DETERMINING CLASSROOM COMMUNICATION AND ACADEMIC PERFORMANCE OF LEARNERS WITH HEARING IMPAIRMENT; A CASE OF KAMBUI SCHOOL FOR THE DEAF-KIAMBU COUNTY-KENYA

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JULY, 2015
DECLARATION

This Thesis is my original work and has not been presented for a degree in any other university or any other award.

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This work is dedicated to God Almighty for giving me sufficient strength and grace. To my family and friends who encouraged me to complete the hard work.
ACKNOWLEDGEMENT

It would be impossible to thank everyone who has made either a direct or indirect contribution to this research report. There are however, several individuals whose influence and help warrant some special recognition in a special way. My hearty felt appreciation goes to my supervisors Dr. B. Bunyasi and Dr. J. Ngasike of Kenyatta University for the invaluable guidance they gave me in realization of this study.

Thanks to all who volunteered and participated in this study, without whom this study would not have been a success. Lastly special thanks goes to my dear family; my husband and our two children Teresiah and Isaac, whom I left behind when they needed me most for care and love, for patience, love and encouragement all through the study.
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# ABBREVIATIONS AND ACRONYMS

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<th>Description</th>
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<tr>
<td>ASL</td>
<td>American Sign Language</td>
</tr>
<tr>
<td>C1</td>
<td>Cochlear Implants</td>
</tr>
<tr>
<td>EQUIP3</td>
<td>Educational Quality Improvement Program</td>
</tr>
<tr>
<td>HI</td>
<td>Hearing Impairment</td>
</tr>
<tr>
<td>ICFD</td>
<td>International Classification of Function and Disability (ICFD)</td>
</tr>
<tr>
<td>KCPE</td>
<td>Kenya Certificate of Primary Education</td>
</tr>
<tr>
<td>KIE</td>
<td>Kenya Institute of Education</td>
</tr>
<tr>
<td>KNAD</td>
<td>Kenya National Association for the Deaf</td>
</tr>
<tr>
<td>KSDC</td>
<td>Kenya Society for Deaf Children</td>
</tr>
<tr>
<td>KSL</td>
<td>Kenyan Sign Language</td>
</tr>
<tr>
<td>MS</td>
<td>Manual Signs</td>
</tr>
<tr>
<td>MoEST</td>
<td>Ministry of Education Science and Technology</td>
</tr>
<tr>
<td>M/Sc</td>
<td>Mean Score</td>
</tr>
<tr>
<td>NDCS</td>
<td>National Deaf Children Society</td>
</tr>
<tr>
<td>NMS</td>
<td>Non Manual Signs</td>
</tr>
<tr>
<td>SEE</td>
<td>Signed Exact English</td>
</tr>
<tr>
<td>SL</td>
<td>Sign Language</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Science</td>
</tr>
<tr>
<td>TC</td>
<td>Total Communication</td>
</tr>
<tr>
<td>T/L</td>
<td>Teaching/Learning</td>
</tr>
<tr>
<td>TSC</td>
<td>Teachers Service Commission</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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ABSTRACT

Determining classroom communication and academic performance of learners with hearing impairment was central to this study. While language and communication are perceived as the main problems encountered by learners with HI, it is assumed that, if teachers and learners are able to communicate, learners with HI can learn. The main argument of this study is that, although proficiency in SL among teachers does play a great role in the education of learners with HI, it is not sufficient in offering quality education in this context. Other needs of learners with HI should be addressed during the teaching and learning process through T/L materials and classroom environment. The study was conducted in Kambui School for the Deaf. The study employed descriptive case study design, utilizing both quantitative and qualitative in gathering data. The study was guided by Total Communication theory. The study took an exploratory approach and focused on the quality of communication during T/L processes in special school. Data was collected mainly through lesson observation, questionnaire and interviews with teachers and learners with HI. English and KSL were the main language used in data collection. The study found that, assessment practices seemed not to be suitable for learners with HI to express what they knew. Although teaching and learning took place in SL assessment was through reading and writing in English. In addition, while Deaf teachers did not generally encounter communication problems in teaching, most hearing teachers lacked sufficient proficiency in KSL (the language of instruction) a phenomenon that affected dialogue in teaching. A few teachers used appropriate T/L materials. This contributed to lack of learners’ participation in T/L process that could affect their academic performance. On the basis of these study findings, the study concluded that, classroom communication is one of the most important aspects to consider when discussing the successful teaching and learning of learners with HI. Therefore, recognizing the expert knowledge of Deaf teachers gained from their experiences as teachers and formerly as learners with HI, and their proficiency in SL would contribute towards providing the learners with opportunities to learn more. In addition, a combination of a general quality improvement of educational resources which would be relevant for all learners and specific interventions for learners with HI is an approach that would support learners with HI to achieve more in their learning.
CHAPTER ONE:
INTRODUCTION

