and methods of teaching, certain things remain unexplained and of particular concern to this study was the availability and use of media resources for teaching and learning in schools for the hearing impaired.

1.2 Statement of the Problem

According to the Session Paper No. 1(2005), it is estimated that 10 percent of the total population of Kenya is made of people with special needs. This is about 3 million persons with about 25 percent of these being children of school-going age which translates to 750,000 children. An estimated 90,000 of these children have been identified, assessed and about 18,600 enrolled in educational programmes for children with special needs. This implies that 90 percent of children with special needs are either at home or in regular schools with little or no specialist assistance, inadequate provision of facilities and poor curriculum delivery (Republic of Kenya, 2005). This escalates when schools globally have to contend with some of these challenges, given that the managers have little or no research based information. The teaching and learning of the hearing impaired students as noted by students' performance in schools have been characterized by low grades in national examinations. Effective delivery of content by use of appropriate media resources is of great concern and is worthy laying emphasis on. The availability and use of media resources for teaching and learning for the hearing impaired students has never been critically evaluated by many scholars as various studies and literature reveal. There is lack of strong empirical evidence showing the availability and use of these media resources in teaching this group. It is against this background that the current study focused on the availability and use of media resources in the selected secondary schools for the hearing impaired in the western Kenya.

1.3 The purpose of the study

The purpose of this study was to investigate the availability and use of media resources in schools for the hearing impaired.

1.4 Specific Objectives of the study

The study was guided by the following objectives:

- i. To determine if there is a significant difference between students' and teachers' perceptions on the availability and use of media resources for teaching and learning in schools for the hearing impaired in western Kenya.
- ii. To assess the adequacy and frequency of the availability and use of media resources in schools for the hearing impaired.
- iii. To compare the pre-lingual and post-lingual students' attitude towards the availability and use of media resources.
- iv. To compare teachers' and students' attitudes towards the availability and use of media resources for teaching and learning in schools for the hearing impaired.
- v. To determine if there is an empirical relationship between the frequency of the availability and use of media resources and students' content acquisition.

1.5 Hypotheses

- H₀₁: There is no significant difference between the students' and teachers' perceptions on the availability of media resources for teaching and learning in schools for the hearing impaired in western Kenya.
- H₀₂: There is no significant relationship between adequacy and frequency of the availability and use of media resources for teaching and learning in the selected schools for the hearing impaired in Western Kenya.
- H₀₃: There is no statistically significant difference in attitude towards the use of media resources between pre-lingual and post-lingual students in schools for the hearing impaired in Western Kenya.
- H₀₄: There is no statistically significant difference in attitude towards the use of media resources between teachers and students in schools for the hearing impaired.
- H₀₅: There is no statistically significant relationship between use of media resources in the teaching/learning process and students' content acquisition.

1.6 Assumptions of the Study

In this study, it was assumed that:

- a) All the respondents were willing to answer the questionnaire items.
- b) Teachers and principals would be free to discuss the availability and use of media resources in their schools.
- c) Students' content acquisition is affected by the availability and use of media resources.
- d) Adequate use of the available media resources would improve the learners' content acquisition.
- e) Availability and use of media resources would be determined by the respondent's perceptions.
- f) That all teachers in schools for the hearing impaired were competent in the use of the available media resources.
- g) The respondents were willing to participate freely and without fear or bias.
- h) The respondents were cooperative in providing reliable information.
- i) All respondents were honest and would respond to the study instruments faithfully and truthfully.
- j) All the selected schools have been provided media resources by the Ministry of Education.

1.7 The Scope of the Study

The scope in this study concentrated in three areas namely: methodological scope in terms of the location of the study, the parameters of the study and the theoretical perspective. Concerning the location of the study the research was carried out in the three selected schools for the hearing

impaired in Western Kenya namely: Kuja, St. Angelas Mumias and St. Kizito in Migori, Kakamega and Bomet Counties respectively.

Concerning the parameters of the study, since the research was more inclined to quantitative in nature, variables were used. These variables were the availability and use of media resources for teaching and learning. Also, this study concentrated on media resources in schools for the hearing impaired context. Although there are different categories of students with special needs, the hearing impaired were selected for the study. This is because students with hearing impaired rely mostly on the sense of visual for learning. It is for this reason that the study chose only schools for the hearing impaired.

Additionally, the study also considered the theoretical scope. The study used the cognitive load theory, the piaget theory and Dale's instruction theory since the study sought to investigate the availability and use of media resources for teaching and learning in schools for the hearing impaired. The theories then were only used to the extent where they addressed issues related to the availability and use of media resources.

The anticipated findings were those related to the availability and use of media resources, adequacy and frequency use of media resources, hearing impaired learners' attitude towards use of media resources, students' and teachers' attitude towards use of media resources and the relationship between the availability of media resources and students' content acquisition.

1.8 Limitations of the study

- i. A major limitation of this study was that the topic 'Media Resources' was very broad and could not be covered in one study. Therefore, this study concentrated on the resources that were available and commonly used in the special schools context.
- ii. The study focused on the hearing impaired students in Western Kenya. As such the results of the study may not be generalized to all categories of special needs learners such as the visually impaired, the physically challenged, the mentally challenged, learning

disabilities and other forms of disabilities. Likewise, the study may not be generalized to primary schools for the hearing impaired.

- iii. Another limitation for the study was lack of enough personnel qualified in the Kenyan sign language to be employed as research assistants.
- iv. The principals were reluctant to avail records and offer support during the observation of the available media resources.
- v. The use of a questionnaire for the students was a bit complex as it was written in English while all the students were English second language learners. Some of the questionnaires were filled with irrelevant information even though an explanation of the whole questionnaire was made in Kenyan sign language immediately after the distribution.

1.9 Delimitations

- i) Only schools for the hearing impaired were involved in the study.
- ii) Data was collected from principals, teachers and students.

1.10 Significance of the study

An observation by the researcher on studies done on deaf education in Kenya shows that very little research has been carried out in this area. Studies have been conducted to establish this i.e. language development in the deaf, second language learning in deaf children, sign language acquisition, development of sign language in Africa, development of sign language in Kenya, the Kenyan Sign Language, sign language use in schools, problems encountered by hearing-impaired in learning Kiswahili language and factors influencing performance of deaf students in mathematics. Although the learners' challenges are reflected in part of these studies, a study showing the availability and use of media resources in schools for the hearing impaired would be handy.

This study would therefore be of great contribution to the learning and teaching of all subjects in schools for the hearing impaired in Kenya. The findings from this study would increase awareness for any future planning at national level such as in developing the curriculum for

special education, training special needs educators and allocating funds to learning resources.

The information from this study would establish groundwork to enable discussion and consideration of how national policy makers could improve on the quality of training given to special education teachers especially on the use of media resources. The study will provide data on the availability and use of media resources in schools for the hearing impaired.

The study findings will shed light to the Ministry of Education policy makers and educational planners on how efficiently the media resource can be availed in schools for the hearing impaired.

The findings of this study may enlighten the quality assurance and standard officers, principals and teachers on the possible strategies to improve the availability and adequacy of media resources in the teaching and learning process.

The study findings will stimulate aspiring researchers to undertake a similar study in future in order to compare the results.

It was therefore anticipated that both learning and teaching in schools for the hearing impaired would be improved as a result of the findings from this study.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviewed relevant literature to the research topic. Information was drawn from primary and secondary publications accessed in print and electronic media libraries and via the internet. The review focused on the availability, adequacy and frequency of use of the media resources, the hearing impaired learners, attitude of students and teachers towards the use of media resources and finally the relationship between frequent use of media resources and students' content acquisition.

2.1 Availability of Media Resources for Teaching and Learning

Availability in the opinion of Ibrahim (2007) refers to the condition of being obtainable or accessible at a particular point in time. It expresses how a material can easily be gotten and used for a particular purpose and time. It also states how usable resources are upon demand to perform its designated or required functions. In this study, the researcher proposes availability to refer to the condition with which teachers have access and make use of functional media resources for effective teaching and learning for better content acquisition. It refers to the quality, quantity, functionality and disposability of such media resources to teachers at every point in time for effective utilization.

According to Raghu (2009), utilization is the primary method by which asset performance is measured and business determined. It is the transformation of a set of input into goods or services (Subba, 2009). It involves creation of value in things. Media use, in this context, refers to the rate or how often an instructional aid in teaching and learning is put into use or services by teachers of the hearing impaired students. The use of media resources depends on their availability in the school.

The primary purpose of teaching and learning process is to bring a significant change in behavior through active participation and critical thinking of the learner. However, it is worth noting that this cannot take place without the availability and proper use of media resources (Tadesse, 2014).

Additionally, Buckley et al. (2014) and Shang (2004) as cited by Tadesse (2014) maintain that learning resources enable the teacher to accomplish his/her task as well and help the learner to learn and achieve effectively. They further emphasize that the availability and proper use of learning resources can affect the interest of the teacher to teach effectively in turn that positively affects students' academic achievement. Therefore, the school learning resources in the school need a proper attention as they have a great value in the support of teachers and students' morale, motivation and plays a significant role to improve the quality of education (Buckley et al., 2004).

A study conducted by USAID (2010) in Ethiopia regarding the availability of textbook revealed that there was a big gap among regions. Additionally, the study showed that only 1 in 6 children had any other reading materials and that the quality of education was questionable that needed a great attention to the supply of adequate resources for the improvement of education in the country. Asogwa et al. (2013) carried out an assessment on the availability and utilization of instructional materials for effective teaching of fish production in Nigerian secondary school and the study findings indicated out of all the instructional materials required for teaching fish production, 8 of them were available, 5 were accessible and 8 were often utilized by teachers in the schools under study. This implies that the instructional materials were not adequate and therefore the study recommended that teachers of Agricultural Science should improvise some of the instructional materials lacking in the schools instead of depending on the commercial ones.

Tadesse's (2014) study on the availability of school facilities and instructional materials and their impacts on quality of education in Ethiopian primary schools revealed that the availability of facilities and instructional materials were unavailable, less in quantity and quality that created a great challenge on teaching and learning activities that in turn had a negative impact on the improvement of the quality of education. A study by Buganzi (2009) on the availability and adequacy of instructional materials and land for teaching agriculture in Uganda primary schools revealed that the instructional materials used in teaching agriculture were available but in very small quantities compared to pupils enrolment in primary schools. The study noted that the inadequate supply of learning resources made the pupils to rarely utilize instructional resources like textbooks. Land to cater for practical demonstration in agriculture was also found to be inadequate in all schools particularly in urban areas. The research recommended provision of textbooks by the concerned authorities.

Review of various literature on the availability and use of media resources in teaching emphasize the role they have in teaching. Osarenren – Osaghae & Irabor (2012) conducted studies on the relationship between textbook availability and academic achievement in Nigerian institutions. The studies indicated that access to reading materials positively influences learning and therefore student achievement. He concluded that teaching resources may not be totally significant but are crucial in most learning situations. According to the World Bank (1988) on policy of education in sub-Saharan Africa, quality of education system is properly defined by the performance of students. The study laments that the quality of education in sub-Saharan Africa is well known to be below standard and the main explanation is that expenditure per student is declining. The study further points out that the provision of instructional materials especially textbooks is the most cost-effective way of raising the quality of education. The study concluded that the safest investment in educational quality in most countries is to secure adequate instructional and learning materials.

In addition, Obadara & Alaka (2010) carried out a study in Nigeria on the influence of resource allocation on secondary schools. Results revealed a correlation coefficient (r) of 0.6 which is significantly at 0.05 levels. Obadara and Alaka noted that resource allocation to schools significantly influence students' performance. The study concluded that learning resources are vital factors that make a system function and therefore they are important in students' performance. Ngure (2014) is in agreement when she asserts that resources and methods of instruction affect the amount of learning that takes place. Therefore, effective learning demands that resources are made available to the consumers, who are the students. This view is further supported by the Republic of Kenya (1988) which states that: "...the provision of quality and relevant education and training are dependent on the supply of adequate learning and teaching materials". (p. 38). Without proper and adequate learning materials, evidently, it is not easy to consolidate the desired gains in the process of learning and teaching.

Jeptanui's (2011) survey on the efficiency of instructional resources utilization in Kenyan primary schools revealed that schools lacked textbooks and other learning and teaching resources in adequate quantities. Lack of these facilities resulted in poor instructional methods and non-coverage of the syllabus. The study further indicated that some schools had the necessary equipment which was rarely used because of lack of spare parts or the accompanying software.

This brings out the underutilization of the available resources in the institutions of learning which eventually erodes the little gains made. This was the same scenario with Mutwiri's (2012) findings that the few schools with electronic media resources did not use them in the teaching of Biology. This underutilization can, maybe in part, be as a result of lack of technological expertise or know-how on the part of teachers or just a failure to know the merits of integrating them in active acquisition of knowledge.

Studies carried out by various scholars show limited availability and use of resources in regular learning institutions both within Africa and beyond (Jotia & Matlale, 2011; Abod & Semela, 2010; Kadzera, 2006; Dahar & Faize, 2011). In an evaluation of the use of instructional materials in the teaching of social studies in primary schools in Botswana, Jotia & Matlale (2011) found that use of instructional materials was very inadequate and this had an impact on pupils' performance. Similarly, Abod & Semela (2010) reported low use of media resources in primary schools in southern Ethiopia. In Malawi, Kadzera (2006) noted that there was infrequent use of higher order instructional material technologies such as overhead projectors, videos and computers in Teacher Training Colleges. Dahar & Faize (2011) observed that there was great deficiency in the use of media resources in schools in Punjab district in Pakistan. The integration of media resources in teaching and learning is believed to bolster the quality of instruction via fostering student-centre pedagogies (Neo, 2007; Tields & Cox, 2006; Abdo & Semela, 2010). Specifically, research evidence (Gravoso et al., 2008; Eguruv, et al., 2007; Kadzera, 2006; Abdelraheem & Al-Rabane, 2005) shows that teachers' use of media resources sustain students' attention, increase the meaningfulness of abstract concepts, encourage deep processing, and boosts class performance through increased content acquisition. However, due to various reasons, the learning institutions do not seem to tap fully and effectively on the media resources to their advantage. Where performance can be high, it still scores low due to inability or underutilization of technology.

Ambogo (2010) observed that in effective school system, teachers and administrators plan, design, research, evaluate and make available media resources consistent with priorities that have been announced. The Kenya education sector support program (2005-2010) sites mobilization, prioritization and utilization of instructional materials as some of the problems facing teaching and learning in secondary schools. When the media resources are unavailable, the learning

process is not complete and in turn the quality of education is compromised. In such a situation, teachers are encouraged to improvise and make available learning resources for teaching (Sarah et al. 2013). In addition, a study conducted by Opara & Udo (2014) in Nigerian primary school revealed that most of the instructional materials were not available for teaching and learning of basic science. The study showed that the non-available materials implied their non-utilization. The study recommended that teachers should not wait for the government to provide everything but they should go an extra mile in the provision of instructional material by improvisation. The non-availability of media resources for teaching and learning also implies their non-utilization by the teachers. Whereas Opara and Udo's recommendation sounds good, however, some schools and individual teachers may not be in a financial position to improvise what the government has not offered to them. Some media, especially science-centered may require an extra pound from the individual's pockets.

In addition, Jiriko et al. (2015) conducted a study on the availability and utilization of instructional materials for the teaching of agricultural science in secondary schools in Nigeria. The study findings revealed that some of the instructional materials required for teaching agricultural science were not available. The study concluded that since there were no required instructional materials for use in teaching, this meant that teachers were not fully utilized. The study recommended that teachers should be trained on how to make instructional materials using local materials so as to improve their availability. Olufunmilayo's (2014) study on availability and utilization of instructional materials in selected andragogical setting on Nigeria revealed that use of instructional materials had significant impact on the level of academic achievement of learners. The study then concluded that availability and use of instructional materials are vital for the sustenance of improved participation in andragogical settings and design, improvisation, uses and storage of these materials should be consistent for them to be always available for use.

Kwarteng (2014) did a study on the use of instructional resources in high school accounting lessons. This study showed that accounting teachers hardly used instructional resources to promote understanding in accounting lessons. In most cases, the appropriate instructional resources that could be used were not available. The underutilization of the instructional materials was attributed to the high acquisition and maintenance costs coupled with the frequent power of outages. This implies that there are other intermediate factors that affect the availability

and use of media resources in teaching and learning. Indeed, some African countries are faced with a growing population being tapped on the national energy. This includes learning institutions which sorely rely on power to operate some machines used in practical learning. Absence of power then essentially becomes a big hindrance even when the media resource is available.

According to the World Bank report (1998) on policy of education in Sub-Saharan Africa, quality of education system is properly defined by the performance of students. The study suggested that in practice, the inputs into the teaching process are generally easier to measure than outputs hence quality is often gauged by inputs. The study lamented that the quality of education in Sub-Saharan Africa is well below World Bank standards and the major explanation was that expenditure per student was quite low and declining. The study further pointed out that the provision of instructional materials especially text books is the most cost-effective way of raising the quality of education. The unavailability of learning materials was the most serious impediment to education quality in Africa. The study concluded that the safest investment in educational quality in most countries is to secure adequate instructional and learning materials. This study benefits the current study since the findings would be based on special schools for the hearing impaired in Western Kenya, which is the case in Africa. The only difference is that the study gave the general picture of education in Africa while the current study dealt specifically with selected special schools for the hearing impaired in Western Kenya.

Wamalwa & Wamalwa (2014) observed that lack of media resources for teaching or its inadequate provision poses a great learning challenge to the learner. Sustained access to these resources contribute to the teachers' and learners' competence in making use of them however, this remains an exception given the challenges related to access and availability to both students and teachers (Jimo, 2009)., Availability and effective use of media resources for teaching and learning means pairing resources with an instructional approach that is different from the traditional one where information is needed on the nature and extent of teachers' experience in the use of these technologies (Mutwiri, 2012). Availability and use of media resources was the focus of this study. Hence, the students and teachers' attitude towards these resources, their effect on content acquisition, adequacy and frequent use was the main concern of this study. The

study sought to find out the attitudes because they drive the desire to know and use these media resources in learning.

Most scholars generally and equally agree that availability and use of a variety of media resources will increase the probability that the student would learn more, retain better and bring about the skills they are expected to perform (Sulaiman, 2013). The instructional materials also offer real experience in giving the teacher the basis for thinking and understanding. Therefore, instructional materials can provide students with common or joint experience. They also break language barriers and ease difficulties and in the end make the lesson more meaningful. They save time and thus enable students grasp ideas more effectively and faster. Likewise, they help to simplify and emphasize facts and clarify difficult concerns.

In addition, there could be factors influencing the availability and use of media resources for teaching and learning. Ngure (2014) asserts that some of the factors which appear to influence the availability and use of media resources include teaching experience, teacher motivation, adequacy of media resources and attitude towards media resources. The number of a teacher's years of teaching experience influences the use of the available media resources. In a study on how personal familiarity with instructional materials influences its implementation, Barnard (2007) found that acquisition of computer skills is neither smooth nor linear; it takes time and aspiration. He further notes that the more experienced the teacher is with any form of media resources, the more he or she will appreciate it and implement it in instructional process. A study done by Moore et al. (2004) found that more than 50% of the teachers with 0-2 years of experience in teaching received high scores on the section of concerning implementation of instructional media. The study concluded that the factor could be attributed to recent graduation from teacher training and exposure to instructional media than their senior colleagues. However, this was not the focus of this study. The present study addressed the availability and use of media resources for teaching and learning regardless of teaching experience.

Another factor that could influence the availability and use of media resources for teaching and learning is teacher motivation. Motivation refers to the application of certain measures that tend to energize the teacher in the work place and which in turn encourages the use of the available media resources. A study carried out by Mwololo (2009) on pre-school teachers' knowledge and

attitude towards use of visual media in instruction revealed that neither the schools nor the parents supported pre- primary school teachers with any instructional materials for teaching. This implies that teachers who lack creativity and motivation would teach using the most available media at their disposal; that is chalk and chalkboard to the detriment of learner's performance. This lack of support therefore demotivates teachers in the use of the media resources. It is for this reason that the current study found it necessary to investigate the availability and use of media resources in schools for the hearing impaired in western Kenya even though motivation of teachers toward the use of media resources was not the focus of this study.

Therefore, from the foregoing, it is evident that the role of media resources in the teaching and learning cannot be underestimated. However, these studies were based on regular schools and hearing students in various parts of the African continent and Asia and also partly in Kenya. There was need to conduct this research in Kenyan special schools to determine the real situation. From the research done by other scholars, it is evident that there exists an information gap concerning the availability and use of media resources in schools for the hearing impaired. The present study aimed at bridging this information gap by seeking to ascertain the availability and use of media resources in selected schools.

2.2 Adequacy and Frequency of Use of the Available Media Resources in Teaching and Learning

Abdo & Semela (2010) assert that availability and access to instructional materials are important factors that determine the adequacy and frequency with which teachers use media resources. In a survey study, Kadzera (2006) reported lack of instructional media resources as one of the reasons for minimal use of instructional technology in teachers training institutions in Malawi. In an earlier study conducted by Kalundo (2001) he reported that lack of required media resources in the one hand, and failure of school administration to make available once accessible on the other, are reasons for teachers' limited use of instructional resources. Khan & Iqba (2012) assert that adequate and quality learning resources are basic ingredients for quality education and to achieve the intended goal of the school curriculum. They also strengthen the idea by emphasizing that learning is a complex activity that requires students' and teachers' motivation and adequate of

instruction materials for the child's development. Failure to have these in consideration may not yield the best results in students.

A study conducted by Shela et al. (2014) on the adequacy of instructional materials for teaching technology and livelihood education revealed that there were available instructional materials for all the areas in the technology livelihood education program and there was enough classroom and space utilized for placement of instructional tools, machine and equipment. However, the overall mean of 2.36 showed that there was an inadequate instructional material in relation to the number of students enrolled. Because of this inadequacy, the students experienced buying their own materials and tools for their own learning. The study recommended that the school administrators to be included in the purchase of tools and equipment for instructional purposes.

Sheila et al. (2014) observed that instructional materials are tools teachers use to teach their students. Proper instructional materials have a big impact on the students' learning since students learn most by doing. Together with proper instructional materials are its adequate numbers of units in proportion with the number of students. Engaging in hands-on activities gives the learners idea on how this experience can be applied in a real life situation. These instructional materials serve as an activity for instruction. Through this, the teacher will be able to make his/her strategies, thereby making teaching more effective and meaningful (Luscuna et al., 2007). It is also easier for students to learn and understand their lesson as well as acquire the skills necessary in the field. Further, the adequacies of instructional materials that support the student's effective learning also have its own demand in the educational system (Jewell, & Lyneble, 2012).The foregoing studies mainly dwelt on the normal learner, leaving out the hearing impaired learners. , The current study focused on the adequacy and frequent use of the available media resources for teaching and learning in schools for the hearing impaired.

Allado (2007) observe that use of adequate instructional materials greatly helps the students in remembering important information. When properly used, they help gain and bring attention of the students. With the availability of the audio-video materials can be very useful in supporting a topic, and the combination of both audio and visual stimuli is particularly effective since the two most important senses are involved. The latter is particularly relevant to the hearing impaired learners. According to Silberman (1996) learning by action is far the best method of acquiring

knowledge. He declares that: whatever I hear, see, discuss and do, I acquire knowledge and skills. Silberman aptly captures the relevance of instructional materials that are student- centered to successful acquisition of knowledge and conversion of the same to skills. Allado (2007) in his research further asserts that the instructional materials should keep student attention on the subject; it should not be a distracting device. Words or terms used in an instructional material should be carefully selected to convey the same meaning for the student as they do to the teacher. Apart from being adequate, they should provide an accurate visual image and make learning easier for the student (Bowell, 2007).

Koros & Mubichakani (2014) carried out a study on the availability, adequacy and improvisation and use of instructional resources for teaching Mathematics in secondary schools in West Pokot. The study revealed that the selected instructional materials were not adequate. The study concluded that since textbooks form the basis of any teaching and learning of Mathematics, the shortage of textbooks was detrimental to instructional process. The study also found out the textbook ratio was quite high because 68.8% of students indicated that more than three students shared a single textbook. This implies that the textbooks used for teaching Mathematics were not enough. In most cases, any ratio of more than two students per copy of a textbook is inappropriate because some students may not access it. This makes the teaching and learning process difficult. The inadequate number of textbooks affects the performance of students negatively (Akpan, 2005). Textbooks cannot be improvised but the inadequacy can be negated by teachers using group work teaching and writing assignments on the chalkboard.

Further, a study carried by Okeke (2005) and Akpan (2005) on instructional materials for environmental adult education in Nigeria concluded that most schools had reasonable percentage of instructional materials available but most of the items were inadequate for instruction in terms of quantity and quality. This implied that students were denied full exposure to the available materials due to lack of knowledge of the existence of such items as some respondents had indicated. They also indicated that they lacked prerequisite skills for operating them. Electricity supply was also cited as one of the challenges. This research shows how much is suppose to be considered by teachers before the students wholly benefit from the instructional material and the same translated into necessary and executable skills.

Onyesom & Okolacha (2013) carried out a study on the assessment of the adequacy of instructional resources available for business education programmes at the colleges of education in Nigeria. The study established that tutors and learning resources available for business education programmes were adequate in some of the colleges and not adequate in others. The study therefore, concluded that students of business education in those colleges were learning without the necessary required instructional resources for effective development. The study recommended for colleges of education to regularly supervise the programmes of business education and ensure that their stipulated standards are maintained by adequate supply of instructional resources.

In addition, Oyeniyi (2010) maintained that by inference, instructional resources have been positively linked with educational efficiency, students' academic performance and the capabilities when they leave school. In addition, Azih (2008) found that students taking business education in schools found it difficult to acquire the needed skills and competencies as a result of lack of adequate learning resources in Nigerian schools. The study further established that the decline in students' achievement would be connected with the poor learning environment created by the state of inadequate instructional resources which had been out-paced by the number of students.

Khan & Iqba (2012) assert that adequate and quality learning resources are basic ingredients for quality education and to achieve the intended goal of the school curriculum. They also strengthen the idea by emphasizing that learning is a complex activity that requires students' and teachers' motivation and adequate of instruction materials for the child's development. Availability of adequate learning materials translates to quality learning whose end product a skilled student who can practice the acquired knowledge from a motivated teacher.

Adediran et al. (2011) investigated the role of instructional materials in the teaching and learning of social studies in secondary schools at Abeokuta Township in Nigeria. The findings revealed that instructional materials in secondary schools were inadequate. Media resources possess some inherent advantages that make them unique in teaching and learning. For one thing, they provide the teacher with interesting and compelling plat-forms for conveying information since they motivate learners to want to learn more as their interest and curiosity are increasingly stimulated.

They generally make teaching and learning easier and less stressful. They are equally indispensable catalysts of social and intellectual development of the learners. It then shows that if there must be an effective teaching and learning process, utilization of media resources will be necessary and therefore they must be adequately supplied.