1.0. Introduction

This chapter presents background to the study on determining classroom communication and academic performance of learners with hearing impairment. It further presents the statement of the problem, purpose of the study, research objectives, research questions, significance, scope, limitations, delimitations, theoretical framework and conceptual framework. It ends with operational definition of operational terms used in the study.

1.1. Background to the Study

Communication between people is the sending and receiving of message, it can involve two or more people. According to Hunt and Marshal (2002), communication is the exchange of ideas or information that involves the decoding of intended message by the sender and receiver. Through communication, needs, feelings, desires and ideas are expressed. Information is given and received through communication and in this way one establishes one’s own identity.

Determining classroom communication on academic performance of learners with hearing impairment was central to this study, as rightly noted by Marschark (2003) classroom communication is one of the most important aspects to consider when discussing the successful teaching and learning of learners with hearing impairment. Realizing that to some extent that classroom communication exists between learners and teachers, it becomes necessary to determine classroom communication and academic performance of learners with hearing impairment.
Hearing Impairment is experienced in all parts of the world, although with varying degree of severity (WHO, 2012). It is estimated that, 5.3% of the world’s population suffer from hearing disabling problem with about 91% and 9% of those people being adults and children respectively. About 56% of persons suffering from hearing impairment are males’ compared to 44% females. The problem is most prevalent in South Asia, Asia pacific and sub-Saharan Africa in that order (WHO, 2012). Although, there are no comprehensive statistics on the number of children with hearing impairment in Kenya, it was estimated over five years ago that the number of children with HI was about 23,000 countrywide (NDCS, 2008). However, this only represents less than 10% of the number of persons with hearing impairment in the entire country if WHO (2012) approximations of the adult to children prevalence of hearing impaired are anything to go by.

The number of learners in the schools for Deaf according to KSDC (2001) statistics has tremendously increased over the years from 1,710 in 1982 to 6,000 in the year 2001. No empirical study has been carried out to ascertain reasons for the steady rise but it is speculated that it could either be due to the increasingly high prevalence of diseases causing deafness such as malaria, measles, meningitis or could be due to effective campaigns, awareness and establishment of Educational Assessment and Resource Services (EARS) across the country and the sub-sequent availability of educational opportunities for the deaf. Despite the improvement there are still about 30% of deaf children not attending school (KSDC, 2001). For the purpose of this study, the term hearing impairment is used as an umbrella term that refers to all degrees of hearing loss from slight to profound.

Findings over the years (Marschark 2003, Duncan 2006, Borefoot 2011, Adoyo 2004 and Lewis 2009) have shown that, learners with hearing impairment have consistently trailed behind their hearing counterparts in academic performance. While education of learners with
hearing impairment in Kenya is not a recent development, it has not shown significant improvement on their academic performance as was expected. For instance, in Kenya certificate of primary education (KCPE) National examination pass rate for learners with hearing impairment in schools for learners with hearing impairment from the year 2010 to 2014 ranged between 11% and 35% (MoEST 2010-2014) KCPE analysis. This performance is worry some because it is too low. The results are as in Table 1:1

Table 1:1 KCPE Exam Analysis (2010-2014) for Kambui Sch for the Deaf

<table>
<thead>
<tr>
<th>Subjects/Mean score</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>27.80</td>
<td>38.17</td>
<td>45.00</td>
<td>29.70</td>
<td>37.00</td>
</tr>
<tr>
<td>KSL</td>
<td>48.10</td>
<td>47.75</td>
<td>51.50</td>
<td>54.78</td>
<td>53.36</td>
</tr>
<tr>
<td>Mathematics</td>
<td>28.00</td>
<td>26.38</td>
<td>28.83</td>
<td>31.57</td>
<td>30.68</td>
</tr>
<tr>
<td>Science</td>
<td>21.80</td>
<td>12.41</td>
<td>20.22</td>
<td>21.30</td>
<td>18.47</td>
</tr>
<tr>
<td>SST/RE</td>
<td>11.60</td>
<td>16.88</td>
<td>15.11</td>
<td>16.09</td>
<td>17.73</td>
</tr>
</tbody>
</table>

In educational institutions, success is measured by academic performance or how best a learner meets the standard set out by the government and the institution itself. The emphasis on academic performance is made to identify, track, encourage and evaluate the progress of learners in schools. As rightly stated by Borefoot (2011) areas of achievement and failure in a learners academic life need to be evaluated in order to foster improvement and make full use of the learning process. As a result discussions of quality education for learners with hearing
impairment have turned towards communication modes and the experiences of these learners in the various types of classrooms and schools in which they are enrolled. However, not much is known about the classroom communication and academic performance of learners with hearing impairment in Kenya.

Education of learners with hearing impairment worldwide has been one of the most controversial topics. This is because it has been difficult to come up with an agreed upon communication mode(s) that best suits learners with hearing impairment. Classroom communication involves interactive communication and responses between teachers and learners (Marschark, M, Convertino, C. and LaRock, D. 2006). This implies that classroom communication for learners with hearing impairment should comprise a special education teacher, medium of communication such as Kenyan Sign Language and learners with hearing impairment. Classroom communication may also encompass interaction between two or more learners. A study carried out in western region of Kenya by Adoyo (2004), on how to utilize Kenyan Sign Language (KSL) as the language of instruction in classroom for learners with hearing impairment found out that, it was difficult to find appropriate classroom communication mode(s) that effectively provides access to curriculum content. Subsequently there have been changes in search for a better teaching methodology from pure oralism to manualism to Total Communication and now to Bilingual/Bi-cultural (Bi-bi) approach. Despite the changes in teaching methodology, the question has remained unresolved as to which particular method best suits learners with hearing impairment. A number of studies have reported that, learners with hearing impairment still finish school semi-illiterate. For Instance, existing studies by Duncan (2006), Ekwama (2003) and Borefoot (2011), have pointed to the inappropriate language of instruction as the key issue, which must be strongly and urgently addressed.
Hearing impairment, like any other sensory impairment could pose serious academic, communication and social problems. According to Duncan (2010), the sense of hearing plays a key role in the use and development of verbal language and communication. Similarly, Ainscow (2007) asserts that communication has to do with acquisition and abstraction of meaningful information processing and storing in short term and long term memory and retrieval of informational. It includes language components of phonology, syntax morphology, semantics and pragmatist. It can be seen from the analysis that, classroom communication is a very important component in teaching and learning processes of all learners with or/and without special education needs. This is because classroom communication enables learners to understand the content of the lesson and also to communicate effectively with the teacher as well as their fellow counterparts. Ainscow (2007) asserts that classroom instruction that produces positive results acknowledge the need for a liberal use of non-verbal cues, learner’s involvement and team communication.

However, there is an observable increasing gap in vocabulary growth, complex sentence comprehension and construction among learners with hearing impairment to the point of posing a challenge on their academic performance. For instance, learners with hearing impairment are observed to have limited vocabulary as compared to hearing learners. This is because learners with hearing impairment enter school with limited knowledge of vocabulary. The discrepancy broadens overtime between hearing learners who have rich knowledge of vocabulary and learners with hearing impairments (Malunga, 2007).

There is emphasis by the Kenya Institute of Education (KIE) teachers who teach learners with hearing impairment to engage as many classroom communication mode(s) such as KSL, finger spelling, writing, visual aids, gestures and body language as possible (KIE, 2004). Kenya Institute of Education has even gone a step further by making it mandatory for each
and every lesson to have talking walls so as to stimulate continuous visual influences. These include diagrams, charts, maps, pictures and learners work. Marschark (2003) opined that classroom communication is the most important issue to consider when discussing successful teaching and learning experiences with the learner with hearing impairment. This is because it is the very aspect where his or her disability poses the most challenge for him or her and his or her teacher. On the basis of this background it remained unknown about classroom communication and academic performance of learners with hearing impairment in Kenya.