Ranford et al. (2015) carried a study on challenges in the teaching and learning of agricultural science in the Cape Coast Metropolis. The research findings from the study indicated one of the major challenges facing the teaching and learning of Agricultural Science includes inadequate teaching and learning materials and their availability. The study concluded that the supply of adequate textbooks positively affected the teaching and learning of Agricultural Science in schools in the metropolis. This research was relevant to our present study as it showed how lack of constant exposure to teaching and learning materials led to decline in performance and when the variable was tilted positively, the performance was boosted. This shows how teaching and learning materials are integral part of students' performance. However, our research was conducted on the hearing impaired students of Western Kenya, unlike this research which dwelt on the normal students in Nigeria.

Another study carried out by Sarah et al. (2013) on the adequacy of instructional materials and physical facilities and their effects on quality of teacher preparation in private primary teacher training college in Bungoma in Kenya showed how a poorly prepared teacher can lead to poor performance of his or her students. The study established that the private primary teacher training colleges had a negative impact on the quality of teacher preparation. This was attributed to challenges such as; lack of adequate facilities like libraries and inadequate instructional materials. Even though this research was conducted in Western Kenya, it did not in any way preempt our research as ours focused on the hearing impaired students. The present research does not rule out that some of the teachers trained in private colleges usually find their way in some of the special schools hence they transfer knowledge the way they were trained. This made this research even more interesting as the researcher sought to find out the effect of such ill-trained teachers on the hearing impaired students in Western Kenya.

Ambuko & Odera (2013) conducted a study on selection and use of media resources in teaching Kiswahili language in secondary schools in Kenya. The study findings revealed that there was

inadequate provision of instructional media in schools from which teachers would select for teaching Kiswahili. The study also revealed a low frequency use of the few available instructional media during Kiswahili teaching.

Jeptanui's (2011) study on efficiency in the use of instructional resources in Primenya in Wereng District revealed that not all the required instructional resources were available for use by both teachers and pupils in the schools. However, textbook-pupils' ratio was conforming to current ratio of 1 per subject per class. Chalkboard and textbooks were widely used. Other instructional resources like charts, maps, atlases and real objects were not utilized. This implies that inadequacy of instructional materials in schools compromises equity in access to resources by pupils. In addition, Kalundo (2002) and Marugu (2008) assert that instructional resources have a significant effect on academic performance. They are in agreement with the Ministry of Education (2003) which maintained that, over the years, research has demonstrated repeatedly that, the availability of adequate supplies of textbooks, teacher's guides and supplementary reading books have a major impact on students' performance, if used properly by teachers in the classroom, they improve student achievement. There was need to verify these findings by Kalundo and Marugu but basing the present research on hearing impaired students in Western Kenya.

Other research findings in Kenya have also shown the important role played by adequate teaching/learning materials in teaching and learning process. They enhance efficient learning, sustain students' attention and remove monotony of speech (Ng'ang'a, 2008; Simiyu, 2007; Mesis, 2006). However, these research findings have not documented on the availability and use of media resources and particularly in schools for the hearing impaired. Furthermore, the stagnating low performance in these schools raises concern on the use of media resources. Sarah et al (2013) and Koros & Mbichakani (2014) researched on the adequacy of instructional resources on academic performance in Kenya and they all had a common conclusion that media resources have a significant effect on students' achievement in all subjects. Their studies revealed that achievement of students in schools with adequate media resources were higher than those of students with inadequate media resources. This research was undertaken to verify this findings basing on students with special needs, and in our case, the hearing impaired students.

In Kenya, several scholars have researched and recognized the importance of media resources in teaching and learning process. Most of them have documented on the effects of these resources on academic performance in schools. Kalundo (2002) maintains that teaching and learning resources should not only be made available in schools, but they should also be adequate and relevant if the desired quality of education is to be achieved. Marugu (2008) in her study on factors influencing academic performance in public and private schools in Thika Municipality in Kenya found that poor academic performance in primary schools was caused by interplay factors. These included, school related factors like inadequate textbooks and other physical facilities.

Mesis (2006) in his study on constraints in effective resource utilization by teachers in primary schools in Bomet District, Kenya, confirmed that learning resources were inadequate as teachers did have a variety of them for use. He noted that since resources bring clarity of meaning and make learning real, they needed to be available and adequately used. Omariba's (2013) study on challenges facing teachers and students in the use of instructional technology in Kisii County, Kenya, revealed that most of the instructional technologies were available but inadequate in terms of quantity. The study noted that not all the instructional technologies were easily accessible for both teachers and learners for teaching and learning.

According to Eya (2006), instructional materials are all forms of information carriers which can be used to record, store, preserve, transmit, concretize or retrieve information for the purpose of teaching and learning. Wale (2006) was of the opinion that the use of media resources would make discovered facts glued firmly to the memory of students. He further noted that teaching aids means all the materials or resource materials which the teacher utilizes for the purpose of making teaching and learning more effective and meaningful to students. Elom & Ugochukwa's (2014) study on impediments to effective teaching and learning of basic technology in Nigerian public secondary schools revealed that inadequacy of instructional materials was one of the major impediments to effective teaching and learning of basic technology. From their research, it is evident that use or disuse of teaching aids, whether in learning basic technology or any other concept in normal classroom can greatly affect the performance of students in any institution. There was the need therefore to find out how these aids or learning materials affected students in special schools where students have a hearing problem.

Ogbu's (2015) study on influences of inadequate instructional materials and facilities in teaching and learning of electronic technology education courses in Nigeria showed that inadequate instructional materials often influenced the teaching and learning of electronic technology courses in many negative ways. The study concluded that the effects of inadequate instructional materials in the teaching and learning are innumerable and most often are accompanied with grave consequences not only to the school system but also to the larger society where the graduates eventually work. The study recommended that all the stake holders should join hands to adequately provide effective and efficient instructional materials in order to eradicate the negative influences of inadequate instructional materials.

Ogott & Odera (2012) conducted a study on the integration of media and technological resources in Siaya district. The study revealed that 80% of the schools had an acute shortage of media and technological resources, over 85% of the teachers did not have adequate resources for selection and use, over 80% indicated that integration of media resources was negligible and over 50% indicated that integration media resources assist in the realization of lesson objectives. Republic of Kenya (2007) states that part of the Kenya vision 2030 is to reform secondary curriculum modernize teacher training and establish a computer supply program that will equip students with modern IT skills. The education and training curriculum in the country will therefore be modified to ensure that knowledge becomes part of the formal instruction. This means that integration of media resources are part of this mission. The Ministry of Education (2004) stated that one of the government strategies in improving learning is through the provision of adequate teaching and learning materials which could also include electrification of all secondary schools to facilitate the utilization of media technology. Even though the government seems to have failed to implement part of this agenda, it still underscores the need of integrating technology as a novel experience of teaching and learning.

Proper use of media resources has a big impact on the students' learning since they learn most by doing. Together with proper use of media resources there must be adequate numbers of units in proportion with the number of students (Shela et al. 2014). This will avoid overstretching the available resources and eventually wearing them or destroying them in the shortest period of time. The media resources serve as an aid for instruction, through this, the teacher will be able to make his/her strategies in teaching more effective and meaningful. It is much easier also for

students to learn and understand their lesson as well as acquire the skills necessary in the field (Jewell, Lubang, & Lynette, 2012). They further note that adequacies of media resources that will support the students' effective learning and also have their own demand in the education system.

Media resources which are educational inputs are of vital importance to the teaching of any subject in the school curriculum. Sarah *et al.* (2013) are of the opinion that adequate use of media resources would make discovered facts glued firmly to the memory of students. Koros & Mubichakani (2014) also suggest that for effective teaching and learning, media resources are basic tools, in absence or inadequacy makes teachers handle subjects in an abstract manner, portraying them as dry and non-exciting. Koros and Mubichakani observe that the benefits that accrue from adequate use of instructional materials abound. Instructional materials when used adequately make the entire learning process complete and functional. They facilitate understanding of difficult concepts and principles. Ideally, they make it easier for learners to follow, understand, respond and retain content of the lesson (Allen, 2013).

Songoi's (2013) study on the implementation of inclusive education policy for learners with hearing impairment in primary schools in Eldoret west in Uasin Gishu County revealed that the required instructional materials were not provided or were inadequate in regular schools where special needs educational learners were integrated. This finding was based on inclusive education program, while the present study addressed the adequacy of the availability and use of media resources in special schools particularly schools for the hearing impaired in western Kenya and to determine how adequacy of media resources would affect the hearing impaired learners' content acquisition. The resources can be adequate, but there is need to select those which suit the needs of the hearing impaired learners.

In addition, Rotumoi and Kipkoech (2014) carried out a study on the teachers' attitude towards the use of instructional resources in teaching the novel in secondary schools in Baringo County. Evidence and deduction from data analysis revealed that most of the schools had some of the recommended novels but inadequate non-book instructional materials for teaching the subject. The inadequacy of instructional materials was attributed to financial and administrative support leading to learners being taught through verbal presentation. As Magero (2014) points out, the primary objective of modern education is to produce people who are problem solvers. This is also the goal of the 8-4-4 system of education in Kenya. The provision of this system of

education is mainly geared towards the production of practical-oriented graduates. To realize this goal, there must be adequate supply of relevant media resources for effective curriculum delivery. That is the only way to achieve quality education both to the normal and special needs students like the hearing impaired. And even when the supply is adequate, research must be carried out to find out the benefit in skills acquisition.

Songol's (2013) study on the implementation of inclusive education policy for learners with hearing impairment in primary schools in Eldoret West District revealed that the required educational materials were not provided or were inadequate in regular schools where special needs education learners were integrated. This research was useful as it helped the researcher focus her study on the western Kenya students with hearing impairments.

2.3 Pre-lingual and Post-lingual students' attitudes towards the availability and use of media resources

Hearing-impaired learners are classified as either pre-lingual or post-lingual deaf. The pre-lingual deaf are those persons who were born with hearing impairment or they became deaf before the age of 4 years. On the other hand, the post-lingual deaf individuals are those who became deaf after the age of 4 years and at this time they are believed to have acquired a first language (Ndurumo, 1993). Bochner (1982) points out that the age at which a child experiences hearing loss is the critical biological variable affecting language development. A post-lingually deafened child who has sustained a hearing loss at three years of age or older (after language has been acquired) typically evidences different language, communication and educational needs from those of a pre-lingually deafened child whose hearing loss occurred between birth and two years of age. According to Mba (1995) the age at which one sustained hearing loss bears some relevance to his or her learning outcomes in school. The person who sustained hearing loss later in life must have acquired some communicative skill (especially verbal signals) for which he or she can function relatively better than the pre-lingual deaf person in academic endeavors. It has been established that such students have better learning inputs and outputs (Ademokaya, 2006).

A study was carried out by Ondicho (2007) to establish the age at onset of deafness and its effect on learning Kiswahili. A comparative analysis between the pre-lingual and post-lingual was

based on their performance on school-based mock results for classes 6-8. Though the examinations had been administered under different environments, their content validity was checked by the researcher and the variations were found to be very minimal. The findings from the study indicated that although the two categories performed below average, the post-linguals' mean score was slightly higher than the pre-linguals'. It was therefore concluded that the variations in pupils' performance in Kiswahili depended on pupils' age at onset of deafness. Whereas the existing studies evaluated the influence of age at onset of deafness in learning in general, the present study focused on the influence of age at onset of deafness on learners' attitude towards the use of media resources in the teaching learning process. Owing to the challenges that the hearing impaired are facing as discussed above there is need to have adequate media resources in their teaching and learning.

2.3.1 Range of possible Media Resources that can be used to teach Hearing Impaired Learners

In this study the researcher proposed to categorize the availability and use of media resources into three broad categories namely: non-projected, projected and community resources.

2.3.2 Non-projected Visual Resources

These include chalkboards, textbooks, charts, maps and atlases, globes, flipcharts, newspapers and magazines among others.

2.3.2.1 Chalkboard

The chalkboard, which is a commonly, used material for teaching and learning in schools for the hearing impaired facilitates teaching and learning in almost every lesson. Kadzera (2006) pointed that "the flexibility, availability and versatility are a definite boon to the classroom teacher" (p. 18). He further elaborated the advantages of using the chalkboard: they are freely available in most classrooms; they need no power; they are user friendly; they can display a large number of colors and they can be used with a variety of other materials for a broad range of teaching

strategies. Wankat & Oreovicz (2001) also observed that chalkboards “are excellent for recording permanent information such as notices, assignments and outline of the present class” (p. 40). In Kadzera’s (2006) survey on use of instructional technologies, one of the questions he wanted to find out was the frequency of use of instructional media. The results showed that chalkboards were used extensively as compared to other instructional media.

2.3.2.2 Flip Charts

Flip charts also play a big role in teaching and learning. even though they are not the most complex teaching aid available in modern’s technology, , flip charts are certainly one of the most popular media resources, they are simple, inexpensive, versatile and when used with thoughtful creativity, they are highly effective (Wallace, 2000). Wankat & Oreovicz (2001) also looked at flip charts as helpful to students when they are organizing their ideas for presentation to the whole class. Flip charts have a big advantage because they are placed in front of the class, they enable teachers to maintain eye contact with learners, which help teachers observe learner’s reactions and thus make it possible to change teaching strategies during presentation. The teacher is also able to control the charts, can write or draw as the explanation is in progress. Recording of students’ responses on the flip charts helps them to build their ideas in the lesson. Just like overhead transparencies, flip charts can be prepared in advance, can be written on during the lesson and can be stored for future use.

2.3.2.3 Textbooks

The textbook is the major resource in this category; others include pictures, newspapers, chalkboard, posters, charts, photographs and magazines. These resources involve the sense of sight in teaching and learning. The textbook in some cases plays the role of supplementary resource to the students; it provides means of independent study. In most developing countries, most learning institutions do not have audio-visual materials. Therefore, the textbook is the basic resource to both teachers and students (Boostrom, 2001). Textbooks provide the learner with certain fundamentals of the subject in the readily accessible portable form. Republic of Kenya (1988) points out the importance of textbooks when it says: textbooks are central to educational

processes and are different from other readings materials as they deliberately address themselves to particular areas and levels of the school curriculum (p. 114)

Onyesom & Okolacha (2013) assert that the most used self-instructional resource has been the textbook. The textbook is still the most economical, most easily accessible and means of conveying information and ideas, considering the cost, size and operating problems of most instructional media. They add that the textbook is indeed the primary and basic source of information and idea in business education. Owoeye & Yara (2011) as cited in Onyesom & Okolacha (2013) opined that nothing has ever replaced the printed book as the key element in the educational process and as a result, textbooks are central to schooling at all levels. Textbooks form the basic material for teachers as well as for pupils. Novota et al. (2012) as cited in Chakamba et al. (2013), textbooks, as the main aid for students, is one of the most important factors which influence the efficiency of learning processes. The researchers appreciate that a written textbook may seem no longer needed in the current age of information and technology; however, textbooks cannot be avoided as few schools have access to internet and therefore e-books.

Textbooks are the primary books that teachers use to organize their lessons and make content knowledge and skills available to students. These textbooks contain the content that students are expected to learn, and most teachers focus their instruction on the materials included in the books they use. Textbooks provide the main resource for teachers, enabling them to animate the curricula and giving life to the subjects taught in the classroom.

Through the written text, visuals, activities and exercises, textbooks engage students with knowledge and ask them to practice skills. According to Boostrom (2001), Ball & Feiman (1988) and Jack (2001), a textbook not only consists of a text, but also of different forms of representation through which information can be conveyed. In sum, textbooks are primary vehicles for delivering content knowledge to students, as such textbooks in large part determine what students do and do not learn. Moreover, to maximize their opportunities to learn, all students should have a class to the abundant colorful photos, maps, charts and graphs found in textbooks.

Considerable evidence supports our common sense and understanding that textbooks are fundamental to education. However, most empirical research on the relative importance of textbooks and instructional materials on student learning have been conducted in developing countries. In addition, a large body of international studies makes clear that having textbooks for use in the classroom and at home has a positive effect on academic achievement. So, too, does the availability of instructional materials such as school libraries, science laboratory equipment and supplies. Access to those critical educational inputs increases a student's opportunity to succeed in school, and many are particularly important to the learning opportunities of low-income students. International studies have examined both the effectiveness of textbooks on achievement, per se, and the cost effectiveness of textbooks on an educational intervention. In a comprehensive World Bank review of studies examining the effectiveness of various schooling factors, Fuller & Hyenemen (1989) found that 67% of the studies showed a positive effect of textbooks and instructional materials on student achievement.

Miheso (2004) came up with five patterns that characterize textbook utilization, they are: the traditional pattern is to use the textbook as a source of homework assignments, either for reading or various types of exercises; related to the use of the textbooks as a source of problem on their own, a pattern common in instruction; textbooks may be used as a primary source of instruction, allowing their content and structure to determine the nature and arrangement of the course. Two or more textbooks may be used in conjunction with one another as the basis of instruction; a variation of this is the multi-text approach where a single text is replaced by a classroom collection of a variety of textbooks. Student functions in this mode must make use of the classroom textbook collection, but are free to choose the particular text they find most useful; lastly textbooks can be used as supplementary materials with reading matter or exercises from them incorporated where appropriate to expand upon or elucidate materials presented via instructional means.

As earlier stated, most teachers rely on the textbook for all their information. Consequently, the students depend almost entirely on the teachers' information. A variety of textbooks on the same subject presents different points of view on some matters and provides a greater source for selection of material. The textbook is frequently used for reference purposes during a lesson or

series of lessons. Optimum learning is realized by the student when he reads the books both in class and at his own time. He gradually absorbs its contents and reflects upon them (Kochhar, 1991). Crockal (1973) supports this view when he says: the textbook is the students' companion throughout much of the course and its influence upon the mind is bound to be great. It is also one of the most powerful aids to the teacher (p. 87).

This implies that effective use of the textbook by both the teacher and the students lead to better understanding of the subject matter. Teachers need to bear in mind that although the students use the same textbook, they do not have the same reading and intellectual ability. The teacher should explain the difficult concepts and provide follow-up questions and additional reference materials to increase their comprehension of the subject. When teaching, the textbook is an important aid to both the teacher and the students. But the teacher should alert the students the dangers of accepting one-sided views of textbooks, as this can lead to making biased conclusions about events.

The use of textbooks has its limitations. Overdependence on a textbook makes the students have too much faith in the written word and belief that anything in print is authentic. To guard against this, the teacher should develop in his students a critical view of written matter. At times the textbook fosters the idea that the subject matter is found only in books. Students should be directed to seek firsthand experience where possible. Tom & Eunice (1993) noted that in some cases where the teacher's concern is to cover the textbook and not ideas, the book becomes the curriculum, while the content of the book is the content of the course. This limitation arises where the Ministry of Education provides a list of recommended texts. It limits teachers and students' freedom to refer to other books, for it implies that the recommended books are adequate.

Kenya Institute of Education prepares most of the books for secondary schools. Due to inappropriateness of some texts, teachers resort to private publications to supplement or substitute that which is available. Such cases demand that teachers have a reasonable knowledge on how to choose a good textbook. Kochhar (1991) gives guidelines on how to select a good textbook for humanities. The book should cover most of the topics in the syllabus. The

information in each topic should be adequately covered to enable the teachers attain the course objectives. It should emphasize and use strategies that are based on sound philosophical and psychological learning principles. The topics should be structured in a clear and concise way and illustrations should be correct, accurate and easy to understand. Use of clear, simple language and explanation of abstractions and symbols in terms already known by the learner is an added advantage. The materials included should create interest, motivate learning and meet the needs of different levels of ability. In addition, the book should have a teacher's manual suggesting alternative teaching methods for a topic and if possible guidance on appropriate resources. The book selected on the basis of the above guidelines should be well bound and affordable. Adherence to these guidelines in textbook selection can help the teachers to choose relevant books for both class texts and reference materials.

Concepts taught using a variety of instructional materials are more readily believed and remembered longer than mere verbal descriptions (Sampath et al., 1990). One of these important instructional materials is pictures. Pictures have the advantage of providing the learner with a wide range of unlimited subject matter. Pictures can be used by the teacher to give students vivid impressions of events and features. The teacher, with the help of students, can collect pictures for use during the lesson. The pictures collected should involve a story of some kind. The students can then be asked to describe and discuss what the pictures portray and relate them to real-life experiences. For example, photographs of a street fight or mob justice can be used to stimulate students into discussing the social behaviors depicted and their moral implications. Raths et al. (1966) caution that the pictures used must be large enough to be seen from all parts of the classroom or the teacher must employ an opaque projector or transparency device.

2.3.2.4 Newspapers

Daily newspapers contain information on social life of people that can be used for teaching and learning purposes. Kochhar (1991) points out that 'the contemporary occurrences in the newspapers can help to clarify and exemplify the realities described in the textbooks' (p. 175). The use of newspaper articles such as the editorials, and letters to the editor can provide students and teachers with the most current information about their community and the world at large.

These articles also contain issues that involve morality. The students can analyze and discuss them and arrive at their own conclusion on the morals they portray.

Printed and electronic newspapers have been cited as a source of learning and mastering English language among Libyan and Indian students taking English as a second language. Elmadwi (2014) noted that those who used this aid for learning showed improvement and mastery of linguistic skill. Besides the students getting to know what is happening around them and their world generally, newspapers played an important role in learning new skills. Pictures, cartoons and other visuals played a big role in enhancing and incorporating language and cognitive skills. Their research discovered that the use of textbooks in Libya was deficient in that it was outdated and limited in terms of vocabulary learning the interactions with their teacher and the world. The use of newspapers as a teaching aid was therefore meant to help the students overcome the deficiencies. Even though this medium was not used in some schools and by some students due to inaccessibility, lack of knowledge on how to use them and lack of time to read newspapers, the findings were telling. The students who used newspapers as a source of learning in Libya and India showed improvement and mastery of language skills and understood their world better than those who relied on textbooks.

Research done in Nigeria by Tafida and Dalhatu (2014) underscores the importance of newspapers as an effective tool for learning language. The creativity that students and teachers can derive from newspapers is varied. For instance, they note that at various levels, newspapers can be cut, marked, clipped, pasted, filed and recycled. Discussions can also be organized in class based on the articles in the newspapers hence improving the students' performance in languages. Even though the research was conducted among able students, the findings spoke positively about this medium of teaching and learning. This research aimed to find out how such media can be used among hearing impaired students in Kenya and specifically in selected schools in Western Kenya.

Mehta (2010) in his study on the possibility of adopting newspapers in teaching English as a Second language among Indian students noted that this medium was rarely used yet it has several benefits. The benefits included: quick and creative acquisition of LSRW skills (Listening, Speaking, Reading and Writing); ability to be used across all levels of learning; and presence of

pictures and illustrations provide pragmatic understanding of learning. He noted that English newspapers available are cheap and therefore friendly to students' pockets. Such a medium when adopted and used in teaching creates an environment where students can improve their various skills comprehensively. However, his study focused on Indian students who do not have hearing or speaking impairment whereas our study will focus on the hearing impaired students in Western Kenyan Special schools.

2.3.3 Projected Visual and Audio Visual Resources

These media involve the sense of hearing and sight. Visual sense is the most powerful of all senses. It helps the learners perceive and put interpretation labels to the subject under study. These media include television programs, video cassettes, video discs, films, filmstrips, slides and the accompanying hardware. Despite the benefits that can be derived from such resources their use is limited because of the high capital expenditure required for their acquisition (Digolo, 1993).

In utilization of these resources Percival & Ellington (1984) recommends a multi-media approach. For example, audio-slide series can be presented in the following ways, viz: as informal comments while slides are projected, as formal reading narrations while slides are projected, as recorded narrations and other sound effects with an audible signal to indicate slide changes. These presentations enable students to get maximum information from the audio-slide pictures. However, sometimes the students have no option but to sit quietly, listening passively and absorb the facts being presented. For the teaching of any subject matter, if learners' activity is not included, then, the teacher might encounter problems when using these media. He might find it difficult to involve students in discussions after the presentations.

Television is an effective media for teaching. Goldenberg & Teresa (2008) concurs with this idea when they say television appeals both to eye and ear. Its dramatic quality renders it effective in capturing viewers' attention and in exerting a strong perceptual impact. Television has the capability of combining all the aural and visual aids in the medium. They state that television programmes allow the student to transcend the boundaries of space and time and to see society in

new and diverse ways. For instance, the rural child can see life in the city and the urban child can see life in the country. Television also makes available to different students, alternative cultural patterns and sex role models.

According to Champou & Joseph (2001), television can be used to introduce effective education. Programmes on universal experiences can give teachers and students the opportunity to examine their views about themselves and their environment. It can be used to strengthen and encourage diverse cultural and religious traditions. Television adds to the number of possible approaches to classroom instruction, stimulates interaction, initiates and reinforces cognitive learning and motivates better classroom behavior. Kochhar (1991) reinforces the above ideas by saying that 'audio-visual aids especially the television makes learning easier, faster, interesting, and meaningful to the student. He cannot but attend to interesting procedures going before him' (p. 134).

Research carried out by Yowell *et al.* (2009) on the effectiveness of instructional television shows that students learn effectively from instructional television. Virtually every subject can be taught by television. The conclusion from their studies reveals that the average student learns as much from a television class as from ordinary classroom methods, in some cases, he/she will learn more. But the overall verdict has been 'no significant difference'. The instructional impact of television will vary according to the particular objective it is called upon to achieve. Objectives ranging from increasing knowledge, teaching skills, attitudes to changing motivation and opinion can all be taught by television. At times television can be used in areas where the teacher requires special help. However, the success of televised instruction will depend on quality of the programs and the teachers' skills in evaluating and utilizing their contributions. Without this evaluation skills, learners end up watching television just for entertainment purposes.

Video instruction can be employed in teaching and learning. A wide variety of video cassettes on community morals and values exist in plays and dramatized songs. These can be adapted and used to teach some of the humanity subjects. Willingham (2009) stresses the fact that video is effective for teaching concepts and generalizations, even where the audience is watching for

purposes of entertainment rather than instruction. The use of television for instructional purposes in developing countries poses a number of problems. He further points out that television open or closed circuit is an expensive medium and could not be available for teaching. Lack of electricity is a major set-back to the use of this medium in some developing countries. In others, teachers are not equipped with the necessary skills to use it. These and many other problems hinder effective use of television.

Despite these set-backs, television can still be utilized for teaching in schools where television sets, and video cassette recorders are available. For example, the teacher can present a small part of a television play with a moral lesson to students. The students can then discuss the play and the lessons the play has in their daily lives. In this way the students will be able to gain information not just to pass examinations but to help them solve problems involving morality and value choices. Showing films can also lead to interesting class discussions. Koppelman (1986) is in agreement with the above views. However, she warns that when using this method the teacher should ensure the projected experiences do not prevent true realization of student experiences. He further points out that television talk shows, as well as educational programs raise social issues which are central to the concerns of human relationships. Using such programs in the classroom brings a sense of currency and consistency to the cognitive information provided in lecture or reading assignments. Some programs have so much information that it becomes necessary to develop viewing guides to help students organize the information in order to have a more coherent discussion after viewing them. The guides need to be designed to focus students' attention on aspects of the program which reinforce material presented in the lesson, or illustrate concepts discussed in class or issues that have yet to be addressed. Other studies carried out by Koppelman & Martin (1988) to assess changes in student attitudes on issues of race and social class as a consequence of viewing television, pictures and discussions indicate statistically significant attitude change. The media used played an important role in student attitude change. Koppelman & Martin concluded that despite the difficulty inherent in changing attitudes, such change is possible by effective media use, 'media are not merely helpful, but are essential components in developing the learner's effective domain' (p. 84).