1.2. Statement of the problem

Education of learners with hearing impairment has been one of the most controversially discussed topics worldwide. The issue has been the difficulty in finding an appropriate classroom communication mode that effectively provides access to curriculum content (Marschark, M. Convertino, C., LaRock, D., 2006). Findings over the years { (Adoyo (2004), Borefoot (2011), Duncan (2006), Lewis (2009) and Marschark et al (2006)), have shown that learners with hearing impairment have consistently trailed behind their hearing counterparts in academic performance. This is a challenge to the quality of education learners with hearing impairment receive at primary school level as earlier discussed.

Advances that have been made in this field relating to the education of learners with hearing impairment often have been led by scientific studies on topics such as Instructional Method (Adoyo,2001:2:4) Self–esteem (Bunyasi,2010) Interaction of language and cognition (Marschark, 2003) and circles of influence (Duncan,2010). In the same way many of these basic studies clearly have been driven by the need to understand the complex learning processes necessary for educational, personal and vocational success of hearing impaired individuals (Duncan, 2010). Their findings attribute this to factors such as rigid curriculum, social related, cultural among others. In response to these problems, the government of
Kenya introduced Free Primary Education (FPE) and additional funds to support learners with Special Needs. In addition, trained teachers in Special Education were employed in Special schools. Kenya Institute of Education (KIE) has addressed issues that were a challenge to learners with hearing impairment such as developing sign language dictionary, KSL was made language of instruction and it was also made examinable subject at primary and secondary level (MoEST, 2004). Despite these efforts academic performance of learners with hearing impairment in special schools remain constrained such that few of these learners graduate to high school and within the expected time period (UNESCO, 2005). This means that there are other crucial factors relating to academic performance of these learners that deter their academic performance in Special schools, which needed to be investigated in the Kenyan context. This study contended that such factors could be linked to classroom communication. The possibilities of such factor had not been established through systematic research as possible cause to the decimal academic performance of learners with hearing impairment in Kenya.

1.3. Purpose of the Study

The purpose of the study was to determine classroom communication and academic performance of learners with hearing impairment.

1.4. Objectives of the Study

The Study was guided by the following objectives:

1. To establish the teachers knowledge and skills level in the use of communication modes in teaching learners with hearing impairment.

2. To establish the supportiveness of classroom environment to effective classroom communication.
3. To establish effects of classroom communication on academic performance of learners with HI.

4. To find out whether teaching and learning materials used by teachers influence the learners’ academic performance.

1.5. Research Questions

The following research questions were used to guide the study:

1. To what extent does the teachers knowledge and skills level of communication modes affect the academic performance of learners with hearing impairment?

2. How does the classroom environment support effective classroom communication for learners with hearing impairment?

3. How does classroom communication affect academic performance of learners with hearing impairment?

4. How adequate are learning materials for learners with HI?

1.6. Significance of the Study

Poor academic performance implies undesirable results through dropout and repeating classes. It was therefore hoped that, the findings of this study may motivate policy makers and curriculum planners to place due emphasis on the importance of classroom communication towards the improvement of academic performance of learners with hearing impairment.

At a time when there is so much emphasis on quality education by the MOE (2009), a study of this nature is necessary. It is therefore hoped that its findings may contribute to knowledge of classroom communication that would enhance academic performance of learners with
hearing impairment. It is also hoped that, the findings may enhance classroom communication between teachers and learners with hearing impairment. It may also assist the Teachers Service Commission (TSC) while deploying and posting teachers to special schools for learners with hearing impairment, for not every teacher who has a certificate in Special Needs Education can teach learners with hearing impairment.

The Quality Assurance and standards division may use the findings of this study to formulate KSL in-service programs for teachers. In addition, the findings may motivate policy makers and curriculum planners to place due emphasis on the importance of effective classroom communication towards the improvement of the academic performance of learners with hearing impairment.

1.7. Limitation and Delimitation of the study

1.7.1. Limitation of the study

Academic achievement is a multi-dimensional concept. It depends on interactive of very many factors. The factors under study were influenced by intervening variables which were hard to control. Lack of control of extraneous factors which contribute to the academic performance of learners with hearing impairment such as learners’ intelligence, anxiety, learners’ degree of hearing impairment and school environment were hard to control.

Communication constraints are many and diverse, however, the researcher was only limited to a few of them due to limited time. One of the limiting factors was that, learners with hearing impairment were not formerly assessed to ascertain the degree of their hearing losses. As a result, the communication needs of the individual learners were not conclusively investigated. Despite these limitations, the findings of the study were still consistent with the reviewed literature.
1.7.2. Delimitations of the Study

The study was conducted at Kambui School for the Deaf in Kiambu County-Kenya. The school was chosen because it’s a special boarding school for learners with HI. The study involved the head teacher, teachers and learners with hearing impairment of Kambui School for the Deaf only.

1.8. Theoretical and Conceptual Framework

1.8.1. Theoretical Framework

The study was guided by Holcomb’s (1967) Total communication Theory (Scouten, 1984). Total communication may involve one or several modes of communication (Manual, Oral, auditory and written) depending on the particular needs of the child. The original expectation of total communication was for teachers to use the communication mode(s) most appropriate for a particular child at a particular stage of development. Therefore, there would be situations where signing might be appropriate, others that would call for written communication and still others where simultaneous communication might work best (Reed, 2009).

According to Heward (2006), most learning occurs through interaction with other people. Such learning is possible only when individuals are able to communicate with understanding. Likewise, the quality of the relationship between a learner with HI and her/his teachers is dependent on the quality of communication existing between them. Thus, the choice of communication mode that will be most effective is utmost importance. The main benefit of total communication is that it can open all avenues and modes of communication for learners with H.I. Teachers might be reluctant to choose one mode of communication over another. Total communication however, allows a variety of combination.
Total communication therefore, assisted learners with HI by giving them a number of options for communication. This in turn helped the learners to express themselves; moreover TC the teachers to engage all possible modes of communication to enhance the learning experiences.

Another contribution by the theory to this study is that, it contributed to the understanding that modes of communication needed to be adjusted based on the situation. For instance, sometimes signing is the right method to use; other situations writing may be the best mode to use. In addition, some teachers favored TC as a catch all that ensured that a learner with HI had access to some means of communication. For instance a learner with HI who could not communicate well orally got additional support of sign language and vice versa. Using TC reduced the pressure on teachers to choose one mode over another. One limitation of TC is that, while the theory may be sound, it may not be put into practice accurately enough in some situations. In classroom, TC often becomes a simultaneous practice of combining manual components (signs and finger spelling) with spoken components used in English word order. The very nature of the two modes (spoken and visual) may cause signers or speakers to alter their message to accommodate one or the other mode causing a compromise between the two methods (Ekwama, 2003). Although the idea of individualization is at the heart of total communication, teachers are limited to how many different modes they can use at one time. Therefore, Total Communication guided this study on determining classroom communication and academic performance of learners with hearing impairment.
1.8.2. Conceptual Framework

The conceptual framework presents the frame of reference for this study. The major concepts underlying the study were classroom communication, Communication modes and academic performance of learners with hearing impairment. As far as the Total Communication theory was concerned a learner with HI with good communication skills was likely to have a high level of motivation to perform well in school. A learner who got encouragement to complete his/her classwork whose teachers understand various communication modes was likely to have a high motivation to achieve success and is likely to perform well in school. Learners who are able to communicate well and understand what teachers communicate to them tend to have a high need for achievement as compared to learners who are not able to understand their teachers while communicating with them. The inter-relationship between academic performance and classroom communication can be presented diagrammatically as follows.
To interpret the diagram, academic performance was influenced by effective communication skills. Teachers of learners with hearing impairment who are conversant with different communication modes and have good signing skills and competence in communicating with learners with hearing impairment are motivated to give extra work and complete syllabus and are likely to enhance the learners level of motivation to excel which in turn influence learners academic performance.

1.9. Definition of operational term
For the purpose of this study, key terms were used as follows:

**Academic Performance**: The outcome of education. The extent which a student, teacher or institution has achieved their educational goals.

**Classroom Communication**: The interaction inside the formal classroom that is initiated by the learners and/or the teacher.
**Communication modes:** Communication methods or techniques used in combination with others to communicate or instruct learners with hearing impairment.

**Learning Process:** These terms as used in this study refers to ways of acquiring right behaviors that boost the acquisition of kills and knowledge in life.

**Manual Signs:** Signs whose formation involves the signer’s hands

**Non-manual Signs:** Signs that are formed with the movement of the eyes, face, head and body, normally used along with the manual ones.
CHAPTER TWO:
LITERATURE REVIEW

2.0. Introduction

This chapter highlighted review of related literature basing on earlier researchers findings, directly or indirectly, related to classroom communication and academic performance of learners with hearing impairment. The chapter was organized in line with the study objectives:-

- Communication modes.
- Classroom Environment.
- Classroom Communication.
- Teaching and Learning Materials.