Computers are widely used for a variety of operations, such as writing through word processing, class presentations, data analysis, retrieving of information and communication (Heinich et al, 2002). In a survey of teachers' perceptions of the effects of technology on students' performance, the respondents indicated a strong agreement that technology had a positive effect on the students' performance (Mudasiri & Yusuf, 2011). It should, however, be noted that currently teachers in the schools for the hearing impaired in western Kenya have not used computers for instructional purposes. Kadzera (2006) noted that in all situations, it is necessary to provide computer training with a social support network and to encourage teacher empowerment over a period of time. Such training will help enhance teachers' competence level with computers.

According to Valasidoy & Bousiou (2008) computers are generally accepted as modern tools that enable teachers to modify teaching strategies they use in order to increase the learners' interest. They further observe that computers usage can stimulate motivate and arouse learners' interests for learning, increased commitment to the learning task, enhance learning and sense of achievement in learning when using computers.

2.3.4 Community resources

Every community has resources that can be used to strengthen its education system. Michaelis (1986) emphasizes this when he says that "the community is a laboratory for fast hand inquiry into man's activities" (p. 325). The community resources provide first hand information that can be used to enhance the inquiry process of the learner. Beakly *et al.* (2003) in discussions on the importance of community resources in teaching concludes that, students often become more motivated and involved in course-work when they have contact with people and places outside the classroom. These resources add more meaning to what is learned and provide opportunity for active participation in real life affairs of the community.

Community study includes the various learning situations through which, students come into first hand contact with people, places and things around them. The use of community resources involves visits, interviews, examining, questioning and listening with reference to different segments of community life. People as resources for learning can be selected on the basis of

specialized knowledge and experiences they possess. Such knowledge can then be brought to the learner by the person himself or the students can visit the resource at his place. In either case, the resource person should be provided with clear objectives of the subject he is being sought for. This will enable him plan his presentation of ideas and collect the necessary aids useful to the topic. There should be a follow-up class after the visit to integrate the resource persons' presentation and the content of the lesson as planned by the teacher (Catherine *et al.* 2014).

Sampath *et al.* (1990) bring to the attention of the teacher resources which are frequently neglected. These include staff members such as the school nurse, the gardener and people with special abilities and qualifications especially within the school. These people can assist the teacher in making certain concepts more meaningful and skills more practical to the students. The major learning experiences derived from community resources are: social life, development of good citizenship and responsibility and self-realization. Digolo (1986) recommends that students should participate in carefully planned, school controlled community study experiences. The students should be allowed to investigate the school, the village, the county and country whenever possible. This will serve as worthwhile learning experiences as well as reveal the facts of the society they will enter later as participating adult citizens. Use of community resources in teaching can help the students learn the real facts of their society and develop a rational attitude towards life.

2.4 Students' and teachers' attitudes towards use of media resources

Attitude is favourable or unfavorable evaluative reaction towards something or someone exhibited in one's beliefs, feelings or intended behavior. It is a social orientation—an underlying inclination to respond to something either favorably or unfavorably. Katz (2001) and Kara (2009) observed that attitudes towards learning besides opinions and beliefs have an obvious influence on students' behavior and consequently on their performance. Kara (2009) argues that those students who possess positive beliefs about learning have a tendency to increase more positive attitude towards learning. Balbalosa (2010) found out that attitude towards mathematics significantly influenced choice of mathematics major. Balbalosa also noted that one of the most important reasons for nurturing a positive attitude towards mathematics is that it may increase

one's tendency to elect mathematics courses in high school and college and possibly to elect careers in a math-related field.

Becta (2003) and Becker (2000) as cited in Sanibala (2012) point out that students are generally more on task and express more positive feelings when they use computers than when they are given other tasks to do. However, as Dorup (2004) observes, the use of instructional technology cannot replace the traditional teaching resources, though it can be easily used as a supplement. In addition, Ahmed & Abdulaziz (2004) summed that the different learning environments did not produce significant difference in students' attitudes towards technology. Students' positive attitude towards instructional technology show that IT plays a vital role in students' learning. Although students realized the significant role of IT in teaching and learning, the realization is limited to the use of IT as an instructional medium and not a key determinant of learning. Becta (2004) cited in Sanibala (2012) noted that students with low levels of motivation regarding their learning capabilities can show more positive behavior during lessons using computers than during lessons conducted using traditional medium of instruction. Echoing the same, Harris & Kington's (2002) studies showed a range of positive effects of IT on students, including increased ability to work independently, enhanced confidence in communication, improved school attendance and improved group work and cooperative skills. Learners who used IT in school were more successful in school, were motivated to learn and increased self confidence.

Similarly, Marjaana & Anna (2003) posit that motivation and interest play a key role in students' learning. It is assumed that IT increases student motivation and that is why IT should be used in learning institutions. Pilli (2007) points out that IT use in teaching can produce student-central learning situation which would make a learner an independent one. In addition, McKinnon et al (2000) observed that learners in their group work became enthusiastic computer users and performed relatively better compared to the ones in the non-group work. However, with time, their attitudes towards computers changed drastically. This implied that when computers become a routine in part of learning, they lose their impact. The study then concluded that IT can be useful, but only quality content in which IT is implemented makes a significant difference to students' attitudes and performance.

Oskamp and Schwitz (2005) defined attitude as a predisposition to respond in a favorable or unfavorable manner with respect to a given attitude object. Yara's (2009) definition of attitude in science however focused on scientific approach assumed by an individual for solving problems, assessing ideas and making decisions. He added that it is students' beliefs and attitudes that have the potential to either facilitate or inhibit learning.

Salta and Koulouglietis (2011) identified the factors that would positively influence students' attitude to learn; these factors would be organized into three main categories: Teaching approaches; educational tools and non-formal educational materials and activities. Hence, for enhancing attitudes to learning, Hofstein and Naaman, (2001) suggested three key factors that should be considered: The methods used to present the content, instructional materials that are used and gender issues.

In schools for the hearing impaired there has been so far no systematic study which aimed directly at measuring students' attitude towards the availability and use of media resources. The focus of this study was to compare the students' and teachers' attitude towards the available and use of media resources in schools for the hearing impaired. Sirhan's study (2007) revealed that there was a negative attitude regarding the usefulness of the chemistry courses for students' future career, and a neutral attitude regarding the interest in the chemistry course itself. But the focus of this study was on the students' attitude towards the availability and use of media resources in teaching and learning. Teachers bear on their shoulders a large responsibility of promoting and developing students' positive attitudes regarding use of media resources (Abulude, 2009). There is a relationship between attitude and the instructional materials and also between attitude and achievement that is possible to predict achievement from attitude scores reported (Adesoj & Popoola, 2008).

Studies conducted by Jegeele (2007) related to probing students' attitudes towards chemistry, indicated a low level of student motivation to engage in chemistry learning, a fact which could be related to the following issues: The unpopular ways of teaching which does not promote higher order cognitive lead to gaps between students' wishes and teachers' teaching; difficulty of chemistry course; wide coverage of the syllabus in combination with little allocated teaching time; use of unattractive teaching methods and resources; attitudes of peers towards science;

enjoyment of science; the nature of the classroom learning environment; achievement in science and fear of failure in taking a science course and preference of learning approaches (Pedagogy).

Many factors could contribute to the students' attitude towards learning. Attitudes are acquired through learning and can be changed through persuasion using a variety of techniques. Attitudes, once established, help to shape the experiences the individual has with object, subject or person. Although attitudes change gradually, people constantly form new attitudes and modify old ones when they are exposed to new information and new experiences (Adesina & Akinbobola, 2005).

Ibeh et al. (2013) study on strategies to improve attitude of secondary schools students towards physics for sustainable technological development in Nigeria revealed that effective use of teaching aids would improve students' attitude towards physics. The study recommended adequate physics textbooks for students would improve attitude of students' towards physics, adequate funding of schools by donating textbooks, constructing good physics laboratory, library and classroom accommodation and conducting of physics practical often and allowing students to use material and aids would improve attitude of students towards physics.

Njagi's (2003) study on students' attitude towards web-based learning resources revealed no significant difference in attitude change between students using web-based resources and those who used traditional textbooks. However, the study findings indicated a positive significant relationship between computer literacy and attitude towards computer technology. The current study compared the attitude of the pre-lingual and post-lingual learners towards the availability and media resources in schools for the hearing impaired in Western Kenya.

Several studies have been undertaken to try to reach an understanding of the relationship between student attitude towards specific subjects and academic achievement. According to Schenkel (2009) only weak correlations between these variables were identified and these relationships were dependent on several variables that is, grade, sample size and ethnic background. However, the results obtained by Nicolaidoy & Philippou (2010) revealed significant correlations between attitude and performance with the study results indicating that Students who had positive attitudes performed better.

Clark & Bowe (2006) argue that the quality of learning is a function of a positive attitude towards learning unit and therefore in selecting resources to use as actual aid, the attitude that learners hold toward materials should be considered. Lim et al. (2006) note that the acceptance of media resources depend on the kind of learning objects used and that students in their studies favour interactive and constructive learning objects. A research done by Pierce & Stacey (2004) found that students with positive attitudes towards mathematics computer tools overcome initial difficulties and progress towards effective behaviors such as using the tool to explore and develop their conceptual understanding. Further, they noted that negative attitudes led to attempted avoidance of math tool for the lack of success in using it to improve algebraic insight.

Also, a study done by Horge et al. (2003) investigating the students' attitude towards the use of internet for learning at a university in Malaysia revealed that most students agreed that the learning environment in the university encourage the students to use the internet in their learning tasks. This observation makes it clear that there are other factors that contribute to the learners' attitude towards media resources. The present study particularly assessed the attitude of students towards the use of media resources. Further, a study was done by Mwei, Too & Wando (2011) on the effect of computer assisted instruction (CAI) on students' attitude and achievement in Mathematics and transformations in secondary schools in Uasin Gishu revealed that CAI approach was more effective than conventional approach for producing good results. However, the study was specific to one type of media. The present study assessed the attitude of students and teachers towards the use of all available media resources in schools for the hearing impaired.

Most researchers agree that IT plays an increasing vital role in facilitating educational process today (Al-Hunaiyyan et al., 2008; Oh & Park, 2009; Vaushan & Garrison, 2006) as cited in Amal & Iwona (2014). Research undertaken in the area of attitude and attitude formation shows that attitude and beliefs are linked, more so, attitudes are essentially divided into likes and dislikes (Siragusa & Dixon, 2008) as cited in Amal & Iwona (2014). With the broad expansion of IT in education in the recent years, most research studies have explored the attitudes of students and teachers towards the integration of IT in education (Gasaumeh, 2009; Mishra & Panda, 2007; Wen & Shih, 2008). Selim (2007) observed that students who were familiar with instructional technologies and the skills needed to use computer and mobile devices for instruction developed positive attitudes. On the other hand, students who were not skilled in IT became anxious about

the use of computers and had lower expectations from instructional technology. According to Gulati (2008), developing countries find the traditional means of learning more convenient and sustainable. However, Omidinia, Masrom & Selamat (2011) reported that the use of IT for learning was widely accented in Iran's educational system. Tekinarslan (2008) assessed computer accessibility of personal computers between two groups of Dutch and Tunlish students. The results revealed that the Dutch students had lower computer anxiety levels and higher levels of technology use than Tunlish students. This was attributed to relatively higher levels of computer access and use of the Dutch participants. The study concluded that accessibility of technology tends to affect student and teacher attitudes and competencies and correlates positively with the level of technology use (Agyei & Voogt, 2011).

Similarly, Sweeney & Geer (2010) observed that limited access to IT constrains student capabilities, attitudes and experiences; Hussain (2007) is in agreement. According to Hussain (2007), students selected for a study on e-learning in Pakistan showed that they faced various difficulties in accessing IT facilities and this limited their ability to use technologies. Most research studies noted correlations between computer experience and positive attitudes, competence and comfort with computers (Schumacher & Morahan, 2001; Papaloanna & Charalambous, 2011 and Paris, 2004) as cited by Amal & Iwona (2014). However, other studies have disagreed with these findings and claimed that computer experience did not play a significant role in developing positive computer attitudes (Felton, 2006 and Olatoye, 2009).

A study carried by Tulonga (2015) on primary student teachers instructional technology use and integration practices during school based studies revealed that student teachers used instructional technology materials during school based studies because they were commonly available and easy to prepare through students lacked understanding of the difference between IT use and IT integration in the classroom. Tulonga (2015) points out student teachers' attitude towards IT use and integration will determine effective implementation of such integration in teaching and learning. Also, the more pre-service student teachers are exposed to the different technologies available and their usage and significance in education, the more likely they will use them during their teaching.

Ajzen (2005) described an attitude as a predisposition to respond favorably or unfavorably to an object, person or event. Therefore, attitudes towards media resources use influences whether teachers will integrate the resources into their classroom teaching. Buabeng (2012) studied on factors that influence teachers adopting and integrating instructional technology concluded that if teachers perceived technology as neither fulfilling their needs nor that of their students' needs, it is likely that they will not integrate the technology into teaching and learning. Similarly, Drent & Meelssen (2008) found that teachers with student oriented pedagogical approach, possessing a positive attitude towards computers, having computer experience and personal entrepreneurship of the teacher, have a direct positive influence on the innovative use of instructional technology in the classroom.

Vannatta & Fordham (2004) note that the amount of time institutions spend on training and guiding teachers on how to use technology increases the possibility of them to use technology in future. This implies that institutional characteristics contribute to the teachers' positive attitude towards the use of instructional technology. This is echoed by Norris and Soloway (2003) who posit that there should be sufficient accessibility and exposure to various technologies at the institutions to encourage students to make use of them. Hannula (2007) presented that "the everyday notion of attitude refers to someone's basic liking or disliking of a familiar target". Montano & Kasprzyk (2008) concluded that attitude is determined by individual's beliefs, about outcomes or attributes of performing the behavior, weighted by evaluations of those outcomes or attributes. Thus, a person who holds strong beliefs that are positively valued, outcomes will result from performing the behavior that will have a positive attitude toward the behavior. Conversely, a person who holds strong beliefs that negatively valued outcomes will result from the behavior a negative attitude. Reid (2003) observed that attitudes are important to us because they cannot be neatly separated from study.

Lipnerich et al. (2011) in a study done with the USA and Biolo Russian middle school students highlighted the importance of attitudes in predicting academic achievement. The study showed that students' attitudes towards mathematics explained a variance of 25% to 32% in mathematics achievement, with much of the explained variance independent of ability in math. Nevertheless, Bolast (2010) and Mafwimbo (2013) showed that high achievement could serve to predict a positive attitude towards math, but such an attitude could not predict stronger achievement.

However, these scholars emphasize the role of teachers and schools in changing attitudes which would be improved by better teaching methods, more motivated teachers and better use of instructional materials. It is worth mentioning that the development of students' positive attitude is necessary because attitude is linked with academic achievement (Cheung, 2009). . Also negative attitude towards learning could result in learners performing poorly preventing them from obtaining required results for university entrance (Mullins, 2005).

The use of media resources in teaching and learning depends on several factors among which include teachers' competence and attitude. A teacher, according to Tarum (2009), is someone who imparts knowledge and skills to students and prepares them with the vision of being leaders of tomorrow through motivated educational system. Soni (2012) describes a teacher as a leader who is always dynamic and behaves in change and has the capacity to prepare future leaders and developed in them the skills that they may need to succeed. Teachers in this context, refer to individuals who are trained technically and pedagogically in the use of media resources and are charged with the responsibility of imparting knowledge and skills to students. These teachers are supposed to discharge their teaching to students effectively with the use of media resources. According to Agbulu and Wever (2011) media resources are important because they are used for transference to information from one individual to another, help the teacher in extending his student's horizon of experience, stimulate learners' interest and help both teachers and students to overcome physical limitations during the presentation of the subject matter.

Since teachers are key personnel in realizing the national goals of a knowledgeable society, essentially, teachers need to be lifelong learners themselves in order to shoulder the heavy responsibilities entrusted to them and be capable of their thoughts, behaviors and lifestyle (Kolo, 2009). Simmons (2010) also noted that effective teaching in the 21st Century requires more than a basic understanding of educational theory and classroom management. Teachers must also collaborate with other educators to learn how to implement new technology in the classroom, and how to prepare students to enter a global economy. Therefore, he or she is faced with the task of effective classroom management, making content relevant to students' daily lives, developing critical thinking in his or her lessons, giving students understanding and importance, having students prepare learning materials and finally staying current on new issues and developments in the field of teaching as well as content areas.

Ekpo-Eluma et al. (2013) conducted a study on teachers' attitude towards use of self-made Video Compact Disc and students' academic performance in social studies in Nigeria. The study revealed that teachers' attitude towards the use of self-made Video Compact Disc significantly influenced students' performance in social studies. Students whose teachers exhibited positive attitude towards the use of locally fabricated instructional materials out-performed their counterparts whose teachers had negative attitude towards the use of self-made instructional materials (video compact disc) to enrich the teaching and learning of social studies in secondary schools in view of its usefulness to societal growth and stability.

The development and progress of any country is a function of the standard of education and the quality of its products (Ekpo-Oluma et al., 2013). But it is not often realized that it is the teacher who holds the keys to the quality and quantity of education of any society. According to Adeyanju (2005) teachers constitute a significant variable in the teaching-learning process and the effectiveness of schools. Quality teaching depends on their academic standing and more importantly their attitudinal disposition towards instruction and use of relevant instructional materials. Teaching and learning are gradually becoming scientific and more systematic with less emphasis placed on them as arts. The approach to teaching therefore, must allow for factual and measurable evidence which can be achieved through systematic activities and resource utilization of instructional materials (Ekpo-Oloma et al., 2013).

Teachers must take decisions on the type of instructional materials (locally made or imported) fully wish to use in a particular lesson. According to Okoro (2002), attitudinal factors have great influence on learning and students' achievement. Undoubtedly, attitude consists of beliefs, feelings, interest, likeness, anxiety, perception and motivation. Attitude is said to be the energizer of human behaviour. This explains why the attitude of teachers towards use of media resources they use influence the media resources they select for teaching and learning and consequently their students' performance. Some teachers exhibit a negative attitude towards the use of locally made instructional materials for various reasons. Ekpo-Eloma et al., (2003) observes that to this category of teachers the use of local materials is burdensome, time consuming and that such materials are of poor quality. Those that prevent their use positively prefer them to the imported ones because they are relatively cheaper, often up-to-date in content, readily available,

customized according to specification to meet the objectives of the lesson as well as involve both teachers and learners in realistic problem solving activities (Ekpo-Eloma et al., 2010).

Attitude plays an important role in the decision of integrating technology. For instance, Alghazo (2006) pointed out that the attitude of pre-service teachers plays a vital role for usage of web-supported materials in their prospective classrooms. Therefore, attitudinal studies are still essential for training well-qualified teachers of future. A study carried by Fareo (2015) on the attitude of teachers towards students with special needs in mainstreamed public secondary schools in South-Western showed that 78.8% of teachers had a negative attitude towards students with special needs while 6.4% teachers had neutral attitude. The study concluded that positive attitude of teachers towards students with special needs would increase self-perception and academic performance. Thus, teachers' attitudes undoubtedly had a great influence on the academic achievement and social behaviors of the special needs learners. However, the focus of the current study was on the students' and teachers' attitude towards the availability and use of media resources in special schools for the hearing impaired in Western Kenya.

Elliot (2008) examined the relationship between teachers' attitude towards mainstreaming of children with mild to moderate disabilities in physical education settings, and the amount of practice attempts performed, and levels of success attained by these students compared between inclusion and teacher effectiveness. Teachers with positive attitude towards inclusion provided their students with significantly more practice attempts, at a higher level of success. In addition Opati (2014) established a very positive and attitude and significant relationship between resources and academic performance. He asserts that attitudes have a profound impact on teacher practice and behaviors. He also notes that instructional materials increase teachers' effectiveness because they augment, complement and supplement their effort. The magnitude of instructional resources makes teaching more productive and gives it a more scientific base. It makes teaching and learning more individualistic.

Studies by Sang et al. (2010) and Koman (2013) and Wanam (2010) showed strong relationship that existed between uses in education. The studies concluded that teachers' beliefs have remained stable and their resistance to change is one of the main explanations behind the diminutive adoption of IT in education. There are claims that successful usage of media

resources in the classroom will lead to enhanced learning outcomes (Cope & Ward, 2002). But these claims are difficult to justify without bringing the perception of teachers. A research conducted by Cope & Ward (2002) in Australian high schools investigated educator's perception on what constitute IT tools and their impact on learning. The study revealed that educators had varied perceptions on what IT tools were. These varied perceptions affected their attitudes towards the use of IT in teaching and learning.

Major predictors of the use and integration of media resources in teaching and learning is teachers' attitudes and their beliefs (Mumtaz, 2000; Almusalam, 2001). However, lack of IT related knowledge of teachers is one of the main inhibitors to students learning and their IT related goals (Pelgram, 2002). Previous studies in Tanzania indicate that teachers use IT (Tilya, 2007; Swarts & Wachira, 2010; Mwalongo, 2010; Hooker et al, 2011; Sedoyeka & Gafufen, 2013; Ndibalema, 2014), but there was evidence that IT was rarely used as a teaching unit or learning tool. The recent research by Ndibalema (2014) to investigate the attitudes of teachers towards using IT as pedagogical tool showed that teachers are not aware of the potentials of IT in their teaching. In addition, the preference of teacher centric instruction, memorizing as a mode of self-study, and discouragement of critical thinking were quite typical among new IT students-teachers in Tanzania (Apiola et al., 2011; Tedre et al., 2011).

Further, Mudasiri & Yusuf (2011) examined student-teachers' competence and attitude towards use of instructional technology (IT). The findings showed that the majority of student-teachers had a positive attitude towards the use of IT and they were competent in the use of few basic IT tools. Kadel (2005) also adds that regardless of the quantity and quality of technology placed in classrooms, the key to how these tools are used is the teacher; therefore, teachers must have competence and the right attitude towards the use of technology. However, Sife et al. (2001) note that the lack of awareness and attitudes towards technology are challenges that hinder systematic approach to IT implementation in case of using the existing technology already in place. Alcardo (2014), Almusalam (2001) and Mumtaz (2000) are all in agreement that major predictors of the use and integration of IT in teaching and learning is the teachers' attitude.

Another study was carried out by Ndibalema (2014) on the attitude of teachers towards using IT as a pedagogical tool. The findings showed that teachers preferred teacher-centric instruction,

memorizing as a model of self-study and discouragement of critical thinking were quite typical attitude among new IT student-teachers in Tanzania. This is an indication that though the opportunities of using technology in teaching and learning are recognized, it has not been effectively integrated into everyday teaching activities. This study was out to assess the attitude of teachers towards media resources in teaching and learning. In addition, Romtamui & Cheruto (2014) assessed teachers of literature's attitude towards using media resources in the teaching of the novel. Although the results showed that the teachers had a positive attitude towards using media resources in teaching, a classroom observation by the researchers showed that teachers rarely used a variety of the available resources other than the chalkboard and recommended text. This was an interesting observation in regular schools and on this basis, the current study tried to establish whether teachers in schools for the hearing impaired made use of the available media resources.

Incorporating IT in teaching and learning can make a difference in how teachers instruct learners. It makes the teacher to have more time with individual learners, less time teaching the whole class and enables students to carry more independent tasks (Dilli, 2007). Paul et al (2007) cited by Sanibala (2012) observe that micro-computers can create remarkable changes in the nature of professional work. Similarly there is a correlation between levels of computer use, skills, familiarity and knowledge of IT and teachers' attitudes and this depends on introducing continuing education programmes in schools such as seminars and workshops on the use of modern technology as teaching resources in the instructional process (Hassan, 2003).

Nishta's (2012) study on assessment of teacher educators' attitudes towards technology integration in classroom revealed that most of the teacher educators had positive attitudes towards the general role that instructional technology could play in education and in the teaching and learning process. Kahveci et al. (2011) as cited in Nishta (2012) posit that technology has had an impact on the way education at all levels is done. As an innovative tool, technology has played a key role in improving teaching and learning in light of educational reforms around the world. Several researchers have argued that integrating technology in teaching and learning process in many ways can support student-centred teaching with more student involvement in the learning process (Cajas, 2001; Cope & Ward, 2002; Edelson, 2001). However, Arslan (2003) as cited in Nishta (2012) observe that a school with an adequate technological base may not

succeed to provide technology supported education if teachers are not willing to do so and do not carry a positive attitude towards using technology in their teaching. Sadik (2006) in his study in Egypt reported that the more positive teachers' attitudes were towards instructional technology, the more likely they were to integrate it in teaching and learning.

Several studies conducted in different countries on teacher attitudes revealed that positive attitudes towards instructional technology and computers (Hong & Koh, 2002 and? Ng & Gustine, 2003). A number of researchers concluded that attitudes were significantly influenced by prior computer experiences. Hong & Koh (2002) and Sadik (2006) also found that a gender relationship with positive attitudes towards computers was in favor of males. Nishta (2012) observe that studies conducted on teacher perceptions, beliefs and attitudes indicate the primacy of understanding what drives teachers to integrate technology in their teaching. Nishta (2012) further note that the success of any initiations to implement instructional technology in an educational setting depends largely on the support and attitudes of teacher educators involved. Among the factors that affect the successful use of computers in teaching and learning are teachers' attitudes towards computer (Huang & Liaw, 2005). Such attitudes include perceived usefulness, computer confidence, training and knowledge about computers (Rovai & Childress 2002; Tsitouridou & Vruzas, 2003; Sadik, 2006; Yildirim, 2000). In support of the effect of teachers' attitudes towards computer use, Zhao et al. (2001) provided evidence to suggest that the attitudes of teachers are directly related to computer usage in teaching and learning. For instance, teachers often view the computer as a tool to accomplish housekeeping tasks, manage their students more efficiently, and to communicate with parents more easily. The success of student learning with computer technology will depend on the attitudes of teachers, their willingness to embrace the technology (Teo, 2008) and actively use it in classroom teaching. Gaining an appreciation of the teachers' attitudes towards computers usage may provide useful insights into technology integration and acceptance of use of technology in teaching and learning. Positive teacher attitudes towards computers are critical if computers are to be effectively integrated into teaching and learning. Even though most of the research analyzed in this section revealed how attitudes affect utilization of IT in teaching and learning, much of the findings were based on able bodied students across the board. More specific research targeting the teachers' attitudes in special schools had to be conducted. This became a motivational factor

to conduct research on hearing impaired students and their teachers in western Kenya to find out the correlation between teachers' choice of IT and their attitude.