2.1. Communication modes

Communication between people is the sending and receiving of message, it can involve two or more people. Communication is the exchange of ideas or information that involves the decoding of intended message by the sender and receiver (Hunt and Marshal, 2002). Through communication, needs, feelings, desires and ideas are expressed. Information is given and received through communication and in this way one establishes one’s own identity. Effective communication is an important step towards building good relationship and involvement in the community. According to Hunt and Marshal, (2002) hearing impairment in children cause delay in the development of receptive and expressive communication skills. The language deficit causes learning problems that result in reduced academic performance. Communication difficulties often lead to social isolation and poor self-concept. It may have an impact on vocabulary choices and sentence structure (American Speech-Language-Hearing Association, 2010). Communication is the cohesive, compelling force in biological
survival of all human beings as well as in our social, cultural and personal lives. The ultimate purpose of communication in human beings is pursuit of knowledge (Lewis, 2009). The importance of communication in human species cannot be over-emphasized for it is the fundamental aspect of all human interaction. It is through language that humanity has been able to record its history and transmit its cultures from one generation to the next. Furthermore, the ability to communicate has enabled humans to build societies, organizations and social groups that are needed for survival and better living (Okeke, 2003).

The need to communicate is clearly indicated by the fact that all human societies have developed signal system for communication based on the spoken word, using the aural/oral channel for reception and expression. According to Reed (2009), most members of societies acquire language of their group in an apparently effortless fashion during the first few years of life. He pointed out that a child will effortlessly internalize on auditory-based language system if the infant has a reasonably intact sensory system. The infant must also not have severe intellectual or cognitive deficit, and should be exposed to a reasonably stimulating environment. The parents or care givers of the infant also ought to be reasonably verbal, providing a reasonably warm and loving atmosphere and communicate reasonably fluently with the infant. This internalized effortless language system will serve as a foundation of the child’s receptive and expressive language in early childhood and as a base on which reading and writing and all education factors related to them will later be developed. Lewis (2009), in view of the foregoing, severe and prolonged deprivation in any of these areas will eventually produce communication and language problems (Duncan, 2006). The primary problem seems to be interference with the immediate figures in his/her environment.

Classroom communication involves interactive communication and responses between learners and teachers (Marschark, M, Convertino, C. and LaRock, D; 2006). This implies that
classroom communication for learners with hearing impairment involves special education teacher, medium of communication such as KSL and learners with hearing impairment. It may also encompass interaction between two or more learners. A study carried out in Kenya by Adoyo (2004) on how to utilize KSL as the language of instruction in classroom for learners with hearing impairment, found that it was difficult to find an appropriate classroom communication mode(s) that effectively provide access to curriculum content. Subsequently there have been changes in teaching methodology from pure Oralism, Manualism to Total Communication and now to Bilingual/bicultural/approach. Despite the changes in teaching methodology, the question has remained unresolved as to which particular mode best suits learners with hearing impairment.

Communication modes are communication methods or techniques used in combination with others to communicate or instruct learners with hearing impairment. Professionals have developed educational programming along three different lines of thought, the oral/aural approach, emphasizing listening, speaking and speech reading (lip-reading). The manual mode, teaching finger spelling, or some form of sign language as the primary mode of communication and the philosophy of TC approach, incorporating a combination of methods which are individually developed to meet the needs of a specific person (Duncan, 2006). There have been a lot of controversies on the best approach to be used in educating learners with hearing impairment. The electric approach makes use of most components, from both sides that are Oralism and Manualism. In order to ensure effective communication with and among learners with hearing impairment, the educator should adjust to any mode to make sure learners with hearing impairment responds to the message (Reed, 2009).

In Kenya there was a controversy over which medium of instruction was suitable for learners with hearing impairment. Different modes such as Oral, Sign Language, Sign Extract English
and Sign English were tried out, but they seemed not to fulfill communication need for these learners. This was because Signed Exact English proved hard for learners with hearing impairment to comprehend (Adoyo, 2001). In 1986, the ministry of education established Machakos School for the Deaf as a pilot school to try out TC; a philosophy which allows learners with hearing impairment with their teachers to use various modes of communication to facilitate better understanding.

It comprises of Signed Exact English, Signed English, KSL, Finger spelling, Lip-reading, drawing, pointing among others being used interchangeably, T.C proved an effective method of communication hence it was officially adopted by the Ministry of Education Science and Technology (MoEST, 1988).

The KIE however observed that during the piloting of TC, KSL was used more often by learners as they interacted in the classroom discussions and during their free time. KIE therefore recommended for a research on the relevance and development of KSL as a medium of instruction (Ndurumo, 2008). These views backed the Kamunge report of 1988 which suggested that, research needed to be conducted to develop the most appropriate sign language for Kenyan learners with hearing impairment.

Kenyan Sign Language was then gradually developed by KIE in conjunction with adult persons with hearing impairment (Ndurumo, 2008). The ministry of education in 2004 recognized the use of KSL as an effective medium of communication for learners with hearing impairment. It was therefore adopted as a national language; same level as the national Kiswahili language. KSL was further declared examinable in schools for learners with hearing impairment as from the year 2010 (Kenya National Examination Council, 2009).

Owiko (2009), in his study in Nyanza province on factors contributing to poor performance at KCPE among standard eight pupils in primary school for learners with hearing impairment,
reveals that there was need for research on the use of KSL as a tool to enhance better performance among learners with hearing impairment. This is backed by Bunyasi (2010), who revealed teachers lack of skills in KSL and inadequacy of resources in classes for learners with hearing impairment. For the purpose of this study the researcher discussed the following; Verbal (oral/Aural), Finger spelling, Total Communication, Kenyan Sign Language, Sign Exert English and Sign Language.

2.1.1. Verbal Communication (Oral/Aural)

Verbal communication is an oral approach which emphasizes auditory training, articulation ability and lip-reading (Duncan, 2006). In the US, the oral/aural approach is historically the oldest. Oralist advocates have believed that learners with hearing impairment are best served by instruction in reading, maximum use of residual hearing (through amplification and auditory training) and in articulation to improve speech (Marschark et al; 2006). Pure oralism strongly emphasizes no signing and speech is the only acceptable means of response. The goal of auditory verbal practice is for learners with hearing impairment to grow up in “typical” learning and living environment that enables them to become independent participating and contributing citizens in a complete mainstream society. This is because all learners with hearing impairment deserve an opportunity to develop the ability to listen and use verbal communication with their families and communities, (Marschark et al, 2006). Listening skill is developed to increase spoken language competence. In this case speech is the primary stimulus for communication.

A study by Okeke (2003) carried out in Ghana highlighted that undoubtedly, educators were aware of the unrivaled importance of oral language in teaching and learning processes. Similarly Ekwama (2003) who carried out a study in Nigeria reported that oral
communication facilitated meaningful teacher-learner interactions than any other form of communication. This made learning more readily mediated than writing, signing, gesticulating pantomiming or whatever medium. Research conducted in schools for learners with hearing impairment especially in United States of America showed that this approach performed quite poorly in academic achievement apart from less than 10% who performed well since they were partially hearing (Reed, 2009). Oralism requires patience and in most cases learners with hearing impairment feel frustrated and humiliated in the process of learning. Though it’s difficult to lip-read, many learners with hearing impairment naturally try to lip-read. From 1958 to 1985, Kenya used pure oralism.

Lip-reading is the ability to read lip patterns Duncan (2010) reported that, it was very difficult for most learners with HI to rely solely on lip-reading to communicate as they could only pick up a small percentage of what was being said. Therefore, lip-reading was usually used alongside other communication modes. Duncan (2010) noted that lip-reading involved utilizing clues from the topic of conversation, facial expression, the eyes, the rhythm of speech and body language. It must be noted that learners with moderate hearing usually did not understand what the teacher said without using hearing aids. When they were not using hearing aids, the learners with HI relied on lip-reading. However some learners could only lip-read for a certain period of time. Duncan (2010) also found that, learners who only used lip-reading for a long period of time lagged behind in their comprehension, had limited vocabulary poor pronunciation of words and speech sounds and felt fatigued towards the end of a lesson and lost concentration. Not only did such learners misinterpret verbal speech but they also frequently misinterpreted written lessons and reading materials.

A study carried out by the University of Cambridge (2003) highlighted that, to some extent, many learners with HI relied on lip-reading despite being aware that only about 30% of
words could be lip-read clearly. In addition, not all people with a hearing impairment could lip-read well. Lip-reading can be used in line with facial expressions, for instance, much information can be conveyed with a smile or a frown. Facial expression, can convey a message to learners with HI in that, as the learners lip-read, the facial expressions tell the context in which the message is delivered. In addition facial expression for happiness, sadness, anger and fear are similar throughout the world. Since oralism did not produce expected academic improvement, educators turned to manualism modes of communication.