2.5 The Availability and Use of Media Resources in enhancing content acquisition

For this study, media resources are defined as all the materials and equipment that are used to enhance the teaching and learning process, specifically chalkboards, flip charts, locally available resources, overhead projectors and computers. Media resources have been shown to have a positive impact on teaching and learning in classrooms (Baylor and Ritchie, 2002). Matthew's (2013) studies on the effects of use of instructional material on students, cognitive in agricultural science in Nigeria revealed that students taught with instructional materials performed better than those taught without instructional materials. The null hypothesis tested at 0.05 level of significance indicated that there was no significant difference between the achievement scores of those taught with instructional materials and those taught without instructional materials. The study therefore recommended that instructional materials be used in secondary schools because it has positive impact on students' performance. These findings are in line with the studies of Olagunju (2000).

The study by Sanchez & Aleman (2011) and Alcardo (2014) have indicated that media resources assist in transforming a teaching environment into a learner-centered one and enable learners and teachers to be equipped with more affordable educational opportunities and possibilities. Media resources provide opportunities to practice and analyze concepts and offering better access to relevant articles and learning materials (Shahat et al, 2012). Students are instructed by teachers to make their own decisions and plans because of active involvement in the learning and teaching processes (Lu, Hom & Huang, 2010). The UNESCO (2008) report on the UN decade of education for sustainable development indicates that media resources, especially modern technology, promotes student- centered learning and appears to be speeding the rate of educational change in all learning institutions.

Saddam et al. (2012) concludes that students perceive change when they are continually exposed to the capacity of Instructional Technology, and the more likely that students can develop better

skills on IT use and be encouraged to engage themselves in deeper forms of learning(Mukelabai, 2011). In order to cater for the needs of the 21st century, teachers should learn to adapt with the change particularly in the new trends of teaching and learning. Findings from Maurice et al. (2012) show that IT facilitates students to search for information and other instructional materials which also enables communication among students. Maurice et al. (2012) further note that the use of IT in educational delivery and in other fields of endeavor cannot be overemphasized in this era of science and technology. By using IT, students are now more frequently engaged in the meaningful use of computers (Chai, Khol & Tsai, 2010). Studies by Cavas et al. (2009) Steel, (2009) and Mwalongo (2011) have indicated that media resources use is likely to motivate teachers and students as they assist them to clarify difficult contents, save time, make learners active, and simplify teachers' work.

Oladejo et al. (2011) examined the effect of using standardized and improved instructional materials on academic achievement of physics students in Nigeria. The study findings revealed a significant difference in the achievement between students taught using improvised instructional materials and those in the conventional materials. The study then concluded that the use of improvised instructional materials promote and enhance effective teaching-learning process. Eke (2010) carried out a survey study on the roles of media resources in teaching social studies on primary schools in Nigeria. The findings revealed that media resources make abstract ideas concrete and easier to understand student attitude.

The above works have a relationship with the present study as they all focused on some aspect of media resources; however, they also differed significantly from the present study in content, geographical scope, hence, creating gap in knowledge in terms of the education of the hearing impaired. The interest to fill this existing gap in knowledge is the premise on which this study stands, which is to; investigate the availability and use of media resources in teaching and learning in the schools for the hearing impaired. Similarly, Mba (2013) examined the use of instructional materials and educational performance of students in integrated science schools in Nigeria. The study findings also revealed a statistical significance difference in the mean scores in the educational performance of students who were taught with instructional materials. While

the studies focused on the student performance, the current study examined the use of media resources and the student's content acquisition.

Brady (2011) and Shan (2013) pointed out that media in education cannot be implemented in isolation but should be applied in combination with diverse teaching methods and approaches, especially constructivists' perspective, which is rooted in student-centered approach. Instructional materials can change the role students play in the classroom (that is, from the traditional passive recipients to learning initiators). Students can also cope with many of the criteria in teaching and learning process using learner-centered approach (Gee, 2011). In addition, the roles of teachers also change to facilitation of students' learning through contextualizing and monitoring learning functions (Mukelabai, 2011). In as much as we emphasize the importance of teaching resources in learning we cannot achieve much unless the resources are made available. In addition to adequate supplies, support from administrators and access to media resources, which influence the importance in using media resources, there can also be constraints that impede the use of media resources (Alston et al., 2003; Beggs, 2000; Kadzera, 2006).

Lack of preparation time is considered one of the constraints in use of media resources in teaching and learning. Kadzera (2006) observed that teachers who already have too much class work and school responsibilities may find that media resources require additional time to learn and prepare for use in the classroom. They may feel that they have no extra time to spare to facilitate the use of media resources. Further, research has shown that minimal or lack of incentives for teachers who sacrifice their time to integrate media in their classes, contributes significantly to the teachers' unwillingness to use them. In a survey conducted at Hollins University on obstacles to technology integration, 70% of respondents reported that there were no outside incentives provided to initiate the use of technology in teaching (Spodark, 2003).

Although the opportunities of using new technology in education are recognized, technology has not been effectively integrated into everyday teaching and learning. The practice still relies in the single path way of the school without multiple approaches to build up ICT use in education (Zamzam, 2012). Hence, traditional means of teaching and instruction still dominate especially in developing countries. Zamzam attributes the dominance of traditional media resources to the

teachers' lack of technical and pedagogical skills to use technology in instruction even if they have access to internet and the fear of inappropriate internet content that may have negative impact to local culture and ideologies from western countries. In addition, Sife et al. (2007) noted constraints like inadequate funds for staff development and infrastructure, insufficient qualified staff and lack of systematic approach to ICT implementation in case of using the existing infrastructure already in place. In China, such constraints include: lack of pedagogical skills for instructors to use technology in instruction (Hu, 2005; Guo & Cai, 2006), regional differences in education and technology resources allocation (Li, 2005; Lee, 2004 and Zhang, 2001) internet access which is relatively expensive (Xialin, 2008; Tang, 2000) and shortage of educational infrastructures and resources to meet the demand of newly reformed curriculum in the need of quality education (Hu, 2005; Guo & Cai, 2006; Chen & Bonk, 2008).

Furthermore, some ideological, cultural and political issues pushed the government to interfere with the management of the internet. There is a strict limitation of information flow on the internet and even the access is blocked to some foreign websites (Lee, 2004; Guo & Cai, 2006). Pedagogical culture of test driven education system in China and teacher centered approach has also been pronounced as constraints since technology based instruction foster learner centered approach with great emphasis on problem solving and knowledge construction (Lee, 2004; Zhang, 2007; Chen & Bonk, 2008). The situation in other developing countries is not quite different. Studies (such as Nawe, 2000; Swartz & Wachira, 2010; Kajuna 2009; Ndume, 2008) show that lack of sufficient technical and academic staffs with appropriate skills in technology use; unsupportive administration; lack of electricity connectivity and reliability as well as telecommunication network; costly internet access and low internet speed; lack of content that meet users' expectation; shortage of technological resources and infrastructure and traditional beliefs on education and learning are the constraints to the use of technology instruction in Tanzania.

There are various initiatives, practices and strategies used to address constraints so as to improve technology based instruction. According to Tidio & Brown and Sharma (2009) these strategies include: Inviting teacher professional development on pedagogical use of technology, sharing of content and information through education network, private and public partnership in IT funding,

and development of quality education online resources in local languages. In China for example, in order to increase personnel with qualified skills, educational technology has been taught as a field of study from undergraduate to doctorate level for years now (Fuyin & Jianli, 2010). In addition to these, they also offer courses in IT and integration of IT from primary level of education to develop students' interests and awareness on IT, to understand and master basic IT skills and make them realize the impacts of IT on daily life (Hu, 2005). However, due to underfunding, institutions are charging students separate IT training fees to increase resources and maintenance (Guo & Cai, 2006). All these focus on improving IT skills and use, and mindset change as one will be comfortable to use technology if he/ she has basic skills on how to operate and use it.

Another strategy to overcome the constraints as reported in Nihuka (2008) and Nihuka & Voogt (2011) is the use of offline model (LMS) to deliver the course in an ODL setting, supported by emails and mobile phone communication. Besides overcoming constraints, the strategy was effective in terms of enhancing delivery of courses, course outlines and learning resources and improving interactions and communication between teachers and students. The foregoing studies were based on the use of modern technology for teaching and learning specifically in regular learning institutions. The present study focused on the availability and the use of media resources both traditional and modern in special schools context in Western Kenya.

2.6 Theoretical Framework

According to Orodho (2009), the importance of a theoretical framework is to bring order, unity and simplicity to what is being investigated, helps to clarify the statement of the problem, and enhance the development of explanation. This study was guided by three theories namely: the Cognitive Load Theory Sweller (2005), Dale's (1969) Theory of Instruction and Piaget's (1964) Cognitive Development Theory, all related to the use of media resources.

2.6.1 The Cognitive Load Theory

The Cognitive Load Theory (CLT) by Sweller (2005) states that the ability to learn and the mental capacity of a learner is limited to the learner's age and mental ability and that learners

may receive overwhelming information in terms of too much content and complex concepts. When the media resources are not properly utilized, this will result in overload where students are provided with more content than they can learn or handle. This impairs the schema of the planned lesson objectives for acquisition, resulting in a lower performance or less learning on the part of the student. CLT suggest that learning happens best under conditions that are aligned with human cognitive architecture or mental structures, and images that learners build from what they learn through visual and auditory perceptions with the aid of media resources. Learning is limited in the number of elements it can contain simultaneously unless enhanced by use of media resources. CLT helps in understanding the combination of elements as the cognitive structures that make up an individual's knowledge base. From an instructional perspective, information contained in instructional material must first be processed by a working memory.

For Schema of objective acquisition to occur, instruction should be designed to reduce working memory load through effective media resource. CLT is concerned with techniques for reducing working memory load in order to facilitate enhanced learning associated with schema acquisition when teachers use media resources; they intentionally choose a means of presenting information (Flemming and Levie, 1993). Thus instructional strategies may vary depending on content but may range from organizational strategies, sequencing, clues, feedback, orienting or question techniques, and this should involve different types of media, which should result in enhanced learning. The theory best explains in the area of instructional media use. For instance, if a text is essential for intelligibility, placing it on a diagram, print or video screen will reduce the problem associated with searching for relations between the text and its meaning and this will enhance learning when the selected medium aids the learner's understanding of the content being presented.

2.6.2 Dale's (1969) Theory of Instruction

The theory is based upon the principle that all teaching can greatly be improved by use of materials because, they make teaching experience memorable and when used intelligently promote the most effective kind of learning. Dale posits that learning is a process in which the concrete and the abstract interact. He therefore found visual materials which include books,

pictures, photographs, flash cards, maps, posters, chalkboards; drawings and cartoons ought to be used in teaching. In addition, audio materials which include radio, tape and disc, recordings, telephones and sound distribution systems and audio-visual materials which are films, television, videos, printed materials with recorded sound and demonstrations supply concrete basis for conceptual thinking and hence reduce meaningless words or responses of students. Dale, as cited by Kinyua (2001) summarized all instructional materials using pictorial device which he calls 'the one of experience'.

According to Dale (1969:25) a school will become an interesting place if it proves to be a place where students have interesting experiences where they see, hear, touch, taste, plan, make, do and try. He says when a school provides many of these rich experiences, it will promote effective learning. He further explains that this will carry on the kind of education that fosters permanent learning. Monotony can be a powerful deterrent to learning, when human beings seem to need variety and a change in order to get full flavor out of life's experiences (Dale, 1969:69). With this, Dale advocates for a variety of media resources in teaching a situation for they can accomplish the following: they offer a reality of experience which stimulates self-activity on the part of the students; they develop a continuity of thought, this is especially true of motion pictures, they contribute to growth of meaning and hence to vocabulary development and they add a high degree of interest and involvement among the learners.

The poster for example can be used to create a learning atmosphere to provide general motivation while the chalkboard can be effectively used for highlighting critical questions or captions in a unit under study (Dale, 1969). Dale stresses that these materials should be properly prepared and properly used in order to produce the best result. This theory, therefore, was significant to the current study because it recognizes the important role played by media resources in the teaching and learning process. Its main emphasis is on efficient use of the available media resources in order to promote effective and permanent learning.

2.6.3 Piaget's 1964 Theory of Cognitive Development, Wadsworth (1984)

This study was also guided by the Piaget's 1964 theory of Cognitive Development. The theory expounded by Wadsworth (1984), asserts that children's mental constructs are developed

through their experiences in the environment. The theory holds that, the cognitive structure develops valiantly or sequentially and interactively forms the concrete to the more abstract one. In his theory, he specified four major stages of development: the sensor motor consisting of age from birth to about two years; pre-operational period, approximately 2 to 7 years; concrete-operational stage, seven to eleven years and formal operational stage, twelve years onwards.

This study based its assumptions in the formal operational stage because most learners in secondary schools fall in this stage.

2.6.3.1 Formal operations stage

Here, the child can use reasoning based on logic. He can formulate theories. The child is able to relate, differentiate, combine mentally and logically various ideas through symbols. Maximum at this stage is usually achieved through adulthood.

Piaget's theory implies that the child is not simply a passive organism that responds to any stimuli that occurs, but is an active organism. Piaget's theory implies that the activity of the child to learn more of the subject matter presented will increase as he progresses through the different stages of cognitive development. Therefore, when a teacher decides to use learning resources of teaching, he has to take into account the learner's stages of cognitive development, if the learners are going to benefit from them. There is also the implication that some learning resources are better adapted than others in the presentation of subject content, to individuals of varying stages of cognitive development. According to Piaget, cognitive re-organization resulting from assimilation and accommodation can come about only through actions of the child. Thus actions, physical or cognitive must occur if cognitive/re-organization is going to take place.

Piaget asserts that assimilation and accommodation of actions are always under internal control (Equilibrium) and the re-organization of cognitive structures are in a particular way, which can never be ensured by external organization of experience. Throughout the stage of concrete operations, the manipulations of objects and materials dealing with concepts to be learnt is most important. During this stage, concrete experiences that result in reflective abstractions generate conceptual development (Wadsworth, 1984).

Although Piaget was relating this theory to young children, it can as well be applied to the students at high school. Piaget argues that with attainment of formal operations, children are able to develop some logical concepts without the aid of direct physical experience. However, conceptual development can proceed based on the child's actions on written and verbal materials. Even the adolescent or adult with preponderance for formal operations continue to use concrete experiences in the development of concepts. Hence, concrete experiences will still be needed in order to develop new physical knowledge.

This theory was applied to secondary school students because most of them are at the critical stage of learning new concepts, which are as challenging to them at their level and their new environment. Then, the theory lends itself well to the secondary school students who are experiencing literature that some teachers have claimed to be confusing. For instance, if one has never had an experience with sailboats, it is difficult to acquire any useful knowledge about them unless teaching aids are used. Piaget's theory holds that experiences are necessary for intellectual development. These experiences are to be organized in order to convey the required message. However, learning through experience is just one of the many ways through which knowledge is imparted. A student could still learn through either the discovery method or apprenticeship method among others. The theory emphasizes the importance and need for instructional resources to enable students develop concepts and skills easily. This theory was applied in the present study on the basis of its functions and utility in predicting behavior as well as its persuasive power and logic. It was on this ground that Piaget's theory continued to appeal as a guide to the present study of the availability and use of media resources for teaching and learning in special secondary schools for the hearing impaired in Western Kenya.

Piaget (1964) emphasizes throughout his work that cognitive and intellectual changes are the result of a developmental and coherent processes of successful qualitative changes of cognitive structure (Schemata). Each structure and its non-committant change derive logically and inevitably from the preceding one. The learning process starts at birth through primary education, where experiences are made vivid by use of concrete experiences, and when they join secondary school the process of learning should be made continuous as Piaget argues. In order for learning process to be continuous the use of instructional resources even for adults or adolescents in secondary school is essential. Piaget's theory was applied as a guide to this study

since learning is a continuous process. The only difference being the complexity and level of the content covered at higher level.

2.7 Conceptual Framework

A conceptual framework according to Orodho (2012) is a diagrammatic relationship between the independent and the dependent variables of a study. It employs the use of drawings and diagrams to explain the interrelationships between variables. These variables and other related factors are put in boxes with arrows indicating the interconnections between them (Orodho, 2009). The conceptual framework for this study was developed from the reviewed related literature and the theoretical framework. From the theories discussed, it was evident that teaching and learning can be greatly improved by use of the available media resources in schools. These materials include: textbooks, charts, maps, posters, chalkboard, overhead projectors, videos, filmstrips, and computers and many others. This study focused on the availability and use of media resources for teaching and learning. This required that the media resources should be available, adequate in supply, of good ratio to the students and frequently used. Availability and use of media resources will then translate to improved teaching and learning and higher content acquisition and eventually good academic performance. However, there may be other factors which influence media use. They could be adequacy, teachers and students' attitudes towards the use of the available media resources. The relationship between these variables is illustrated in Figure 1.

In the current study, figure 1 depicts the envisaged relationship between the independent and dependent variables. In developing the conceptual framework for the study, as depicted in figure 1, the following variables guided the design of the study. The independent variables were: availability and use of media resources; adequacy and frequency; students' attitude and teachers' attitude.

The dependent variables for the study were: teaching and learning, content acquisition and hearing impaired learners.

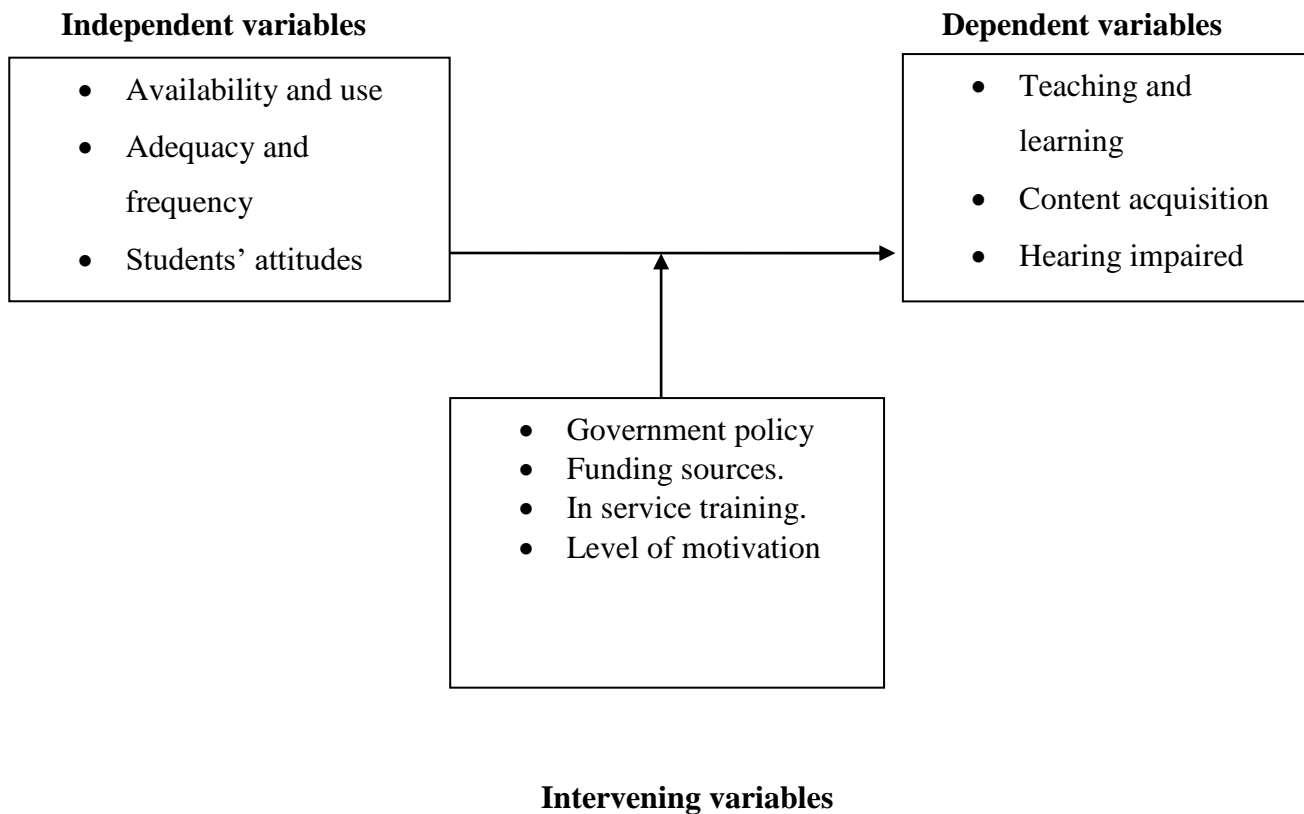


Figure 1: Conceptual framework (Source: This study, 2015)

2.8 Summary

The literature review in this chapter addressed a number of issues. First, the availability of media resources in teaching and learning was addressed. The study revealed that media resources assist in transforming a teaching environment into a learner centred, enable learners and teachers to be equipped with more affordable educational opportunities and provide an enhanced teaching and learning environment (Baylor & Pitchie, 2002; Sanchez & Aleman, 2011; Alcardo, 2014).

Secondly, the study revealed that media resources could be available in schools but still underutilized because either they could be inadequate or not readily accessible or the teachers lacked the competence to use them. However, the existing studies were based on the regular schools. This study filled the information gap concerning the availability and media use in schools for the hearing impaired students. Thirdly, this study also established that there are

constraints involved in media selection and use. Such constraints included lack of time, incentives, inadequate funds, insufficient staff, lack of infrastructure and administrative support.

Finally, this study revealed that a positive correlation exist between students' attitude towards media use and content acquisition. The current study established a significant relationship between the students' attitude towards media resources use and content acquisition. The study also revealed that both teachers and students had a positive attitude towards use of media resources in teaching and learning.

From the literature reviewed, the following gaps in knowledge are evident that the present study attempted to fill: First, availability and use of media resources are paramount for any improved content acquisition. Most studies focused on the availability of media resources and their effect on students' performance (Obadara & Alaka, 2010). It is evident that there is little information on the availability and use of media resources in schools for the hearing impaired. A descriptive of the variables that are independent on students' content acquisition is missing hence this was the focus of the study.

Second, previous studies have shown the relationship between the age at onset of deafness and academic achievement. The present study assessed the relationship between the age at the onset of deafness and the attitude of students towards the availability and use of media resources in schools for the hearing impaired.

Thirdly, the studies done on students' attitude towards media resources are centered on secondary schools and higher institutions of learning of the hearing students. This study specifically focused on the hearing impaired students from the selected special secondary schools. The study explored the students' attitude towards the availability and use of media resources and how these resources could be used to improve content acquisition. On the other hand, previous studies have shown the relationship between the students' attitude towards use of media resources and academic performance.

Fourth, most previous studies on teachers' attitude towards use of media resources were based on regular schools. The present studies focused on the teachers' attitude towards the availability and

use of media resources in special secondary schools context. The study even became more specific and chose hearing impaired schools in Western Kenya.

Finally, few studies have shown the linkage between the frequent use of the available media resources for teachings and learning and students' content acquisition. This study intended to fill this gap. Also, in schools for the hearing impaired, there are no known studies on the same.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

This chapter gives information on the research methodology used. It contains details on: research design, study location, population, sample and sampling techniques, research instruments, reliability and validity of the research instruments, data collection, methods of data analysis and ethical consideration.

3.1 Research Design

The study adopted a descriptive survey design. This design is deemed to be appropriate since it allows the researcher to study a relatively large population for accuracy of findings and was concerned with describing, recording, analyzing and reporting conditions that exist or existed (Kothari, 2004). Also Orodho (2012) notes that a descriptive research survey is an appropriate way of evaluating educational programmes as educational activities operate in a social context. The survey was cross-sectional in nature as data was collected from the target population at one point in time. This design, according to Nworgu (2006), is a design in which group of people or items is studied by collecting and analyzing data from a few people, or items considered to be representative of the entire group.

The choice of survey technique was based on three major reasons. First, surveys provide a quick, efficient and accurate means of accessing information about the population. Second, a survey is appropriate where there is a lack of secondary data. In this case, secondary data on availability and use of media resources in schools for the hearing impaired was scarce, thus, conducting a survey to gain such information was necessary. Thirdly, the study sought to sample and describe events or opinions without manipulating variables for which a survey design is the best (Oso & Onen, 2005).

3.2 Study Area

The study targeted the existing three schools for the hearing impaired in Western Kenya which are: Kuja Special, St. Kizito and St. Angelas – Mumias Secondary Schools for the Hearing Impaired. Singleton (1993) observes that the ideal setting for any study is one where the researcher has interest in, and is easily accessible. The schools that were selected are those that

enrolled Hearing Impaired learners undergoing special education. St. Kizito for Hearing Impaired is located in Bomet County, St. Angelas – Mumias School for Hearing Impaired is situated in Kakamega County and Kuja School for Hearing Impaired in Migori County. The different cultural settings of the schools are expected to yield results that would make a good representative of Hearing Impaired learners in Kenya. The area was chosen because there was hardly any research specifically dealing with the availability and use of media resources for teaching and learning of hearing impaired learners in Western Kenya.

Background information on the schools is hereby given:

3.2.1 St. Angela Mumias Girls Secondary School for the Deaf

St. Angela Mumias Girls is a secondary school for the hearing impaired girls in the Mumias sub-county. The school was established in 1970 as a vocational school and later in 1977, a secondary school was established. It is a secondary school under the sponsorship of the Catholic Church. Students go through secondary school education or vocational training depending on their capability and choice. This study focused on the secondary school section. The total number of students is 153. Most of them come from Kakamega and Bungoma Counties. The school follows the Kenyan Secondary Schools' curriculum, and sign language is the medium of instruction.

Area of study was chosen because the focus was on the availability and use of media resources for teaching and learning in schools for the hearing impaired.

3.2.2 Kuja Mixed Secondary School for the Deaf

Kuja Secondary School for the Deaf is also a public secondary school for the hearing impaired students only. It mainly serves hearing impaired students from Kisii, Migori and Homa Bay counties. The total number of students in the school is 184. The school follows the Kenyan secondary schools' curriculum and sign language is the medium of instruction.

3.2.3 St. Kizito Mixed Secondary School for the Deaf

St. Kizito Secondary School for the Deaf is located in Bomet County. It is a young mixed secondary school for hearing impaired students only. It was established in 2010 under the sponsorship of the Catholic Church. It serves hearing impaired students from Kericho Bomet and

Nyamira Counties. The total number of students in the schools is 118. The school follows the Kenyan secondary schools' curriculum and sign language as the medium of instruction.

Maps for the study area are attached as **Appendices G, H and I**.

3.3 Target Population

Bryman (2012) defines the target population as all the members of a real or hypothetical set up of people, events and objects to which a researcher wishes to generalize the results of the study. Akuezuido & Agu (2003) and Arubayi (2003) maintained that population in research and statistics is used in a more specialized sense to include not just people, but also institutions, events, animals, objects, department and things who or which have common characteristics. The target population of this study was 498 respondents selected in terms of availability and use of media resources in teaching and learning. This population consisted of 3 principals one from each of the three target schools; 40 teachers comprising 13 from St. Angela Girls, 18 from Kuja School and 9 from St. Kizito Secondary and 455 students consisting of 153 from St. Angela Girls, 184 from Kuja School and 118 from St. Kizito Secondary. The sampling frame is shown in Table 3.1.

Table 3.1: Sampling frame of the study

| School | For m | Students | Head teachers | Teachers | Total |
|--|------------------|-----------------|--------------------------|-----------------|--------------|
| St. Angelas Girls Secondary | I | 53 | | | |
| Mumias for the deaf | II | 42 | | | |
| | III | 34 | | | |
| | IV | 24 | | | |

| | | | | | |
|--|-------|------------|----------|-----------|------------|
| | Total | 153 | 1 | 13 | 167 |
| Kuja Sec. School for the Deaf | I | 52 | | | |
| | II | 48 | | | |
| | III | 44 | | | |
| | IV | 40 | | | |
| | Total | 184 | 1 | 18 | 203 |
| St. Kizito Secondary | I | 39 | | | |
| | II | 31 | | | |
| | III | 25 | | | |
| | IV | 23 | | | |
| | Total | 118 | 1 | 9 | 128 |
| Grand Total | | 455 | 3 | 40 | 498 |

3.4 Sample Size

The sample size of the study was 217 respondents comprising 3 principals, 40 teachers consisting of 13 from St. Angelas Girls, 18 from Kuja School and 9 from St. Kizito Secondary, and 174 students consisting of 73 from St. Angelas Girls, 88 from Kuja School and 56 from St. Kizito Secondary. This was based on proportionate allocation. The sample size was computed as shown by the formula below:

$$n = \frac{\sum_{i=1}^3 \frac{N_i^2 p(1-p)}{w_i}}{\frac{N^2 d^2}{\frac{Z_{\frac{\alpha}{2}}^2}{2}} + Np(1-p)} = \frac{\frac{167^2 \times 0.5 \times 0.5}{0.34} + \frac{203^2 \times 0.5 \times 0.5}{0.42} + \frac{128^2 \times 0.5 \times 0.5}{0.26}}{\frac{498^2 \times 0.05^2}{1.96^2} + 498 \times 0.5 \times 0.5}$$

$$= 217$$

Where:

n= the desired sample size

Z=the standard normal deviate at the required confidence level (1.96)

p =the proportion of the target population estimated to be having the characteristic being measured (0.5)

1 – P=0.5

d= level of statistical significance (0.05)

N_i = the number of respondents (Principal, teachers and students) in each of the schools

i = 1.....3

N = N₁ + N₂ + N₃ is the total target population in the three schools

W_i = the proportion of N_i to N = stratum weight

(Cochran, 1977)

Table 3. 2: Sample size of the study

| School | Form | Students | Head teachers | Teachers | Total |
|-----------------------------|-------------|-----------|---------------|-----------|-----------|
| St. Angelas Girls Secondary | I | 20 | | | |
| Mumias for the deaf | II | 16 | | | |
| | III | 13 | | | |
| | IV | 10 | | | |
| | Tot. | 59 | 1 | 13 | 73 |

| | | | | | |
|--|-------------|------------|----------|-----------|------------|
| Kuja Sec. School for the Deaf | I | 20 | | | |
| | II | 18 | | | |
| | III | 16 | | | |
| | IV | 15 | | | |
| | Tot. | 69 | 1 | 18 | 88 |
| St. Kizito Secondary | I | 15 | | | |
| | II | 12 | | | |
| | III | 10 | | | |
| | IV | 9 | | | |
| | Tot. | 46 | 1 | 9 | 56 |
| Grand Total | | 174 | 3 | 40 | 217 |

3.5 Sampling Techniques

Saturated sampling technique was used to include all principals and teachers in the sample. Proportionate stratified random sampling technique was used to select the number of students for each class in each school. Proportionate Stratified sampling technique involves selecting a sample from sub groups of a population for equivalent representation (Mugenda & Mugenda, 1999). For the purpose of this study, students were stratified according to their school and then classes. Stratified random sampling was appropriate because the population of study was non-homogenous and it was meant to ensure proportionate representation of the population in the sample and also ensured that the sample accurately reflects the population on the basis of the criteria used for stratification.

Simple Random sampling was used to select a random representative sample for each stratum and ensured that each member of the target population has an equal and independent chance of

being selected (Oso & Onen, 2005). Also, simple random sampling approach is also known to eliminate bias thus enabling errors to be estimated (Kothari, 2004).

3.6 Research Instruments

The study made use of questionnaires and observation checklist as the main instruments of data collection. There were three sets of questionnaires meant for teachers, Principals and students. Observation checklist was used to establish the availability, adequacy of the use of media resources and their status.

3.6.1 The Questionnaires

A questionnaire is a research instrument that gathers data on a large sample save on time and can uphold confidentiality. Questionnaires are widely used in education to obtain information about current condition and practice, and to make attitudes and opinions. The answers can be classified and the information contained in the responses quantified. Questionnaires were used because they collect a lot of information over a very short period of time and given that the sample size of 258 respondents is quite large, it is the ideal tool for collecting the required primary data (Oso & Onen, 2005). In this study the questionnaires elicited information from students, teachers and principals.

3.6.1.1 Students' questionnaire (SQ)

Students' questionnaires were used to collect data from deaf students. It collected information on the students' sex, school and age at onset of deafness, availability of media resources, adequacy, frequency and attitude towards the use of media resources. The questionnaire was structured and contained closed ended questions with options from which respondents selected their preferred choices. SQ is attached as **Appendix A**.

3.6.1.2 Teachers' questionnaire (TQ)

Teachers' questionnaire was used to collect data from teachers teaching their subjects of specialization. TQ were used to collect information on their qualification, teaching experience, availability and use of media resources, adequacy and frequency of use of media resources, their levels of competence in the use of available media resources and their attitudes towards media resources. The questionnaire had two formats; one involving answering questions and the second was a five-point Likert scale that measured frequency of use and attitude towards the use of media resources in teaching and learning. TQ is attached as **Appendix B**.

3.6.1.3 Principals' questionnaire (PQ)

Principals' questionnaire was used to collect data from principals of the selected schools. This instrument collected general information about the school, number of students enrolled in the schools, availability of media resources, constraints in acquisition and the administrative support towards use of media resources. PQ is attached as **Appendix C**.

3.6.2 Observation Checklist (OC)

This instrument sought information on the quality of media resources; the availability of media resources and the adequacy and inadequacy of media resources. Ary & Razarieh (2002) sees observation data enabling the researcher to enter and understand the situation that is being described. Further, there is the interest of the researcher in an observation, as the observation of peoples' behavior as they naturally occur in terms that appear to be meaningful to those involved. Observation was also preferred in order to ensure special arrangements were made to every group of the target population represented.

It would also ensure that no absent subject was included in the sample, thus necessitating a new sampling process. It was also handy in clarifying certain responses to the questionnaire items, such as, the number of teachers, type of resources available, nature of the school, number of students and other learning facilities available in the schools. Observation allowed the researcher

to observe what the respondents actually do rather than say. The researcher played the role of a non-participant observer in the classroom and sat at the back of the class to observe the teaching and learning process for 40 minutes of the lessons conducted. OC is attached as **Appendix D**.

3.7 Validity and Reliability of Research Instruments

3.7.1 Validity of Research Instruments

Validity refers to the degree to which results obtained from analysis of data actually represent the phenomenon under study (Mugenda & Mugenda, 1999). According to Orodho (2012) validity refers to the degree to which a test measures what it purports to measure. It is correlation of a test with some outside independent criteria which are regarded by experts as the best measure of the trait. When a test is valid, it means its conclusion can be generalized in relation to the general population. To verify the validity of the instruments that were used in this study, the research instruments were presented to the supervisors and colleagues at curriculum and instruction department who are conversant with validation of research instruments. They judged the instruments independently and made recommendations on the content validity of the research instruments. To ensure content validity, the content of the questionnaires addressed the specific research objectives. Content validity was achieved by ensuring that test items covered all the variables and objectives of the study. For face validity, the questionnaires were piloted to students, teachers and a principal of one of the special schools for the hearing impaired, not among the sampled three schools from Western Kenya.

3.7.2 Pilot Study

Pilot testing is a small scale implementation of the draft questionnaire that assesses the following: questionnaire clarity, questionnaire comprehensiveness and questionnaire acceptability (Ary & Razarieh, 2002).

According to Neuman (2001) a pilot study can reveal deficiencies in the design of a proposed procedure and this can be addressed before the actual study. The pilot study helped to determine

what needed to be adjusted and further test the reliability and validity of the research instruments.

The items needed to be clear so that respondents would not have difficulty in trying to understand what the questions meant. The items needed to be relevant according to the objectives of the study and also needed to be complete and not redundant. Furthermore, they needed to be of appropriate length and written so as to make respondents feel their privacy was not jeopardized. Since the pilot testing was done and questionnaires administered by the researcher, it provided an opportunity, apart from the written comments that the participants had submitted, to discuss the questionnaire with the respondents after the testing was over to discover whether any of the questions were unclear or difficult to answer. The test-retest was done to find out whether the terms used were understood by the respondents and also to guard against the response set distortion of data and subjectivity of responses. Teachers, students and the principal who participated in the pilot study were not involved in the final study. This method of establishing reliability of instruments was appropriate for the instruments that gather data which is quantitative in nature (Joppe, 2000). This approach helped the researcher to make corrections and address other shortfalls in order to make an appropriate instrument for the actual research respondents.

3.7.3 Reliability of the Research Instruments

Reliability refers to the extent to which a test in the research is internally consistent and yields consistent results upon testing and retesting (Koul, 1996; Orodho, 2012). This study used the test-retest method. In this method the same instrument was re-administered and the two sets of results were correlated to obtain the reliability of test. The test-retest approach is intended to determine the stability of the instrument. The reliability is the correlation between the scores on the two instruments. If the results are consistent (stable) over time, the scores should be similar. To determine stability, the relationship between the two scores obtained from the test-retest was considered. This was done using the Pearson product-moment correlation coefficient (r). The Pearson product-moment correlation coefficient (r) is correlated using the formula;

$$r = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x - \bar{x})^2 \sum(y - \bar{y})^2}}$$

Where:

x= the first observations test

y= the second observations (re-test)

Pearson product-moment correlation coefficients of 0.76, 0.78 and 0.71 were obtained for the Principals', teachers and students' questionnaires respectively. These were greater than the 0.5 threshold recommended by Kerlinger (1986)'s hence the research instruments were considered adequately reliable.

3.8 Data Collection Procedure

Before proceeding to conduct the study, an introductory letter was obtained from the university's Institute of Postgraduate Studies and Research. This facilitated the issuance of research authorization permit from the National Council of Science Technology & Innovation. The permit enabled the collection of the necessary information from schools for the deaf. Consent was sought from respective county Directors of Education.

In order to collect the required data, three research assistants were trained and stationed in the three schools. The training involved briefing them on key terms used in the tools and the main information targeted for collection by tools. All items of the questionnaires were discussed with the research assistants. A delivery and collection method of data collection was used instead of the mailed questionnaires. The approach is preferred based on a deliberate attempt to control the number of respondents and or any possible source of biasness at this stage.

The administration of questionnaires to the principals and teachers was done by the researcher within three weeks in order to cut down on the expenses. This enabled the researcher to have an opportunity to explain the purpose of the study and its possible benefits, the important role they occupied in the study and the value of what they have to say about the study. Once questionnaires were completed, the researcher collected them within the same time.

3.9 Data Analysis

The quantitative data collected on demographic data was analyzed using descriptive statistics which included frequencies and percentages. Multi-item Likert Scale data were analyzed using weighted averages which were applied for ranking purposes. Further, a cross tabulation analysis was applied to provide a joint frequency distribution of cases based on categorical variables. The joint frequency distribution was further analyzed with the chi-square statistic to determine whether the variables were statistically independent or if they were associated. To establish the relationship between students' attitude and content acquisition, a simple linear regression analysis was used. The regression equation took the form

$$Y = a_0 + a_1X \quad (1)$$

Where; Y = content acquisition and X= attitude

To test for the relationship between frequency of use and content acquisition was done using binary logistic regression analysis. The logistic regression model took the form:

$$E(Y) = \frac{1}{1+EXP[-(\beta_0+\beta_1X)]} \quad (2)$$

Where: Y =content acquisition and X=frequency of use of media resources

The results of the analysis were presented in tables, charts and cross tabulations. Tabulation allowed for orderly arrangement of data to summarize and describe the results of statistical analysis. Cross-tabulations necessitated easy inspection of differences and the comparison between groups of respondents. Statistical Package for Social Sciences (SPSS) and STATA were used to generate the relevant statistics for analysis.

3.10 Ethical Considerations

Ethics is a branch of philosophy that deals with moral values which guide one's behavior (Mugenda & Mugenda, 1999). Similarly, "research ethics" refers to the values of right and wrong that suggest what humans ought to do. This can be in terms of rights, obligations, fairness, confidentiality or specific righteousness (Neuman, 2001). All information collected was kept confidential and used for the purpose of this study only and no real names were used during the data collection process. A research should therefore take note of the following: that the

researcher do not refer to another person's work as his/her own without acknowledging the author or give false research methodology and results; the researcher is an integral person who do not undertake research for self gain or the research to have had a negative impact on other people's lives and finally, the research do not use the collected data to victimize or stigmatize people/person.

Before proceeding to the field for data collection the researcher obtained a research authorization permit from National Council of Science and Technology. The researcher also obtained introduction letter from Kabarak University which was presented to principals of schools that were included in the study. Consent was sought from participants whose participation was voluntary. The nature and the rationale for the study were explained to the respondents by the researcher. The researcher also adhered to individuals' rights and safeguarded their personal integrity. The participants were not expected to write their names on the questionnaire, but each questionnaire was coded for reference. Hence the anonymity of the respondents was maintained. The participants were assured that the information given was to be treated confidentially and for the purpose intended only.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter presents the findings of the study. The procedure of analysis and interpretation relied on quantitative or descriptive statistics following the procedure given in 3.9. The data analyzed and presented is based on responses as provided by students, teachers and principals of the selected schools. For closed-ended questions requiring Yes or No or Likert scale items, frequency counts, percentages and weighted averages were calculated out of the total respondents in each category (students, teachers and principals). For open-ended responses, content analysis was done to come up with the suggestions of the respondents. The first part of this chapter deals with the objectives of the study, the hypotheses and demographic information on the respondents. Then, availability and use of media resources is presented, followed by adequacy and frequency of media resources, pre-lingual and post-lingual hearing impaired learners' attitude, teachers' and students' attitudes towards use of media resources and how frequent use of media resources affect content acquisition.

4.1 Research Objectives

Specifically, the research investigated the following objectives.

1. To determine if there is a significant difference between students' and teachers' perceptions on the availability and use of media resources for teaching and learning in schools for the hearing impaired in Western Kenya.
2. To assess the adequacy and frequency of the availability and use of media resources in schools for the hearing impaired.

3. To compare the pre-lingual and post-lingual students' attitude towards the availability and use of media resources.
4. To compare teachers' and students' attitudes towards the availability and use of media resources for teaching and learning in schools for the hearing impaired.
5. To determine if there is an empirical relationship between the frequency of the availability and use of media resources and students' content acquisition.

4.1.1 Research Hypotheses

The following research hypotheses were addressed in the study:

1. H₀₁: There is no significant difference between the students' and teachers' perceptions on the availability of media resources for teaching and learning in schools for the hearing impaired in Western Kenya.
2. H₀₂: There is no significant relationship between adequacy and frequency of the availability and use of media resources for teaching and learning in the selected schools for the hearing impaired in Western Kenya.
3. H₀₃: There is no statistically significant difference in attitude towards the use of media resources between pre-lingual and post-lingual students in schools for the hearing impaired in Western Kenya.
4. H₀₄: There is no statistically significant difference in attitude towards the use of media resources between teachers and students in schools for the hearing impaired.
5. H₀₅: There is no statistically significant relationship between use of media resources in the teaching/learning process and students' content acquisition.

4.2 Questionnaire return rate

The data for this study was collected within four weeks using a structured questionnaire. A high response rate of 71 % (154) out of a total of 217 respondents was achieved, which may be attributed to the fact that the questionnaires were handed personally to the respondents by the researcher and her assistants. The questionnaires were administered to 217 respondents out of which 154 questionnaires were successfully completed and returned to the researcher by respondents giving a response rate of 71% which is above the 70 percent response rate threshold recommended by Nancy et al. (2009).

4.3 Analysis of Demographic information

4.3.1 Gender of the respondents

The study indicated that in total 52 respondents representing 34% were males while 102 representing 66% were females. Further the results show that 31% of the students surveyed were males whereas 69% were females; 46% of the teachers were male whereas 54% were female and finally 50% of the principals were male and the other 50% were female.

Table 4.1: Gender of the respondents

| | MALES | | FEMALES | | Total |
|-------------------|-----------|---------|-----------|---------|-------|
| | Frequency | Percent | Frequency | Percent | |
| Students | 31 | 31% | 87 | 69% | 126 |
| Teachers | 12 | 46% | 14 | 54% | 26 |
| Principals | 1 | 50% | 1 | 50% | 2 |
| Total | 52 | 34% | 102 | 66% | 154 |

This is also illustrated in the bar graph in figure 1 below:

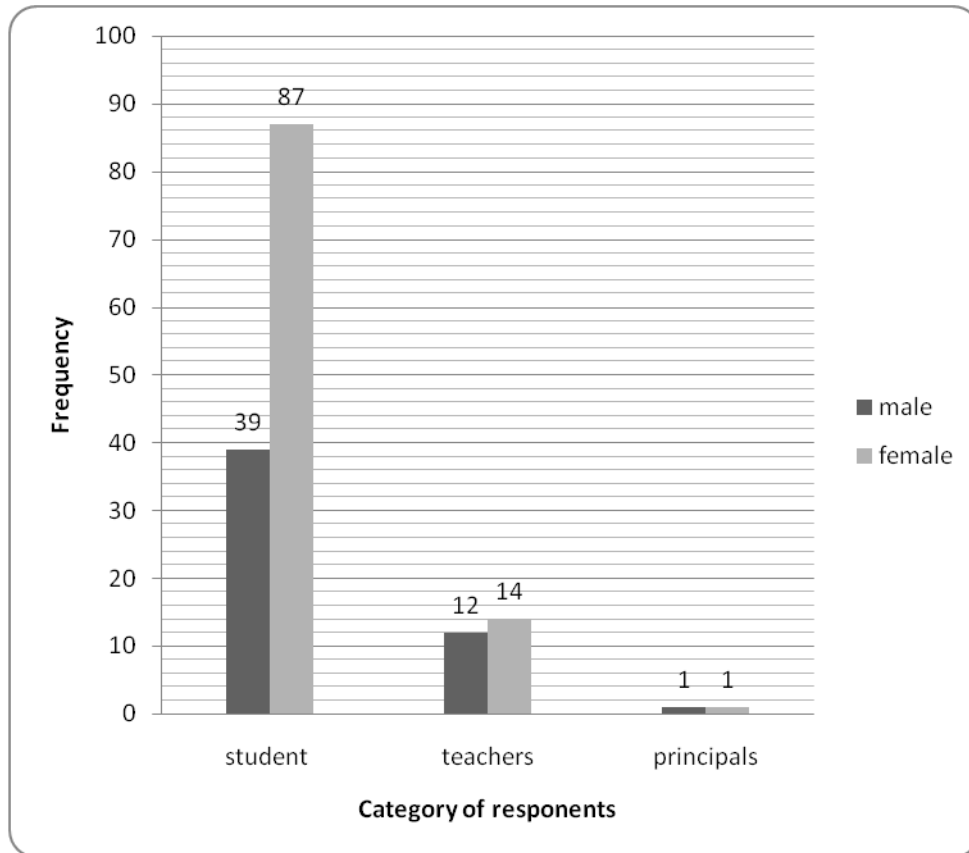


Figure 2: *Gender of the respondents*

4.3.2 Professional Qualification of Teachers and Principals

The study findings showed that 2 respondents comprising 1 teacher and 1 principal had a diploma. Eighteen respondents comprising 17 teachers and 1 principal had a bachelor of special education degree; 2 teachers had a master of special education degree. Three teachers had a bachelor of Education Science degree whereas the remaining 2 teachers had a bachelor of education arts degree. It is therefore noted that the quality of their training is not a basic problem.

Table 4.2: Professional Qualification of Teachers and Principals

| | Diploma | B.ED special education | B.ED science | B.ED arts | B.ED Technical | M.ED Special Education | Total |
|-------------------|---------|------------------------|--------------|-----------|----------------|------------------------|-------|
| Teachers | 1 | 17 | 3 | 2 | 1 | 2 | 26 |
| Principals | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Total | 2 | 18 | 3 | 2 | 1 | 2 | 28 |

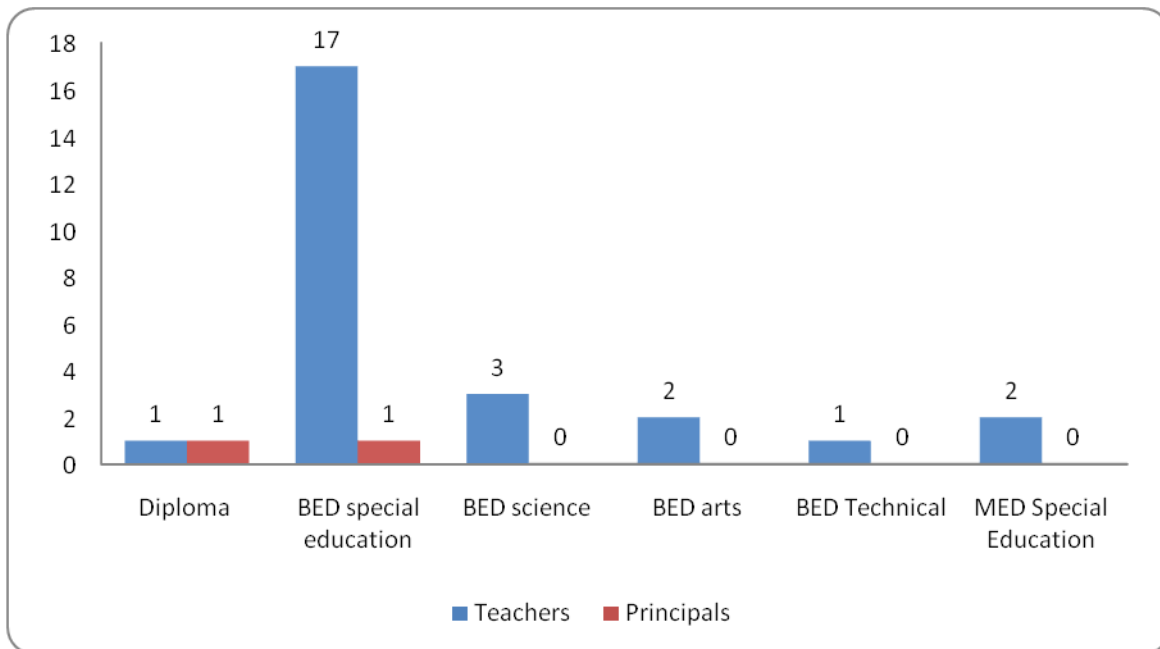


Figure 2: Professional Qualification of

Figure 3: Teachers and Principals

4.3.3 Teaching experience

The study established that 14 of the teachers representing 50% had been in the teaching profession for more than 6 years. Four teachers representing 14.29% had a teaching experience of between 2 and 4 years; 4 representing 14.29% had a teaching experience of between 4 and 6

years whereas 6 teachers representing 18.2% were in the teaching profession for less than 2 years. The demographic results implied that most teachers had been in the teaching profession long enough and were therefore adequately equipped to prepare and use media resources in the teaching and learning process. However, classroom observation by the researcher revealed that a number of media resources ticked as available were missing. This is not in line with Barnard (2007), Adegbija & Fakomogbon (2012) whose studies revealed that teacher qualification and experience promoted use of instructional media.

Table 4.3: Teaching experience

| Length | Frequency | Percentage |
|---------------|------------------|-------------------|
| <2 years | 6 | 21.43 |
| 2-4years | 4 | 14.29 |
| 4-6years | 4 | 14.29 |
| >6years | 14 | 50.00 |
| Total | 28 | 100.00 |

This is illustrated in figure 4.

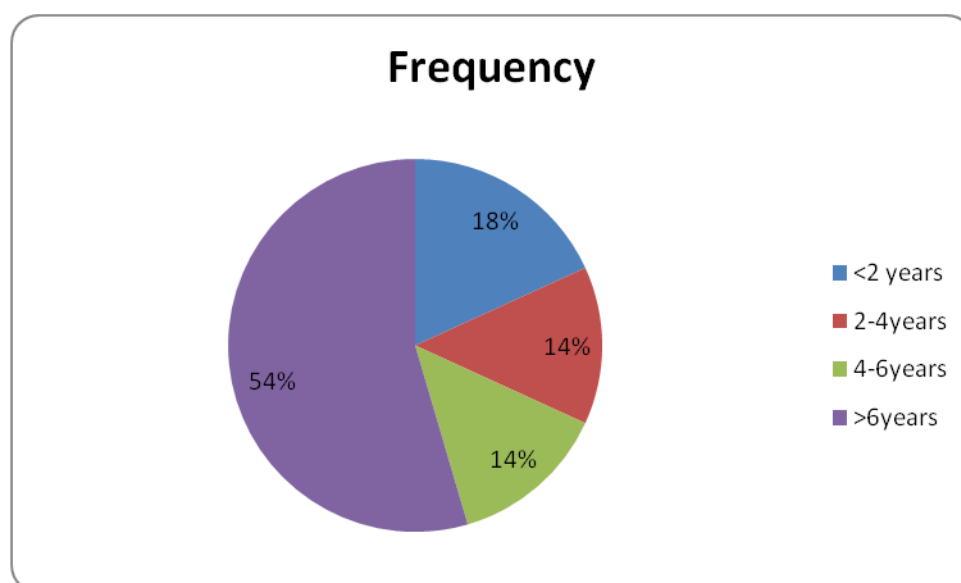


Figure 4: *Teaching Experience*

4.3.4 Time When Student Became Deaf

This study analyzed cases of pre-lingual and post-lingual amongst the study sample to determine when one became deaf. Results of the analysis showed that 50 students consisting of 15 males and 35 females were born deaf; 17 students consisting of 4 males and 13 females became deaf when they were between 1 and 5 years and 53 students consisting of 18 males and 35 females became deaf when they were between 5 and 10 years. On aggregate there were more female deaf students (87) than male deaf students. Also, 15 males representing 30% were pre-lingual while 35 females representing 70% were pre-lingual. Further the study results show that 22 male students representing 31.4% were post-lingual whereas 48 females representing 68.6% were post-lingual. On aggregate 50 students representing 41% were pre-lingual whereas 70 students representing 59% were post-lingual. This implies that most hearing-impaired students become deaf after birth.

Table 4.4: Time When Student Became Deaf

| When student became Deaf | Gender | | Total |
|-----------------------------|--------|--------|-------|
| | Male | Female | |
| Born Deaf | 15 | 35 | 50 |
| Between 1 and 5 Yrs | 4 | 13 | 17 |
| Between 5 and 10 Yrs | 18 | 35 | 53 |
| Don't Know | 2 | 4 | 6 |
| Total | 39 | 87 | 126 |

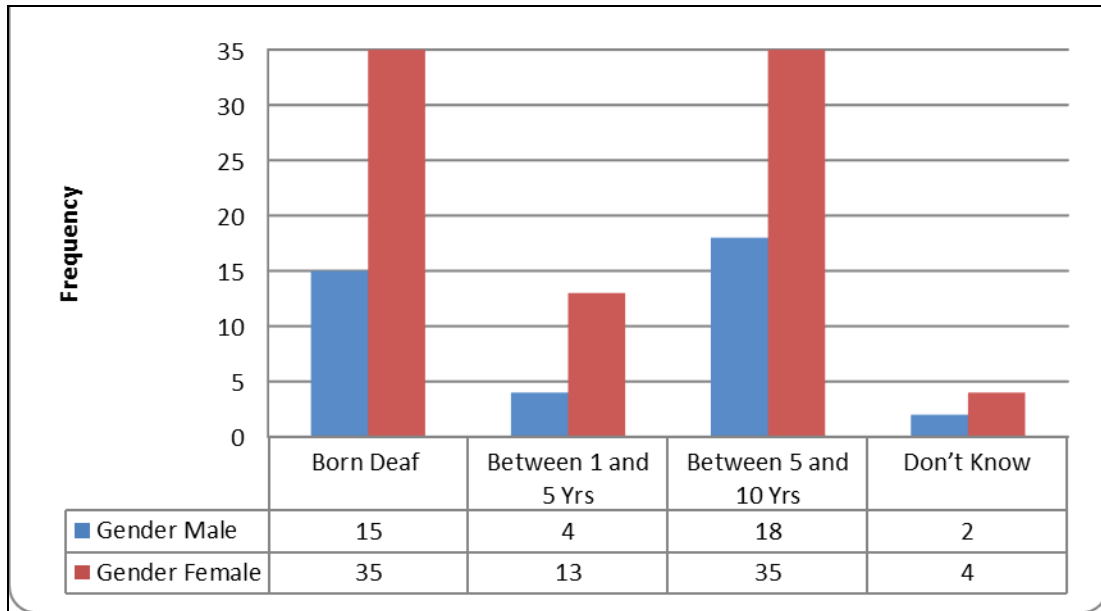


Figure 5: Categorization of students into pre-lingual and Post-lingual Based on Gender

4.3.5 Association between Gender and Time when one became deaf

The study sought to determine whether there was an association between students' gender and time when the student became deaf. To achieve this, a Chi-Square test was applied.

The following hypotheses were tested for association between gender and time when one became deaf:

H₀: there is no association between Gender and time when one became deaf

H_a: there is an association between gender and time when one became deaf

Table 4.5: contingency table for the χ^2 computation

| Gender | Time when student became deaf | | Row Total |
|--------------|-------------------------------|--------------|-----------|
| | Pre-Lingual | Post-Lingual | |
| Male | 15 | 22 | 37 |
| Female | 35 | 48 | 83 |
| Column total | 50 | 70 | 120 |

To obtain the calculated χ^2 value, the following formula was used:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Table 4.6: Computation of the χ^2 value

| O | E | $\frac{(O - E)^2}{E}$ |
|----|------------------------------------|--------------------------------------|
| 15 | $\frac{50 \times 37}{120} = 15.42$ | 0.01144 |
| 22 | $\frac{70 \times 37}{120} = 21.58$ | 0.00817 |
| 35 | $\frac{50 \times 83}{120} = 34.58$ | 0.0051 |
| 48 | $\frac{70 \times 83}{120} = 48.42$ | 0.00364 |
| | | $\sum \frac{(O - E)^2}{E} = 0.02835$ |

The table value of the Chi- Square at 1 degree of freedom [(r-1) (c-1)] and 0.05 level of significance, $\chi_{1, \alpha=0.05}^2 = 3.841$. Since $3.841 > 0.02835$, the null hypothesis of no association between gender and when the student became deaf is rejected hence the conclusion that there is an association between gender and the time when the student became deaf. For instance the likelihood ratio of a female student being post-lingual ($\frac{48}{70} = 0.686$) is higher than the likelihood ratio of a male student being post-lingual ($\frac{22}{70} = 0.314$). This implies a female student is almost twice as likely to become deaf after birth as compared to their male counterparts. With respect to

being pre-lingual, female students had a higher likelihood ratio ($\frac{35}{50} = 0.7$) than that of male students ($\frac{15}{50} = 0.3$). This implies that there was a higher likelihood of a female student having been born deaf than a male student.

4.4 Availability of Media resources for teaching and learning

The first objective of the study sought to find out if there was a significant difference between teachers' and students' standpoints on the availability of Media resources for teaching and learning in schools for the Hearing Impaired. To achieve this objective, respondents were requested to indicate if the indicated materials were available in their schools or not. The responses for teachers and students were tested for independence using the Chi-Square test.

Twenty one teachers representing (81%) of the teachers indicated that chalkboards are available with 124(98%) of the students indicating that chalkboards are available in schools. With a χ^2 values of 15.2718 and p-value of 0.000 ($p < 0.05$), the results on the availability of chalkboards is significantly different between the teachers and students. Twenty three (88%) of the teachers indicated that computers were available in schools whereas 90(71%) of the students indicating that the computers are available. With a χ^2 value of 3.2781 insignificant at 0.05 ($p (0.070) > 0.05$), the results show that there was no significant difference between the teachers and students on the availability of computers in schools.

Twenty five teachers representing (96%) of the teachers indicated that science laboratories were available in schools whereas 122 (99%) of the students held the same view. With a χ^2 value of 0.0306 insignificant at 0.05 ($p (0.861) \geq 0.05$), the results show that there was no significant

difference between the two groups on the availability or non-availability of laboratories in schools. Thirteen (50%) of the teachers indicated that the schools have real objects whereas 117(96%) of the students held a similar view. With a χ^2 value of 1.107 and p-value of 0.294 it is concluded that there is no statistically significant difference between teachers and students in terms of the availability of real objects.

Twenty two teachers representing (85%) of the teachers indicated that the schools have Textbooks for teaching and learning whereas 124 (98%) of the students held a similar view. With a χ^2 value of 10.8211 significant at 0.05 ($p(0.045) < 0.05$) the results showed that there was a significant difference between teachers and students on the availability of textbooks in schools. Twenty two (85%) of the teachers indicated that schools had specimens while 73(58%) of the students held a similar view. The results indicated that that there was no significant difference between teachers and students on the availability of maps in schools ($\chi^2 = 1.2527, P - \text{value} = 0.2630$); atlases($\chi^2 = 2.9322, p=0.087$); graph papers ($\chi^2 = 0.8604, P\text{-value}=0.354$) and Charts ($\chi^2 = 0.0297, P\text{-value}=0.865$).

With regard to the availability of overhead projectors 18 (69%) of the teachers indicated that they were available whereas 70 (56%) of the students confirmed their availability. A Chi-square value of 1.6535 with a p-value of 0.198 was obtained implying no significant difference between teachers and students' views on the availability or non-availability of media resources. Also, 16 (62%) of the teachers and 67 (53%) of the students indicated that pictures and photographs were available in schools with a chi-square of 0.8082 and p-value of 0.435, the study concludes that

there was no significant difference between teachers and students on the availability of pictures and photographs.

Table 4.7: Availability of media resources

| Media | Teachers | | Students | | χ^2 | p-value |
|---------------------------------|-----------------|---------|-----------------|----------|----------|----------------|
| Chalkboard | YES | 21(81%) | YES | 98(100%) | 15.2718 | 0.000 |
| | NO | 5 (19%) | NO | 2(0%) | | |
| Computer lab | YES | 23(88%) | YES | 90(71%) | 3.2781 | 0.070 |
| | NO | 3(12%) | NO | 36(29%) | | |
| Science labs | YES | 25(96%) | YES | 122(99%) | 0.0306 | 0.861 |
| | NO | 1 (4%) | NO | 4(1%) | | |
| Textbooks | YES | 22(85%) | YES | 124(98%) | 10.8211 | 0.045 |
| | NO | 4(15%) | NO | 2(2%) | | |
| Specimens | YES | 22(85%) | YES | 73(58%) | 6.5452 | 0.011 |
| | NO | 4(15%) | NO | 53(42%) | | |
| Maps | YES | 20(77%) | YES | 108(86%) | 1.2527 | 0.2630 |
| | NO | 6(23%) | NO | 18(14%) | | |
| Atlases | YES | 21(81%) | YES | 89(71%) | 2.9322 | 0.087 |
| | NO | 5(19%) | NO | 37(29%) | | |
| Models | YES | 13(50%) | YES | 77(61%) | 1.0374 | 0.308 |
| | NO | 13(50%) | NO | 49(39%) | | |
| Graph papers | YES | 23(88%) | YES | 101(80%) | 0.8604 | 0.354 |
| | NO | 3(12%) | NO | 25(20%) | | |
| Overhead projectors | YES | 18(69%) | YES | 70(56%) | 1.6535 | 0.198 |
| | NO | 8(31%) | NO | 56(44%) | | |
| Pictures and photographs | YES | 16(62%) | YES | 67(53%) | 0.8082 | 0.435 |
| | NO | 10(38%) | NO | 59(47%) | | |
| Charts | YES | 24(92%) | YES | 115(91%) | 0.0297 | 0.865 |
| | NO | 2(8%) | NO | 11(9%) | | |

| | | | | | | |
|---------------------|-----|---------|-----|---------|-------|-------|
| Real objects | YES | 13(50%) | YES | 77(61%) | 1.107 | 0.294 |
| | NO | 13(50%) | NO | 49(39%) | | |

4.5 The Frequency of Use and adequacy of Media resources for the teaching and learning

The second objective of the study sought to find out whether the available media resources for the teaching and learning in secondary schools for hearing impaired were adequate and frequently used. To achieve this objective, three main sub-themes were addressed.

4.5.1 Frequency of use of available media resources

In this regard, respondents were requested to rate on a Five –point Likert scale how frequently the available media were used. The results are as shown in table 4.8:

Table 4.8: Frequency of use of available media resources

| Instructional Media | Not At All | Rarely | Sometimes | Often | Very Often | $\sum f_i$ | $\sum f_i w_i$ | $\frac{\sum f_i w_i}{\sum f_i}$ |
|--------------------------|------------|--------|-----------|-------|------------|------------|----------------|---------------------------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Chalkboard | 0 | 0 | 4 | 8 | 140 | 152 | 744 | 4.89 |
| Computer lab | 33 | 57 | 32 | 19 | 11 | 152 | 374 | 2.46 |
| Science labs | 0 | 11 | 3 | 18 | 120 | 152 | 703 | 4.63 |
| Textbooks | 0 | 55 | 46 | 40 | 11 | 152 | 463 | 3.05 |
| Specimens | 26 | 66 | 37 | 13 | 10 | 152 | 371 | 2.44 |
| Maps | 0 | 14 | 13 | 34 | 91 | 152 | 658 | 4.33 |
| Atlases | 9 | 14 | 7 | 24 | 98 | 152 | 644 | 4.24 |
| Models | 12 | 61 | 19 | 40 | 20 | 152 | 451 | 2.97 |
| Graph papers | 34 | 41 | 23 | 40 | 14 | 152 | 415 | 2.73 |
| Overhead projectors | 26 | 77 | 21 | 13 | 15 | 152 | 370 | 2.43 |
| Pictures and photographs | 69 | 33 | 21 | 20 | 9 | 152 | 323 | 2.13 |

| | | | | | | | | |
|--------------|----|----|----|----|---|-----|-----|------|
| Charts | 13 | 45 | 57 | 34 | 3 | 152 | 425 | 2.80 |
| Real objects | 62 | 23 | 30 | 35 | 2 | 152 | 348 | 2.29 |

With regards to the frequency of the use of chalkboards, 148 respondents representing 97.4% indicated that they were often used (score 4 and 5 on the scale) as compared to 2.6% who indicated that they are sometimes used (score 3 on the scale). The results suggest that on the average, chalkboards were very often used as indicated by weighted averages of 4.89. On the frequency of use of science labs, 138 respondents representing 90.8% indicated that they were often used (score 4 and 5 on the scale) as compared to 11 representing 7.2% who indicated that they are hardly used (score 1 and 2 on the scale). With a weighted average of 4.63 it can be concluded that science labs are very frequently used.

With regard to the use of maps and atlases, 124 respondents representing 81.6% indicated that maps were often used (score 4 and 5 on the scale) as compared to 9.1% who indicated that they are not often used (scores 1 and 2 on the scale). The results suggest that on the average, maps were often used as indicated by weighted averages of 4.33. 122 respondents representing 80.3% indicated that atlases were often used (score 4 and 5 on the scale) as compared to 15.1% who indicated that they are not often used (scores 1 and 2 on the scale). The results suggest that on the average, atlases were often used as indicated by weighted averages of 4.24.

Since textbooks are very key in any teaching learning process, the results of the analysis showed that 51 respondents representing 33.6% showed that they were often used (score 4 and 5 on the Five-Point Likert scale) as compared to 55 representing 36.2% who indicated that they are not often used (scores 1 and 2 on the scale). The results suggest that on the average, textbooks were sometimes used as indicated by weighted averages of 3.05. Further results on how students

shared core textbooks in class is shown in figure 3 below revealed that 67 students representing 53% indicated a ratio of 1 textbook to 2 students. 42 students representing 33% show a ratio of 1 textbook for 1 student, 11 students representing 9% indicated a book ratio of 1 textbook to 3 students and 6 students representing 5% indicated a ratio of at least 1 textbook to 3 students. The results indicate that the schools for the hearing impaired have not achieved a 1:1 textbook ratio.

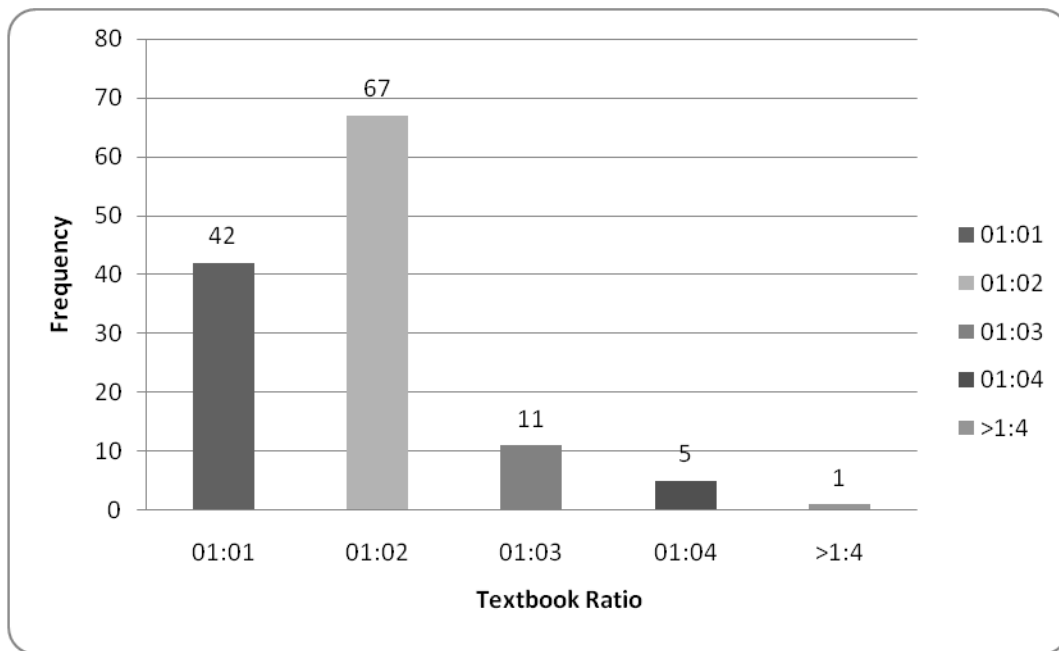


Figure 6: Textbook to student ratio

Based on the weighted averages, the results in table 4.5 indicate that textbooks (weighted Average=3.05), models (weighted Average=2.97), graph papers (weighted Average=2.73) and charts (weighted Average=2.80) were sometimes used in the teaching/learning process. Computers (weighted Average=2.46), specimens (weighted Average=2.44), overhead projectors (weighted Average=2.43), pictures and photographs (weighted Average=2.13) and real objects (weighted Average=2.29) were established to be rarely used. For instance the analysis on how often students used the computer laboratory showed that in the schools where computers were

available majority of the students (87%) either used the computers for one hour in a week or less. This is shown in the figure 5 below.

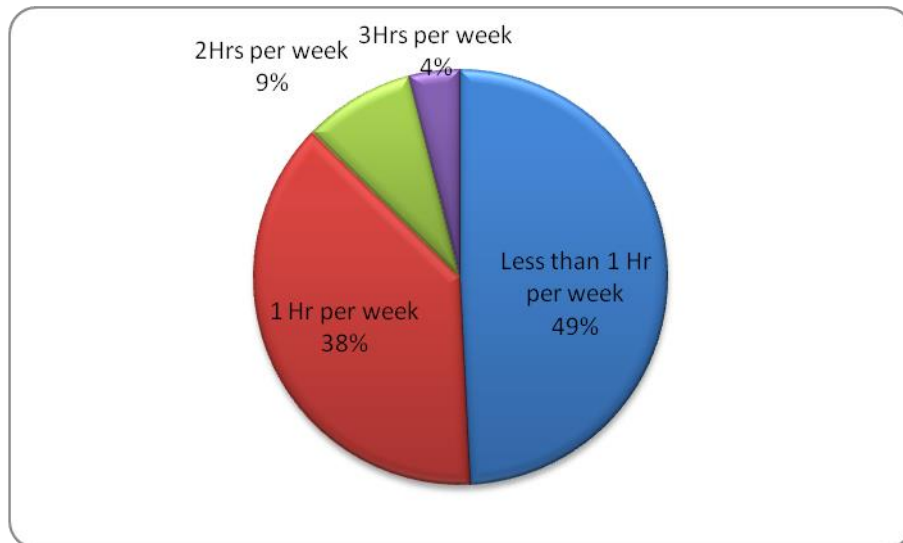


Figure 7: Usage of Computers in terms of hours per week

In overall the results indicate underutilization of resources in public schools for the hearing impaired. The findings are in line with findings by Kevin (1989) who established underutilization of available resources in Sierra Leone. Also, Mutwiri (2012) established the same position with the use of electronic media. The inadequacy of some of the media resources will imply that students will not be able to discover important facts learnt (Sarah et al., 2013) and will make teachers carry out their teaching in an abstract manner hence their lessons may not effectively promote the understanding of difficult concepts and as suggested by Allen (2013), learners may not follow, understand, respond and retain lesson content.

4.5.2 Reasons for not using media resources in teaching and learning

In this regard, the study sought to establish reasons why some of the media resources were rarely used in teaching and learning. The results of the analysis were as shown in table 4.9

Table 4.9: Reasons for not using media resources in teaching and learning

| Media resource | Reasons for not using | | | | |
|---------------------------------|-----------------------|------------------|----------------------------------|---------------|----------------|
| | Not applicable | Lack of training | Lack of necessary infrastructure | Not available | Not accessible |
| Computers | 2 (7.7%) | 5(19.2%) | 1(3.8%) | 5(19.2%) | 13(50%) |
| Specimens | 8(30.8%) | 5(19.2%) | 0(0.0%) | 11(42.3%) | 2(7.7%) |
| Overheard projectors | 10(38.5%) | 7(26.9%) | 2(7.7%) | 4(15.4%) | 3(11.5%) |
| Pictures and photographs | 7(26.9%) | 2(7.7%) | 1(3.8%) | 8(30.8%) | 8(30.8%) |
| Real objects | 3(11.5%) | 15(57.7%) | 0(0.0%) | 7(26.9%) | 5(19.2%) |

The results of the analysis showed that 13 teachers representing 50% indicated that they were not using computers because they were not accessible. Five teachers representing 19.2% did not use computers because they lacked the necessary training and 19.2% indicated that they were not available. With regard to specimens, 42.3% of the respondents didn't use specimens because they were not available while 30.8% of the respondents didn't use them because they were not applicable. For overhead projectors, 38.5% of the teachers didn't use them because they thought they were not applicable while 26.9% indicated that they lacked training on their use. Pictures and photographs were rarely used because they were either not available as indicated by 30.8% of the teachers or they were not accessible as indicated by 30.8% of the respondents. Twenty six point nine percent (26.9%) of the respondents didn't use the photographs and pictures because they were not applicable. For real objects, 57.7% of the respondents blamed lack of training for not using them.

4.5.3 Analysis of the Teachers' Competence Levels in Using Media Resources

In this regard, the study sought to analyze teachers' competence levels in the use of media resources. The teachers were requested to rate their level of competence based on the preparation and use of some media resources. Weighted averages were applied in the analysis and the results are as shown in the table 4.10

Table 4.10: Competence levels in preparation and use of media resources

| | No competence 1 | Little competence 2 | Average competence 3 | Very competent 4 | $\sum f_1$ | $\sum f_1 w_i$ | $\frac{\sum w_i f_1}{\sum f_1}$ |
|--|-----------------------|---------------------------|----------------------------|------------------------|------------|----------------|---------------------------------|
| Use of the chalkboard in teaching | 0 | 0 | 2 | 24 | 26 | 102 | 3.92 |
| Operating overhead projectors | 6 | 7 | 10 | 3 | 26 | 62 | 2.38 |
| Preparation of charts for use in class | 0 | 3 | 11 | 12 | 26 | 87 | 3.35 |
| Producing teaching materials using local resources | 0 | 7 | 2 | 17 | 26 | 88 | 3.38 |
| Use of computers in teaching | 15 | 10 | 1 | 0 | 26 | 36 | 1.38 |
| Using videos for teaching | 7 | 11 | 8 | 0 | 26 | 53 | 2.04 |
| Aggregate Weighted Average | | | | | | | 2.51 |

The results of the analysis showed that teachers were very competent in using the chalkboard in teaching as indicated by a weighted average of 3.92. The teachers had average competence in the preparation of charts for use in class and in improvising teaching materials using local resources as indicated by weighted averages of 3.35 and 3.38 respectively. The teachers had little competencies in Operating overhead projectors and using videos for teaching as indicated by weighted averages of 2.38 and 2.04 respectively. However, teachers had no competence in the use of computers in teaching as indicated by a weighted average of 1.38. This finding is in line

with the findings by Ndibalema (2014) who established that teachers were not aware of the potential of ICT in their teaching. Based on the assertion by Mumtaz (2000) that teachers' attitude towards ICT is the predictor of the use and integration of ICT in the teaching learning process, it can be concluded that the low use of computers in the schools for the hearing impaired is due to the teachers' low competencies in the use of computers. Overall, with an aggregate weighted average of 2.51, it can be concluded that teachers had average competence in the preparation and use of the indicated media resources.

Results of the analysis of the observation schedule confirmed the availability of chalkboards, science laboratories, atlases, maps, specimens, graph papers, textbooks and charts in all the three schools in the study. However, in almost all the schools the resources were not adequate and were old and unusable. Computers, models, overhead projectors pictures and photographs were observed to be available in two out of the three schools. However, they were found to be inadequate. The results of the analysis are in line with findings by Kevin (1989) who established that schools in Sierra Leone had teaching aids that were inadequate.

4.5.4 Constraints in the use of Media resources for the teaching and learning

Respondents were requested to rate on a 5-point Likert how much of a constraint each of the given factors was towards the use of media resources. Their responses are analyzed in table 4.11

Table 4.11: Constraints in selection and use of Media resources

| FACTORS | Not At All 1 | Least constraint 2 | Fairly Constrains 3 | Highly Constrains 4 | Very highly constrains 5 | $\sum f_i$ | $\sum f_i w_i$ | $\frac{\sum f_i w_i}{\sum f_i}$ |
|---------------------------------------|-----------------|-----------------------|------------------------|------------------------|-----------------------------|------------|----------------|---------------------------------|
| Use of sign language in communication | 8 | 5 | 4 | 5 | 6 | 28 | 80 | 2.86 |
| Support of the school administration | 1 | 4 | 9 | 8 | 6 | 28 | 98 | 3.50 |
| Untimely provision of media resources | 0 | 2 | 9 | 11 | 6 | 28 | 105 | 3.75 |

| | | | | | | | | |
|---|---|---|----|----|----|----|-----|------|
| Huge workload which leaves little time for preparation of the media resources | 0 | 3 | 7 | 11 | 7 | 28 | 106 | 3.79 |
| Media resources have no sign language component | 0 | 0 | 5 | 12 | 11 | 28 | 118 | 4.21 |
| Obtaining resources relevant to the needs of the hearing impaired | 0 | 5 | 9 | 10 | 4 | 28 | 97 | 3.46 |
| Lack of incentives | 3 | 5 | 11 | 9 | 0 | 28 | 82 | 2.93 |

Thirteen (46.4%) respondents indicated that use of sign language in communication either had no or least constrain on the use of media resources (score 1 and 2 on the scale) as compared to 11 representing 39.3% who indicated that Use of sign language in communication either highly or very highly constrained the use of media resources (scores 4 and 5 on the scale). The results suggest that on the average, use of sign language in communication had fair constrain on the use of media resources as indicated by weighted averages of 2.86.

With regard to Support of the school administration, 5 respondents representing 17.9% perceived it to either having no or least constrain on the use of media resources (score 1 and 2 on the Likert scale) as compared to 14 representing 50% who perceived it to be having either high or very high constrain in the use of media resources (scores 4 and 5 on the Likert scale). The results suggest that on the average, support of the school administration highly constrained the use of media resources as indicated by weighted averages of 3.50. This implies that school administration provided little support in the use of media resources. This may also be an indicator that the administration may not be providing incentives to teachers who integrate media resources in their teaching hence as observed by Spodark (2003) may lead to unwillingness of teachers to make use of media resources in their teaching.

With regard to Untimely provision of media resources, 2 respondents representing 7.1% indicated that it had no or had least constrain on the use of media resources (score 1 and 2 on the scale) as compared to 17 representing 60.7% who indicated that it had either high or very high constrain (scores 4 and 5 on the scale). The results suggest that on the average, Untimely provision of media resources highly constrained the use of media resources as indicated by weighted averages of 3.75. This implies that media resources for teaching and learning are not received on time hence hindering their use in the teaching-learning process. This can be attributed to complex procurement procedures in some schools. As established by Abdo and Samela (2010), the use of media resources at the right time is a very essential component.

With regard to huge workload which leaves little time for preparation of the media resources, 3 respondents representing 10.7% indicated that it either had no or had least constrain on the use of media resources (score 1 and 2 on the Likert scale) as compared to 18 representing 64.3% who indicated that it had either high or very high constrain in the use of media resources (scores 4 and 5 on the Likert scale). The results suggest that on the average, teachers' workload was high and left no time for the preparation of media resources as indicated by weighted averages of 3.95. This implies that staffing in most schools for the hearing impaired is inadequate hence huge workloads for the teachers. The findings support Kadzera (2006)'s findings that teachers who have too much workload may find little time for media preparation and use.

With regard to Media resources lacking the sign language component, 23 representing 82.1% indicated that it had either high or very high constrain in the use of media resources (scores 4 and 5 on the Likert scale). The results suggest that on the average, lack of sign language connotations in most of the media resources highly constrained the use of media resources as indicated by weighted averages of 4.21. This implies that most of the media resources in the market are not meant for the hearing impaired.

With regard to 'Obtaining resources relevant to the needs of the hearing impaired' and 'Lack of incentives', the results of the analysis yielded weighted averages of 3.46 and 2.93 which both

imply that the two factors fairly constrained the use of media resources in schools for the hearing impaired.

4.5.5 Solution to the Constraints to Media Use

Respondents were requested to suggest ways through which the constraints to media selection and use will be overcome. The results of the analysis are as presented in table 4.12:

Table 4.12: Suggested solutions to the Constraints to Media Selection and Use

| Suggested Solutions | Frequency |
|---|-----------|
| School administration should be obligated to provide funds to HoDs to directly procure the required media resources | 18(64.3%) |
| Ministry of education should provide some of the media resources directly to schools | 9(32.1%) |
| Media resources should be produced for all subjects and should take into consideration the linguistic level of the learners | 28(100%) |
| Providing training to teachers on the selection, preparation and use of some media resources | 24(85.7%) |
| Media resources should be available on time or in advance | 24(85.7%) |
| Employment of more teachers to ease workload problems | 28(100%) |
| The deaf students curriculum should be different from the other students' curriculum | 7(25%) |
| Media resources should be accompanied by relevant sign language components and interpretations | 21(75%) |

The results show that all the respondents considered producing media resources for all subjects that take into consideration the linguistic level of the learners and the employment of more teachers to ease workload problems as the solutions to the problems of media selection and use.

Twenty four teachers representing 85.7% indicated that availing media resources on time or in advance and provision of training to teachers on the preparation and use of some media resources will help improve media use while 21 respondents representing 75% suggested the accompaniment of media resources with relevant sign language components and interpretations as the solution to the challenge of selecting and using media resources. Sharma (2009) also identified provision of training as a key strategy initiative that will promote the use of media resources.

Obligating School administration to provide funds to HoDs to directly procure the required media resources, direct provision of some media resources by relevant Ministry of Education departments directly to schools and adoption of the deaf students' curriculum different from the other students' curriculum were proposed as probable solutions by 18 (64.3%), 9 (32.1%) and 7 (25%) of the respondents respectively.

4.6 Test for the difference in attitude towards the use of Media Resources between Pre-lingual and Post-Lingual students

The third objective of the study sought to determine if there was a significant difference between pre-lingual and post-lingual students' attitude towards the use of media resources.

4.6.1 Students' attitude towards use of instructional media

Respondents were requested to rate on a 5-point Likert scale their perception on the significance of media resources. Their responses are analyzed in table 4.13.

Table 4.13: Students' perception on the importance of instructional media

| Statement | 5 | 4 | 3 | 2 | 1 | $\sum f_i$ | $\frac{\sum w_i f_i}{\sum f_i}$ |
|--|----|----|----|----|---|------------|---------------------------------|
| Adoption of Media resources has improved learning in my school | 60 | 19 | 30 | 11 | 6 | 126 | 4.07 |
| Media resources makes learning more real | 10 | 6 | 83 | 20 | 7 | 126 | 3.03 |
| Media resources makes Learning more interesting and Meaningful | 16 | 11 | 70 | 23 | 6 | 126 | 2.97 |

| | | | | | | | |
|--|----|----|----|----|---|-----|------|
| Media resources helps us retain what we have learnt longer | 67 | 19 | 17 | 15 | 8 | 126 | 4.12 |
| Media resources motivates us to learn more | 0 | 77 | 26 | 17 | 6 | 126 | 3.50 |
| Aggregate Mean | | | | | | | 3.54 |

KEY: 5-Strongly Agree, 4-Agree, 3-Neutral 2-Disagree 1- Strongly disagree

The results of the analysis show that majority of the students agreed that use of Media resources improves the learning process in their schools; Media resources helps them retain what they have learnt longer; and that Media resources motivates them to learn as indicated by weighted averages of 4.07, 4.12 and 3.50 respectively. Further the results showed that students were Neutral as to whether Media resources makes learning more real and as to whether Media resources makes Learning more interesting and Meaningful with weighted averages of 3.03 and 2.97 respectively. On aggregate the study findings showed students agreed (score 4 and 5 on the scale) that the use of media resources influenced the teaching and learning process in their Secondary schools. This is as compared to those who disagreed (score 1 and 2 on the Likert scale).

Further, students' perceptions on the importance of instructional media were collapsed and a composite index computed for each student to represent the rating of the level of attitude. The indices ranged from 5 to 25 and were used to rate the attitude as being either Negative (≤ 15 points) and Positive (> 15 points). Summary of the Indices grouped in terms of whether the student was pre or post-lingual are shown in the table 4.14:

Table 4.14: Students' Attitude towards media use composite Index

| When Student Became Deaf | Students' Attitude Index | | Total |
|--------------------------|-----------------------------|--------------------------|-------|
| | ≤ 15 points(Negative) | > 15 ppoints(Positive) | |
| Post-lingual | 16 | 54 | 70 |
| Pre-Lingual | 20 | 30 | 50 |
| Total | 36 | 84 | 120 |

The results of the analysis show that 16 post-lingual students were rated to have a negative attitude towards the use of media resources as compared to 20 pre-lingual students. For post-lingual students, 54 students were rated to have a positive attitude towards the use of media resources as compared to 30 pre-lingual students who were rated the same.

4.6.2 Test for difference in attitude towards use of instructional media between Pre and Post-lingual students

A Chi-Square test was carried out at 0.05 level of significance and 1 degree of freedom.

The hypotheses tested are as shown below:

H₀: there is a statistically significant difference in attitude towards the use of media resources between pre-lingual and post-lingual student

H₁: There is no significant difference in attitude towards the use of media resources between pre-lingual and post-lingual student

The results of the hypothesis test are shown in table 4.15:

Table 4.15: Chi-Square Tests

| | Value | Df | Asymp. sig (2-tailed) |
|---------------------------|--------|----|-----------------------|
| Pearson Chi-Square | 4.0816 | 1 | 0.043 |
| Likelihood Ratio | 4.0500 | 1 | 0.050 |
| No. of Valid cases | 120 | | |

The results of the analysis of differences between the two groups, as shown in table 4.15 above show that the χ^2 value of 4.0816 is significant at 0.05 level of significance and one degree of freedom. This implies that there is a statistically significant difference in attitude towards the use of media resources between pre-lingual and post-lingual hearing impaired students. These findings are in line with Mba (1995) establishment that persons who sustained hearing loss later in life (post-lingual) must have acquired communication skills for which they can function relatively better than the pre-lingual deaf persons in academic endeavors.

4.6.3 Influence of Students' Attitude on Content Acquisition

Further, the study sought to establish the relationship between the students' attitude towards the use of media resources and their level of content acquisition. A simple regression analysis was used to deduce the required model. The results of the analysis are as shown in table 4.16:

Table 4.16: Regression Analysis Results

| Source | SS | Df | MS | | |
|--------------|------------|-----------|------------|-----------------|----------|
| Model | 7.09876775 | 1 | 7.09876775 | | |
| Residual | 20.4928989 | 118 | .173668635 | Number of obs = | 120 |
| Total | 27.5916667 | 119 | | F(1, 118) = | 40.88 |
| | | | | Prob>F = | 0.0000 |
| | | | | R-squared = | 0.2573 |
| | | | | Adj R-squared= | 0.2510 |
| CAcquisition | Coef. | Std. Err. | T | p> t | Beta |
| Attitude | .487051 | .0761805 | 6.39 | 0.000 | .5072272 |
| _cons | .1269841 | .0525038 | 2.42 | 0.017 | |

The regression equation

$$CAcquisition = 0.1269841 + 0.487051 Attitude \quad (3)$$

This means that without the attitude variable under study, Content Acquisition is expected to be 0.1269841 which is below average. Table 4.16 summarizes the regression model. $R^2 = 0.2573$ shows that 25.73% of the variability of Content acquisition could be attributed to changes in the level of attitude held on the use of media resources. Comparing the value of R^2 and adjusted R^2 gives a difference of 0.0063 which is too small. This shows that the validity of the model is very good since its shrinkage is less than the 0.5 threshold suggested by Field (2005).

The F-statistic indicates that the level of Attitude contributes to the variance in the content acquisition and that there was a statistically significant relationship between content acquisition

and the attitude level on the importance of the use of media resources as shown by its F-statistic (F (1,118)= 40.88, p < 0.05). These findings indicate that there is a relatively high support for the existence of a positive significant relationship between content acquisition and the students' attitude towards the use of media resources in public secondary schools for the hearing impaired

4.7 Comparison of Attitude of teachers and Students towards the Use of Media Resources

The fourth objective of the study sought to analyze the teachers and students' attitudes towards the use of Media resources for teaching and learning of the hearing impaired. To achieve this, both groups of respondents were requested to rate their level of agreement to the various statements on the importance of the use Media resources in enhancing the teaching / learning process.

4.7.1 Teachers' Attitude towards the use of Media Resources

Respondents were requested to rate on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree) their perception on the significance of media resources. Their responses are analyzed in table 4.17:

Table 4.17: Teachers' attitude towards the use of media resources

| Statement | 5 | 4 | 3 | 2 | 1 | $\sum f_1$ | $\frac{\sum w_i f_1}{\sum f_i}$ |
|---|----|----|----|---|---|------------|---------------------------------|
| Adoption of Media resources has improved the teaching process in my school | 12 | 5 | 5 | 4 | 0 | 26 | 3.96 |
| Media resources makes learning more concrete | 14 | 5 | 3 | 3 | 1 | 26 | 3.99 |
| Media resources makes Learning more interesting effective and Meaningful | 0 | 17 | 5 | 4 | 0 | 26 | 3.50 |
| Media resources makes Learning to be retained longer than that acquired by purely verbal teaching | 0 | 1 | 18 | 7 | 0 | 26 | 2.77 |
| Media resources enhances cognitive development of learners | 0 | 4 | 12 | 6 | 4 | 26 | 2.68 |

| | | | | | | | |
|---|---|----|---|---|---|----|------|
| Media resources Provides visual access to the invisible | 4 | 11 | 9 | 1 | 1 | 26 | 3.60 |
| Media resources serves as a motivation to learners | 8 | 10 | 3 | 5 | 0 | 26 | 3.81 |
| Media resources aids evaluation of students learning | 7 | 8 | 9 | 1 | 1 | 26 | 3.74 |
| Aggregate Mean | | | | | | | 3.51 |

KEY: 5-Strongly Agree, 4-Agree, 3-Neutral 2-Disagree 1- Strongly disagree

The results of the analysis showed that majority of the teachers agreed that the adoption of Media resources has improved the teaching and learning process as indicated with weighted averages of 3.96 representing ‘Agree’. Respondents also agreed that Media resources makes learning more concrete; Media resources make Learning more interesting, effective and Meaningful ; Media resources Provide visual access to the invisible; Media resources serves as a motivation to learners; and that Media resources aids evaluation of students learning as indicated by weighted averages of 3.99, 3.50, 3.60, 3.81 and 3.74 respectively. Further the results showed that teachers were Neutral as to whether Media resources make learned content to be retained longer than that acquired by purely verbal teaching and those Media resources enhances cognitive development of learners with weighted averages of 2.77 and 2.68 respectively. On aggregate the study findings showed teachers agreed (score 4 and 5 on the Likert scale) that the use of the available Media resources influenced the teaching and learning process for the hearing impaired. This is compared to those who disagreed (score 1 and 2 on the Likert scale).

Further, the ratings to teachers’ perception on the importance of instructional media were collapsed and a composite index computed for each teacher to represent the rating of the level of attitude. The indices ranged from 8 to 40 and were used to rate the attitude as being either Negative (≤ 24 points and positive (>24 points). Summary of the Indices grouped in terms of whether the teacher had a positive or negative attitude are shown in the table 4.18.

Table 4.18: Teachers’ Attitude towards media use composite Index

| Teachers’ Attitude Index | | |
|-----------------------------|-------------------------|-------|
| ≤ 24 points(Negative) | > 24 points(Positive) | Total |

| | | | |
|------------|---|----|----|
| Teachers | 6 | 20 | 26 |
| Principals | 0 | 2 | 2 |
| Total | 6 | 22 | 28 |

The results of the analysis show that 6 teachers were rated to have a negative attitude towards the use of media resources while none of the principals had such an attitude. Twenty (20) teachers were rated to have a positive attitude towards the use of media resources while 2 principals were rated to have had a positive attitude.

4.7.2 Test for the difference in attitude towards the use of Media Resources between Teachers and Students.

A Chi-Square test was carried out at 0.05 level of significance and 1 degree of freedom.

The hypothesis tested is as shown below.

H_0 : *there is a statistically significant difference in attitude towards the use of media resources between teachers and students*

H_1 : *There is no significant difference in attitude towards the use of media resources between teachers and students*

The contingency table used in the Chi-square analysis is given below.

Table 4.19: contingency table for the χ^2 computation

| Gender | Attitude Rating | | Row Total |
|--------------|-----------------|----------|-----------|
| | Negative | Positive | |
| Teachers | 6 | 22 | 28 |
| Students | 38 | 88 | 126 |
| Column total | 44 | 110 | 154 |

The results of the analysis show that 6 teachers and 38 students were rated to have a negative attitude towards the use of media resources. On the other hand, 22 teachers and 88 students were rated to have a positive attitude. On aggregate a higher percentage of both teachers and students had a positive attitude towards the use of media resources. To test for a difference in attitude between teachers and students the Chi-Square test was carried and the results are as shown in table 4.20:

Table 4.20: Chi-Square Test

| | Value | Df | Asymp.sig (2-tailed) |
|---------------------------|--------------|-----------|-----------------------------|
| Pearson Chi-Square | 0.8556 | 1 | 0.355 |
| Likelihood Ratio | 0.8953 | 1 | 0.344 |
| No. of Valid cases | 154 | | |

The results of the analysis of differences between the two groups, as shown in table 4.20 above show that the χ^2 value of 0.8556 is not significant at 0.05 level of significance and one degree of freedom. We therefore reject H_0 and conclude that there is no statistically significant difference in attitude towards the use of media resources between teachers and students. This implies that the perception on the importance of the use of media resources for teaching and learning was similar between teachers and students.

4.8 Relationship between the level of use of media resources and content acquisition

In this objective the study sought to determine if there is an empirical relationship between use of media resources and students' content acquisition. To achieve this objective students' content acquisition were categorized as either being below average or average or above average. The frequency of use index was also established and the two were regressed using logistic regression analysis.

4.8.1 Students' Content acquisition Rating

In measuring student content acquisition, respondents were requested to rate the general content acquisition of students in the school. The results of the analysis were as shown in table 4.21:

Table 4.21: General content acquisition rating of Students

| | General Content acquisition rating | | | | | Total |
|----------|------------------------------------|---------|---------|---------|-----------|-------|
| | V. poor | Poor | Average | Good | Excellent | |
| Teachers | 0 | 2(8%) | 15(58%) | 8(31%) | 1(3%) | 26 |
| Students | 0 | 13(10%) | 67(53%) | 39(31%) | 7(6%) | 126 |
| Total | 0 | 15(10%) | 82(54%) | 47(31%) | 8(5%) | 152 |

The results of the analysis show that 15(10%) of all the respondents comprising 2(8%) of the teachers and 13(10%) rated the general content acquisition of the students in their schools as poor; 82(54%) respondents consisting of 15(58%) of the teachers and 67(53%) of the students rated the content acquisition of the students in their schools as average; 47(31%) of the respondents consisting of 8 teachers and 39 students gave a rating of good whereas 8(5%) respondents comprising 1 teacher and 7 students rated the content acquisition as excellent. In general the content acquisition rating of hearing impaired students in the schools surveyed was rated as average meaning that majority of the students' content acquisition was either average or below average. These findings buttress Ondicho (2007) assertion that hearing impaired students performed below average with post-lingual students performing better than pre-lingual students.

4.8.2 Frequency of use of Media Resources

The ratings of the frequency of use of media resources collapsed and a composite index computed for each teacher and student to represent the rating of the level of frequency of use of media resources. The indices ranged from 13 to 65 and were used to rate the frequency of use as being either low (≤ 39 points) and high (> 39 points). This is shown in the table 4.22:

Table 4.22: Frequency of use of media resources composite Index

| Frequency of use Index | Frequency of use of media resources | | Total |
|------------------------|-------------------------------------|---------------------|-------|
| | ≤ 39 points(Low) | > 39 points(High) | |
| Teachers | 18 | 8 | 26 |
| Students | 83 | 43 | 126 |
| Total | 101 | 51 | 152 |

The results of the analysis show that 101 respondents consisting of 18 teachers and 83 students rated the frequency of use of media resources in their schools as low, while 51 respondents consisting of 8 teachers and 43 students rated the frequency of use of media resources as high. The results of the analysis show that the use of media resources for teaching / learning was low in schools for the hearing impaired

4.8.3 Relationship between Frequency of use of Media Resources and Content acquisition

Binary logistic regression was used to determine the relationship between the frequency of use of media resources and content acquisition. To achieve this objective, both variables were coded as dichotomous variables.

For content acquisition which was the response variable 0 was assigned to content acquisition ratings of average or below average while 1 was assigned to above average content acquisition:

content acquisition

$$= \begin{cases} 0 & \text{if content acquisition rating was average or below average} \\ 1, & \text{if content acquisition rating was above average} \end{cases}$$

For frequency of use of media resources which was the explanatory variable 0 was assigned if the frequency of use was rated as low while 1 was assigned to high frequency of use of media resources i.e.

$$\text{frequency of use} = \begin{cases} 0, & \text{if rating was low} \\ 1, & \text{if rating was high} \end{cases}$$

The results of the analysis are as presented in tables 4.23 and 4.24 below:

Table 4.23: Binary Logistic Regression Coefficients

| Content Acquisition | Coef. | Std. Err. | Z | P> z | [95% CI] | |
|---------------------|-----------|-----------|-------|-------|-----------|----------|
| Frequency of use | 1.204939 | .3601987 | 3.35 | 0.001 | .498962 | 1.910915 |
| -cons | -1.008228 | .2248345 | -4.48 | 0.000 | -1.448896 | -.567561 |

The results of the analysis indicate that there was a positive relationship between frequency of use of media resources and content acquisition as indicated by a positive coefficient of 1.204939. To test the significance of the frequency of use coefficient, the z-test was used. In this case the hypothesis tested was:

$$H_0: \beta_1 = 0$$

$$H_1: \beta_1 \neq 0$$

From the results in table above, a z-value of 3.35 was obtained with a p-value of 0.001. since $p=0.001 < 0.05$, we reject the null hypothesis and conclude that the frequency of use coefficient was significantly different from zero meaning that those schools which more frequently used media resources in the teaching / learning process were more likely to register higher content acquisition than those which did not.

Table 4.24: Binary Logistic Regression Odds Ratio

| Content Acquisition | Odd ratio. | Std. Err. | z | P> z | [95% Conf. Interval] | |
|---------------------|------------|-----------|-------|-------|----------------------|----------|
| Frequency of Use | 3.336554 | 1.201822 | 3.35 | 0.001 | 1.647011 | 6.759271 |
| -cons | .3648649 | .0820342 | -4.48 | 0.000 | .2348295 | .5669066 |

The odds ratio in table 4.24 above show that an odds ratio of 3.336554 significant at 0.05 level of significance ($z=3.35$, $p(0.001) < 0.05$) was obtained for frequency of use of media resources and this means that the **likelihood** of those schools which frequently used media resources obtaining

high content acquisition is 3.3 times higher than those who less frequently used media resources. The confidence interval of this odds ratio is $1.647011 \leq \text{Odds Ratio} \leq 6.759271$.

4.9 Discussion of the Results

Objective 1 determined the relationship between students' and teachers' perceptions on the availability and use of media resources in schools for the hearing impaired in western Kenya. In this study, the researcher established that most media resources that were ticked as available were unavailable. These findings are in agreement with those of Wamalwa & Wamalwa (2014), Nato & Omoro (2013), Koros & Mubichakan (2014), Jiriko et al. (2012) and Mutwiri (2012) who also found the media resources to be available and in small quantities while others did not exist at all. However, the study disagrees with the findings of Shela et al. (2014) whose studies revealed there were available materials for all the areas in teaching technology livelihood.

The result of this study on observation of classrooms showed that although most resources were unavailable, the most available ones were textbooks and chalkboards. These were predominantly used in the classrooms. Other media resources such as atlases and maps, charts, pictures and photographs which are believed to be locally available and inexpensive were neither available nor provided by the schools' administration. Computers, overhead projectors and videos though ticked as available were not there at all for utilization.

The above observation captures the deplorable state of media resources and use in schools for the hearing impaired. These findings are in line with findings of several researchers who have assessed the availability and use of media resources in Nigeria (Ekno, 2001; Simo, 2009; Garuba, 2003; Dahar & Faize, 2011). Similarly, Jimo (2009) assessed the utilization of instructional materials in the teaching of social studies in secondary schools in Nigeria. The study findings showed low or minimal utilization of instructional materials in the teaching of social studies. Nearly all teachers depended on textbooks and chalkboards as media resources, while other media resources like maps, charts, pictures, overhead projectors and computers are sparingly used. The current study also noted that the availability and low use of media resources was attributed to reluctance by teachers to improvise lack of storage facilities and incompetence in the use of modern media like overhead projectors and computers.

Lack of media resources or the unavailability is not a new finding. Ogbondah (2008) noted a great shortage of instructional materials in Nigerian secondary schools. The findings of the unavailability and use of media resources in the teaching and learning of the hearing impaired learners have been corroborated by those of other researchers in regular learning institutions (Jotia & Matlale, 2011; Abdo & Semela, 2010; Kadzera, 2006; Dahar & Faize, 2011). In an assessment of the use of instructional materials in the teaching of social studies in regular primary schools in Botswana (Jotia & Matlale, 2011) found very utilization of media resources and this in turn had an effect on pupils' performance. The current study established that low use of media resources which was as a result of unavailability, affected the students' content acquisition. Similarly, Abdo & Semela (2010) pointed out that there was low utilization of media resources in primary schools in southern Ethiopia. Additionally, in Malawi, Kadzera (2006) noted that there was low usage of higher order instructional technologies such as computers, videos and overhead projectors in Teacher Training Colleges. Dahari & Faize (2011) observed that there was a big deficiency in the utilization of media resources in schools in Pakistan due to the unavailability.

Killen (2008) acknowledges that the problem of limited learning resources may not be easily solved. It encourages teachers to use the alternatives available including local materials within the school environment and if possible improvise whenever the need arises.

An observation on community based resources available and used for teaching and learning revealed that they were neither available nor existed at all. Community based form an essential part in the teaching and learning. This is because some subjects like humanities deal with the distribution and interrelation of phenomena in space. It is therefore inevitable that teachers of humanities and students have to go outside their classrooms and study or observe these phenomena as they exist in the natural setup if they have to get a deeper understanding of the diverse features and their relationship in space. The local environment also contains numerous physical and human features which are taught to students in class and cannot be brought into the classrooms so that the students can observe the, touch, feel and experiment with them. It is because of this limitation that the teachers and students have to conduct field trips in subjects like geography and literature, which will enable them to make use of their local environment. The local environment has been found to be very important in social studies.

An observation by the researcher in the classrooms showed that nearly all teachers do not utilize community-based resources and this implies that many students are not exposed to broad learning experiences. It was therefore expected that the present study would shed light on the amount of community-based resources to enable learners to be exposed to them.

One of the community-based resources observed whether available and used in the schools for teaching and learning was a weather station. A weather station is an essential facility in the teaching and learning of geography and social studies. However, it was observed that all schools under study did not have their own weather station. It was expected that since the schools did not have weather stations they could make use of the weather stations outside their schools. This implies that teachers were teaching the concepts of weather climate theoretically thus deriving learners the experience of handling and observing or even making their own readings from the instruments in the weather stations.

Objective 2 assessed the adequacy and frequency of the available media resources for teaching and learning in schools for the hearing impaired. Media resources are important to help students to understand the lesson objectives. Students learn the content of the lesson when it is supported with media resources. However, the picture emerging from the analysis regarding the use of media resources for the teaching and learning in the selected schools as shown in table 4.8 demonstrate that teachers are not using media resources in the teaching adequately. The study has also revealed that most of the media resources that are required for instructional purposes are not adequate in the hearing impaired schools.

The analysis of the results show that even textbooks which are the primary tools that teachers use to organize their lessons and make content knowledge and skills available to students were inadequately used. This is indicated by 51 respondents representing 33.6% that textbooks were often used as compared to 55 representing 36.2% who indicated that they were less used. This implies that textbook usage was not adequate. Teachers need to acknowledge that textbooks contain the content that students are expected to learn and most teachers should focus their instruction on the materials including the books they use. Textbooks provide the main resources for teachers, enabling them to animate the curricular and giving life to the subjects taught in the classrooms. As the CLT theory posited, for schema of objective learning to occur, teachers must

use these resources in teaching their students (Flemming & Levie, 1993). The memory load for these students may be constrained when little or no media is used for knowledge acquisition. Statistically, only 33.6% have better chance of schema acquisition, a case which should not be encouraged in education in these schools.

In sum, textbooks are primary vehicles for delivery and content knowledge to students and therefore they should be used more frequently and adequately supplied. In addition, studies have shown that textbooks for use in the classroom have a positive effect on academic achievement. These findings are also in agreement with the theory which encourages that understanding is enhanced when the memory has help, which in this case, are the books or instructional materials as broadly categorized by Sweller (2005). So, too, does the availability of media resources (Freeman & Porter, 1989; Fuller & Heinemen, 1989). However, this study focused on the effect of the adequacy and frequency of use, on the students' content acquisition.

Results of the observation schedule confirms that a good number of media resources ticked as available were not adequate and frequently used. Media resources including computers, models, overhead projectors, pictures and photographs were observed to be available in only two out of three schools though also not adequate. The results of the findings are in line with several researchers (Ogbu, 2015; Wamalwa & Wamalwa, 2014; Ogott & Odera, 2012; Rotumoi & Kipkoech, 2014) whose studies revealed that media resources were grossly lacking for teaching and learning. However, the current study disagrees with Ngure et al's. (2014) findings that the instructional materials in all the pre-primary training colleges in Kenya were quite adequate and available in large quantities. The study attributed the availability and adequacy to the provision of the resources by the administration and tutors who were willing to improvise the missing resources. The inadequate media resources can demotivate the teachers in teaching. Dale (1969) as he propounded in his theory, when there is monotony, teaching and learning is greatly hindered. Demotivation of teachers due to inadequate or in some schools as noted, missing instructional resources eventually affects the learners in these schools. Demotivated teachers will not motivate the learners. Hence, when adequate media resources are provided to the teachers, there is likelihood that they can frequently use them and the frequency of use will boost performance of students.

Objective 3 compared the pre-lingual and post-lingual students' attitude towards the availability and use of media resources in schools for the hearing impaired. The results of the analysis showed that 15 post-lingual students had a negative attitude towards the use of media resources as compared to 20 pre-lingual students. The analysis further indicated 54 post-lingual students were rated to have a positive attitude towards the use of the available media resources in their schools compared to 30 pre-lingual students who were rated the same. The results of the analysis of differences between the two groups are shown in table 4.15. There was also a significant difference in attitude towards the use of media resources between the two groups. These findings are in agreement with Mba (1995) and Ondicho (2007) that the age at onset of deafness affects the hearing impaired learners in academic endeavors, the only difference between the studies is that the current compares the pre-lingual and post-lingual students' attitude towards the use of media resources while the previous studies did a comparative analysis of the academic performance.

Objective 4 compared the students and teacher's attitude towards the use of the available media resources in schools for the hearing impaired. The results of the analysis on aggregate showed that both students and teachers had a positive attitude towards the use of the available media resources for teaching and learning. The results further indicated that there was no significant difference in attitude towards the available and use of media resources between teachers and students. These findings are in line with Ibeh et al. (2013) whose studies revealed that effective use teaching resources improved students' attitude towards physics. However, the current study focused on the use of available media resources across all the subjects in the secondary school curriculum. Also, the study agrees with Ekpo et al. (2013) whose study findings indicated that students whose teachers showed positive attitude towards the use of locally made instructional materials made their students to perform better. However, student performance was not the focus of this study but teachers and student's attitude towards the use of the available media resources for teaching and learning.

Objective 5 addressed how the frequency use of the available media resources affected the student's content acquisition. The finding of the results indicated that there was low content acquisition in schools for the hearing impaired because there was low frequency of use of the available media resources for teaching and learning. This finding, in essence means that low

content acquisition is directly affected by their learning environment which does not give them experiential learning and therefore poor performance. Wadsworths (1984) asserts in Piaget's theory of Cognitive Learning that effective learning should develop from the experiences with the environment. Low content acquisition is attributed to infrequent interaction with media resources.

The study objectives were further tested by the following hypotheses:

Hypothesis 1 addressed differences between students' and teachers' perceptions on the availability and use of media resources for teaching and learning in schools for the hearing impaired in western Kenya. The study findings found no significant difference between the students and teachers on the availability and utilization of media resources

Hypothesis 2 addressed the relationship between adequacy and frequent use of the available media resources in schools for the hearing impaired. There was a significant difference between adequacy and frequent use of the available media resources

Hypothesis 3 compared the difference in attitudes towards the use of available media between the pre-lingual and post-lingual in the schools for the hearing impaired in western Kenya. The chi-square test carried out at 0.05 level of significance and 1 degree of freedom showed a statistically significant difference in attitude towards the use of the available media resources.

Hypothesis 4 compared the difference between the students' and teachers' attitude towards the use of available media resources in schools for the hearing impaired. The study found no significant difference in attitude towards the use of available media resources between students and teachers in schools for the hearing impaired.

Hypothesis 5 determined if there was an empirical relationship between the frequency of use of the available media resources and students' content acquisition in schools for the hearing impaired. The researcher found that frequency of use coefficient was statistically different. The results imply that those schools which used more frequently media resources were likely to register higher content acquisition.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the findings obtained from analysis of data in chapter four were used to make conclusions and recommendations for possible action to be taken. This chapter covered the following sections: summary of the findings, conclusions, recommendations and suggestions for further research.

5.1 Summary of Findings

The main purpose of this study was to investigate the availability and use of Media resources in the teaching and learning for the hearing impaired in special public secondary schools in Western Kenya. In order to achieve this main purpose, five specific objectives were addressed.

The first objective sought to find out the availability and use of media resources for the teaching and learning of hearing impaired students in the selected secondary schools in Western Kenya. The study established that the chalkboard were readily available for teaching and learning. The chalkboard is popular because it allows spontaneity, speed and change if it is properly used. It can display pictures, sketches, a summary of the teacher's lesson notes, assignments and worked out problems. Its flexibility and familiarity may make it overused at the expense of other media resources. As a result for effective and meaningful learning to take place, the chalkboard should be complemented with other teaching and learning resources such as charts and models. Science labs, Textbooks, Specimens, Maps, Atlases, Graph papers and Charts were also available. However, in almost all the schools the resources were not adequate and were old and unusable. Computers, models, overhead projectors pictures and photographs were observed to be available in two out of the three schools. However, they were also determined to be inadequate. This is an indicator that most schools for the hearing impaired have not integrated the use of media resources in the pedagogy.

The second objective of the study sought to determine the adequacy and frequency use of the available media resources for teaching and learning in schools for the hearing impaired. The study established that Chalkboard, Science labs and Maps were often used in the teaching/learning process. However, the study results showed that chalkboards were the most used media resources. The use of electronic media such as computers, overhead projectors and videos was least despite the rapid technological change implying that most teachers in schools for the hearing impaired have not embraced and integrated technology in teaching. The inadequate utilization of media resources was established to be as a result of non-availability, inaccessibility and lack of requisite training. Further results indicated that teachers had either average or little competence in the selection and use of some electronic media resources.

The third objective sought to compare the pre-lingual and post-lingual students' attitude towards use of the available media resources. The study established that 69.8% of the students were rated to have a positive attitude towards the use of media resources as compared to 30.2% who were rated to have a negative attitude. The study established that there was a statistically significant difference in attitude towards the use of media resources between pre-lingual and post-lingual hearing impaired students ($\chi^2 = 4.0816$, $p < 0.05$).

The fourth objective sought to compare teachers' and students' attitudes towards the available and use of media resources for teaching and learning in schools for the hearing impaired. The study findings showed that there was no statistically significant difference in attitude towards the use of media resources between teachers and students ($\chi^2 = 0.8556$, $p > 0.05$).

The fifth objective of the study sought to determine the association between the frequency and of use of the available media resources for teaching and learning and content acquisition in the selected secondary schools for the hearing impaired. Content acquisition rating for hearing impaired students in the schools surveyed was as average. The study established a positive relationship between frequency of use of media resources and content acquisition as indicated by a positive coefficient of 1.204939 significant at 0.05 level of significance ($z = 3.35$, < 0.05), hence the study established that those schools which more frequently used media resources in the

teaching / learning process were more likely to register higher content acquisition than those which did not. Further, results based on the odds ratio established that an odds ratio of 3.336554 significant at 0.05 level of significance ($z=3.35$, $p < 0.05$) implying that the likelihood of those schools which frequently used media resources obtaining high content acquisition was 3.3 times higher than those which less frequently used media resources.

The three research theories: Cognitive Load Theory (CLT) by Sweller (2005); Dale's (1969) Theory of Instruction and Piaget's 1964 theory of Cognitive Development as propounded by Wadsworth (1984) guided the researcher in discussion of the findings. The theories proved that indeed learning is not supposed to be an abstractive concept separated from the environment but rather an integrated process. The integration should appear in how media resources are used to build the mental structures or schema of objective among students. Where there was availability of media resources, the teachers were motivated and the students showed improved uptake of abstract concepts as compared to schools where they lacked the materials.

5.2 Conclusions

Basing on the findings the following conclusions drawn from this study are as follows:

- 1 The availability and use of media resources in schools for the hearing impaired are inadequate for teaching and learning. Further, teachers have not integrated the use of technology in their teaching/learning processes.
- 2 The most available and frequently used media resources in the selected secondary schools for the hearing impaired were the chalkboard, textbooks, science laboratories and charts. Teachers sometimes used the available media resources to teach their lessons. The teachers' over-reliance on the use of the chalkboard and class text books indicates that there was low use of media resources available. This might be possibly because of inadequate training of teachers in the use of a variety of media resources, lack of time to identify and prepare resources and lack of co-operation by the school administration and difficulty in accessing them.

- 3 Electronic media resources like overhead projectors, computers and video were seldom used in schools for the hearing impaired to teach for they were either unavailable, inaccessible or the teachers lack the requisite knowledge and skills on their use.
- 4 The findings revealed that the diploma teacher used the available media resources more appropriately and frequently than the graduate teachers. This may imply that the university graduate teachers do not take their duties seriously. This finding may also imply that the diploma education training programmes prepare teachers more intensively in media resources production than the university teacher training programmes.
- 5 There was a statistically significant difference in attitude towards the available and use of the media resources between pre-lingual and post-lingual hearing impaired. However, there was no statistically significant difference in attitude towards the available and use of media resources between teachers and students.
- 6 The frequency of the available and use of media resources and students' content acquisition were established to have a positive relationship implying that the likelihood of those learners in schools which frequently used the available media resources obtaining higher content acquisition was higher than those in which media resources were infrequently used.

Media resources are necessary, ingredients for the attainment for the teaching and learning of the hearing impaired learners, but this study has found these resources are inadequate in the schools for the hearing impaired in Western Kenya. On this basis of these findings therefore, it would be concluded that students in the schools for the hearing impaired in Western Kenya are learning without the necessary and required media resources for teaching and learning, and this may have affected their content acquisition over the years. Therefore, efforts should be made by the relevant authorities to provide adequate media resources to ensure quality of teaching and learning in adherence to stipulated goals and objectives of the curriculum.

5.3 Recommendations

5.3.1 Recommendations for Policy and Practice

The following recommendations pertinent for policy and practice are made:

This study tried to provide insight into the availability and use of media resources in schools for the hearing impaired.

The study also assessed the adequacy and frequency use of the available media resources for teaching and learning in schools for the hearing impaired.

The study therefore established that the available media resources were not adequate and frequently used for teaching and learning. Therefore, identifying and describing media resources to teachers during training is not adequate, and should rather be enhanced through media resources integration during teaching and learning.

First, the Ministry of Education through the Quality Assurance office should increase the frequency of inspection in public secondary schools for the hearing impaired to ensure compulsory use of the available media resources in the teaching process.

Second, the Ministry of Education should adequately finance the purchase of media resources and provide in-service training to the teachers so as to enhance their ability to effectively use the available modern media resources such as computers in curriculum delivery.

Third, Principals in charge of the secondary schools should ensure that teachers adequately make use of the available media resources in their teaching process besides providing them with the necessary funds required for the timely acquisition of the media resources.

Fourth, it is also recommended that visual materials should include some sign language components and should be used by all teachers, in order to concretize the learning process. Teachers should be involved in curriculum development by the Kenya Institute of Curriculum Development (KICD) for the hearing impaired. Also the study recommends that teachers in the field should have a forum for meeting periodically to assess the effectiveness of the available and

use of media resources in their teaching using the methods of instructional and educational technology as applicable to the organization of the content of the school syllabuses.

Fifth, the present study established that hardly any school had a learning resource centre. This made the problem of storage of the few media resources available difficult. As a result, this study strongly recommended that learning resource centres be established in every school. This greatly reduces damage and loss of media resources available for use hence reducing the rate of depreciation on these materials.

Finally, the District Quality Assurance and Standards Officers should make regular visits to schools, advice and motivate teachers to make use of the available media resources in teaching and learning. In addition, the officers should organize in-service courses, seminars and workshops at County levels. These forums would enable teachers to share views and experiences as regards to the use of the available resources and the production of the same for teaching and learning in their schools.

It emerged that clearly that both students and teachers had the same perceptions on the availability and use of media resources in schools for the HI. However, support, exposure and more practical training needs to be provided to teacher trainees to gain the confidence and competence to use and integrate instructional technology such as computer in their teaching.

Stronger emphasis should be put on the adequacy and frequency use of media resources during classrooms presentations during micro-teaching sessions. Training and proper assessment on how best to produce quality work using the commonly media resources during teaching such as posters, flip charts, models, transparencies should take place.

5.3.2 Suggestion for Future Research

- 1 Future research should be carried out that employs experimental design so as to confirm the study findings.

- 2 The study suggests a future research in the primary schools in Kenya for the hearing impaired pupils so as to create an overall assessment of the impact of media resources on content acquisition and performance.
- 3 Further research that make use of a larger sample in other parts of the country not included in this research should be carried out so as to establish better relationship between the use of instructional materials and content acquisition.
- 4 A study on evaluating the B.Ed. programmes to train and assist teacher trainees in appropriate use of media resources and pedagogical in the classroom.

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APPENDICES

APPENDIX A: STUDENTS' QUESTIONNAIRE (SQ)

INSTRUCTIONS

- 1) Do not write your name anywhere in this questionnaire.
- 2) Answer all questions by either putting a tick (√) or filling in the spaces provided.
- 3) The information you give will be used only for this study and will be kept in Confidence.

SECTION A: PERSONAL INFORMATION

- 1) Sex Male [] Female []
- 2) Name of your school _____
- 3) When did you become deaf?
 - (a) I was born deaf []
 - (b) Between the age of 1-2 years []
 - (c) Between the age of 5-10 years []
 - (d) Don't know []

SECTION B: USAGE OF MEDIA RESOURCES

- 4) (a) Do you have a computer laboratory in your school?
Yes []
No []
 - (b) How often do use it?
 - i. 1 hour per week []
 - ii. 2 hours per week []
 - iii. 3 hours per week []
 - iv. Others _____
- 5) Indicate the availability of the following Instructional Media in your school. Please use the table grid below:

| Media Resources | Available | |
|---------------------|-----------|----|
| | Yes | No |
| Chalkboard | | |
| Computer lab | | |
| Science labs | | |
| Textbooks | | |
| Weather station | | |
| Specimens | | |
| Maps | | |
| Atlas | | |
| Models | | |
| Graph papers | | |
| Overhead projectors | | |
| Pictures | | |
| Charts | | |
| Real objects | | |
| Others, specify | | |

6. Please rate on the Five –point Likert scale how frequently the available media are used in the teaching / learning process.

| Instructional Media | Not At All 1 | Rarely 2 | Sometimes 3 | Often 4 | Very Often 5 |
|----------------------------|-------------------------|---------------------|------------------------|--------------------|-------------------------|
| Chalkboard | | | | | |
| Computer lab | | | | | |
| Science labs | | | | | |
| Textbooks | | | | | |

| | | | | | |
|--------------------------|--|--|--|--|--|
| Specimens | | | | | |
| Maps | | | | | |
| Atlases | | | | | |
| Models | | | | | |
| Graph papers | | | | | |
| Overhead projectors | | | | | |
| Pictures and photographs | | | | | |
| Charts | | | | | |
| Real objects | | | | | |

7) How do you share copies of the core textbooks in your class? (Tick (√) as appropriate)

- a) 1 book : 1 student []
- b) 1 book : 2 students []
- c) 1 book : 3 students []
- d) 1 book : 4 students []
- e) Books are not available []

SECTION C: ATTITUDE

8) Do you enjoy learning when teachers use a variety of resources?

Yes []

No []

9) According to your own opinion, what are the benefits of using Instructional Media in teaching in secondary schools? For each of the following statements choose one of the options indicate your responses by marking the appropriate with an “X” or tick. Where

5 - Strongly agree 4- Agree 3 – Undecided 2- Disagree, 1 - Strongly disagree

| Statement | 5 | 4 | 3 | 2 | 1 |
|--|----------|----------|----------|----------|----------|
| Adoption of Media resources has improved learning in my school | | | | | |
| Media resources makes learning more real | | | | | |
| Media resources makes Learning more interesting and Meaningful | | | | | |
| Media resources helps us retain what we have learnt longer | | | | | |
| Media resources motivates us to learn more | | | | | |

10) Please rate in the 5-point Likert scale the general content acquisition of students in your school.

| General Content acquisition rating | | | | |
|---|------|---------|------|-----------|
| V. poor | Poor | Average | Good | Excellent |
| | | | | |

APPENDIX B: TEACHERS' QUESTIONNAIRE (TQ)

INSTRUCTIONS

This questionnaire gives you a chance to express your views on the media resources used in your school. Your views will lead to improving the use of media resources in your teaching and learning process, now and for the next generation of secondary school students with special needs.

The information you give will be used only for this study and will be kept in confidence. Do not write your name anywhere in this questionnaire. Give your responses as sincerely as possible, by either putting a tick (✓) or filling in the space provided. Your co-operation will be very essential to this study and highly appreciated.

SECTION A: PERSONAL INFORMATION

1) Sex Male [] Female []

2) Professional Qualification

| Diploma | BED special education | BED science | BED arts | BED Technical | MED Special Education |
|----------------|--------------------------------------|------------------------|---------------------|--------------------------|--------------------------------------|
| | | | | | |

3) (a) Teaching experience

Less than 2 years []

2-4 years []

4-6 years []

7 years and above []

SECTION B: AVAILABILITY OF MEDIA RESOURCES

4) The following items are dealing with the available media resources for teaching and learning. Which ones do you use in your school? (Tick appropriately)

A= Available

NA= Not available

| Resource | A | NA |
|--------------------|----------|-----------|
| Computer | | |
| Overhead projector | | |
| Film projector | | |
| Chalkboard | | |
| Flash cards | | |
| Charts/drawings | | |
| Photographs | | |
| Pictures | | |
| Posters | | |
| Graphs | | |
| Calculators | | |
| Models | | |
| Textbooks | | |
| Laboratories | | |
| Library | | |
| Weather station | | |
| Atlas | | |
| Maps | | |
| Specimens | | |
| Graph papers | | |
| Others, specify | | |

5) (a) Are the learning resources you have indicated above adequate for the teaching of the subjects?

Yes []

No []

SECTION C: FREQUENCY USE OF MEDIA RESOURCES

6. Please rate on the Five –point Likert scale how frequently the available media are used in the teaching / learning process.

| Instructional Media | Not At All 1 | Rarely 2 | Sometimes 3 | Often 4 | Very Often 5 |
|----------------------------|-------------------------|---------------------|------------------------|--------------------|-------------------------|
| Chalkboard | | | | | |
| Computer lab | | | | | |
| Science labs | | | | | |
| Textbooks | | | | | |
| Specimens | | | | | |
| Maps | | | | | |
| Atlases | | | | | |
| Models | | | | | |
| Graph papers | | | | | |
| Overhead projectors | | | | | |
| Pictures and photographs | | | | | |
| Charts | | | | | |
| Real objects | | | | | |

SECTION D: REASONS FOR NOT USING

7) What reasons do you have for not using or seldom use of the media resources in section C?

For the items you use all the time in section C above, indicate ‘Not applicable’ here. For the other items circle whichever numbers are appropriate to you. **1= Not applicable, 2 = Lack of training, 3= Lack of infrastructure (sockets), 4= Not available, and 5= Not accessible.**

| Item | Not Applicable | Lack of Training | Lack of Infrastructure (Sockets) | Not Available | Not Accessible |
|-------------------------|----------------|------------------|----------------------------------|---------------|----------------|
| 12. Chalkboard | 1 | 2 | 3 | 4 | 5 |
| 13. Flipcharts | 1 | 2 | 3 | 4 | 5 |
| 14. Overhead Projectors | 1 | 2 | 3 | 4 | 5 |
| 15. videos | 1 | 2 | 3 | 4 | 5 |
| 16. Computers | 1 | 2 | 3 | 4 | 5 |
| 17. Local Resources | 1 | 2 | 3 | 4 | 5 |

SECTION E: COMPETENCE LEVELS

8). Following are statements about your competence with technologies. Please indicate your competence level by circling the corresponding numbers using the following scale:

1=Little or no competence, 2=Average competence, 3=Above average competence, 4=Very competent.

| Item | Little competence | Average Competence | Above Average Competence | Very Competent |
|--|-------------------|--------------------|--------------------------|----------------|
| 18. Use the chalk board in my teaching | 1 | 2 | 3 | 4 |
| 19. Operate an overhead projector in my teaching | 1 | 2 | 3 | 4 |
| 20. Prepare flipcharts for use in class | 1 | 2 | 3 | 4 |

| | | | | |
|--|---|---|---|---|
| 21. Use flip charts during lesson presentation | 1 | 2 | 3 | 4 |
| 22. Produce teaching materials using local resources | 1 | 2 | 3 | 4 |
| 23. Use computers to assist with class work | 1 | 2 | 3 | 4 |
| 24. Use computers for personal work | 1 | 2 | 3 | 4 |
| 25. Show a video during teaching | 1 | 2 | 3 | 4 |

E). Constraints in the use of Media resources for the teaching and learning

9). Please rate on the 5-point Likert scale below how much of a constraint each of the given factors are towards the use of media resources.

| FACTORS | Not At All 1 | Least constraint 2 | Fairly Constrains 3 | Highly Constrains 4 | Very highly constrains 5 |
|---|-----------------|--------------------------|---------------------------|---------------------------|--------------------------------|
| Use of sign language in communication | | | | | |
| Support of the school administration | | | | | |
| Untimely provision of media resources | | | | | |
| Huge workload which leaves little time for preparation of the media resources | | | | | |
| Media resources have no sign language component | | | | | |
| Obtaining resources relevant to the needs of the hearing impaired | | | | | |
| Lack of incentives | | | | | |

10). Please suggest ways through which the constraints to media use will be overcome.

.....

SECTION F: ATTITUDES TOWARDS USE OF MEDIA RESOURCES

9). Please rate your level of agreement on the following statement indicating your attitude towards the use of media resources. 1=**strongly Disagree (SD)**, 2=**Disagree (D)**, 3=**Agree (A)**, 4=**strongly Agree (SA)**.

| Statement | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| Adoption of Media resources has improved the teaching process in my school | | | | | |
| Media resources makes learning more concrete | | | | | |
| Media resources makes Learning more interesting effective and Meaningful | | | | | |
| Media resources makes Learning to be retained longer than that acquired by purely verbal teaching | | | | | |
| Media resources enhances cognitive development of learners | | | | | |
| Media resources Provides visual access to the invisible | | | | | |
| Media resources serves as a motivation to learners | | | | | |
| Media resources aids evaluation of students learning | | | | | |

10) Please rate in the 5-point Likert scale the general content acquisition of students in your school.

| General Content acquisition rating | | | | |
|---|------|---------|------|-----------|
| V. poor | Poor | Average | Good | Excellent |
| | | | | |

APPENDIX C: PRINCIPALS' QUESTIONNAIRE (PQ)

INSTRUCTIONS

This questionnaire gives you a chance to express your views on the availability of media resources and the constraints in their acquisition in your school. Your views will lead to improving the use of media resources in the teaching and learning process in all subjects, now and in the next generation of students in schools for the deaf.

The information you give will be used only for this study and will be kept in confidence. Do not write your name or the name of your school anywhere in this questionnaire. Give your responses as sincerely as possible, by either putting a tick (✓) or filling in the space provided. Your cooperation will be very essential to this study and highly appreciated.

SECTION A: PERSONAL INFORMATION

1) Sex Male [] Female []

2) Professional Qualification

M. Ed Special Education []

B. Ed Special Education []

Dip. Special Education []

Others []

Specify _____

3) (a) Teaching experience

Less than 2 years []

2-4 years []

4-6 years []

7 years and above []

SECTION B: SCHOOL

4) What is the total number of students in your school? _____

5) Number of pre-lingual deaf and post-lingual deaf

Boys [] Boys []

Girls [] Girls []

6) (a) How many qualified teachers do you have? _____

(b) Is the number of teachers you have indicated:

Adequate []

Inadequate []

Difficult to say []

7) (a) Do you support the use of media resources in your school?

Yes []

No []

(b) Why? _____

8) (a) Does your school have enough media resources for the teaching and learning process?

Yes []

No []

(b) Why have you responded so? _____

9) What support has the school administration provided to the acquisition and use of media resources? _____

10) (a) From your own observation, what problems do you think teachers experience in the selection and use of media resources?

(b) Suggest ways in which these problems can be solved.

APPENDIX D: OBSERVATIONAL CHECKLIST (OC)

This observational checklist was designed to obtain information on the use of media resources for the teaching and learning in schools for the hearing impaired.

The information obtained herein was used only for the purpose of this study.

| Resource | Availability Write 1 for Available and 2 for Not available | Adequacy Write 1 for Adequate and 2 for Not adequate | Condition Write 1 for New and 2 for Old or Unusable |
|--------------------------|--|--|---|
| Chalkboard | | | |
| Science labs | | | |
| Computer lab | | | |
| Learning resource centre | | | |
| Weather station | | | |
| Atlases | | | |
| Maps | | | |
| Specimens | | | |
| Models | | | |
| Graph papers | | | |
| Calculators | | | |
| Computers | | | |
| Overhead projectors | | | |
| Film projectors | | | |
| Textbooks | | | |
| Charts | | | |
| Photographs | | | |
| Diagrams | | | |
| Real objects | | | |
| Newspapers | | | |

**APPENDIX E: LETTER OF AUTHORIZATION FROM INSTITUTE OF
POSTGRADUATE STUDIES AND RESEARCH**



INSTITUTE OF POST GRADUATE STUDIES AND RESEARCH

Private Bag - 20157
KABARAK, KENYA
E-mail: directorpostgraduate@kabarak.ac.ke

Tel: 0773265999
Fax: 254-51-343012
www.kabarak.ac.ke

20th March, 2015

Ministry of Education, Science and Technology,
National Commission for Science, Technology and Innovation,
9th Floor, Utalii House,
P.O. Box 30623 – 00100,
NAIROBI.

Dear Sir/Madam,

RE: RESEARCH BY GDE/M/1121/09/11– ONDICHO ROSEMARY M. NYAUNDI

The above named is a Doctoral student at Kabarak University in the School of Education. She is carrying out research entitled "Availability and Use of Media Resources in Teaching and Learning: A Case of Selected Secondary Schools for the Hearing Impaired in Western Kenya"

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please provide the necessary assistance.

Thank you.

Yours faithfully,

Dr. Betty Tikoko
DIRECTOR POST-GRADUATE STUDIES & RESEARCH




Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)

APPENDIX F: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MS. ONDICHO ROSEMARY M. NYAUNDI
of KABARAK UNIVERSITY, 0-40 Kisii, has
been permitted to conduct research in
Bomet , Kakamega , Migori Counties
on the topic: AVAILABILITY AND USE OF
MEDIA RESOURCES IN TEACHING AND
LEARNING: A CASE OF SELECTED
SECONDARY SCHOOLS FOR HEARING
IMPAIRED
for the period ending:
30th June,2016


Permit No : NACOSTI/P/15/3335/5749
Date Of Issue : 15th June,2015
Fee Received :Ksh 2,000



Applicant's Signature **Director General**
National Commission for Science, Technology and Innovation

CONDITIONS

- 1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit**
- 2. Government Officers will not be interviewed without prior appointment.**
- 3. No questionnaire will be used unless it has been approved.**
- 4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
- 5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**
- 6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.**



REPUBLIC OF KENYA
NACOSTI
National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT
Serial No. A 5349
CONDITIONS: see back page

APPENDIX G: MAP OF BOMET COUNTY



APPENDIX H: MAP OF MIGORI



APPENDIX I: MAP OF KAKAMEGA COUNTY