2.1.2. Manual Communication

Manual communication is a way of communicating by use of signs and finger spelling. This include, Finger selling, Total Communication, writing. Sign Exact English, Sing language to mention but a few. This study discusses the following; Finger Spelling, Total Communication, writing, Sign Language and Kenyan Sign Language.

Finger spelling is writing in the air. It forms hand shapes representing the 26 English alphabetical letters and can be used to spell words manually. It warrants for an exact presentation of written language when communicating with learners with HI. A single benefit of finger spelling is the absence of the limitation of the number of words that can be spelled. A conflict which may result between the English signing and the learners with HI mother tongue (sign language) may be solved by the application of finger spelling. Heward (2006) indicated that communication by finger spelling for learners with HI is one of the oldest known forms. He observes that finger spelling is sometimes used to connect signs into sentences, or to odd stress in sign languages. Finger spelling is particularly useful for introducing names, neologisms and technical terms. The manual alphabet is one-to-one cipher for letters of an alphabet on the fingers. In the United Kingdom, the manual alphabet is two-handed, but elsewhere it is usually displayed on one hand. In Kenya, the one-handed
American manual alphabet has been adopted. There are twenty six positions or combination of finger placements and hand shapes corresponding to the twenty six letters of the English alphabet. These, therefore, are shown without ambiguity and can be used to spell out a word with the fingers, as with the conventional spelling of English letters.

Finger spelling is a slow form of communication, Heward (2006) reported a maximum transmission rate of about “sixty words per minute, roughly three times slower than rather fast speech or signed communication. It is for this reason that instructors ought to use finger spelling together with signs; such knowledge will enable clear and precise communication with learners with HI. Finger spelling can be used in other ways. Besides its direct use for names and technical terms, it has a role as a lexical tool for learning of such items, and can reinforce the written form of new words (ASHA, 2001). ASHA (2001) also observed that, signs tend to communicate content words, whereas finger spelling is useful for function words, such as articles and prepositions. It plays a complementary role to signs when it may significantly increase understanding of the signed message. Studies in comparison of Rochester method (fingerspelling and speech) and oral method come up with TC.

**Total communication** means all the full spectrum, speech, formal signs, finger-spelling, speech reading, writing as well as other methods that may be developed in future (Reed, 2009). Ainscow (2007), suggested that intervention procedures aimed at developing speech reading skills should use T.C. Total Communication may involve one or several modes of communication (manual, oral and written) depending on the particular needs of the learner (Scouten, 1984). The original expectation of TC was for teachers to use the communication mode most appropriate for a particular learner at a particular stage of development. Therefore, there would be situations where signing might be appropriate, others that would call for written communication and still others where simultaneous
communication might work best, (Reed, 2009). Total communication should help to reduce the dominant position taken in class by the teachers of learners with HI. It should help to induce rapport between teachers and learners, besides assisting a learner with hearing impairment to communicate with hearing learners and adults. TC offers a prospect of the learners with hearing impairment participating in an educational curriculum more like that of the hearing learner. It also promises insights into spoken language, by providing continuity opportunities for learners with hearing impairment to analyze and compare spoken and manual/languages. TC is valued because it can provide both a means of communication and away of assisting oral communication. It is as well as by stimulating learner’s attention span, motivation and social interaction. It could also decrease behavior problems (Reed, 2009).

According to Heward (2006), most learning occurs through interaction with other people such learning is possible only when individuals are able to communicate with understanding, likewise, the quality of the relationship between a learner with hearing impairment and his/her teachers is dependent on the quality of communication existing between them. Thus the choice of communication mode that will be most effective is utmost importance.

The main benefit of Total Communication is that, it can open all avenues of communication for learners with hearing impairment. Teachers might be reluctant to choose one mode of communication over another. Total Communication however, allows a variety of combination. One limitation of TC is that, while the mode may be sound, it may not be put into practice accurately enough in some situations. In classroom, TC often becomes a simultaneous practice of combing manual components (signs and finger spelling) with spoken components used in English word order. The very nature of the two mode(s) (spoken and visual) may cause signers or speakers to alter their message to accommodate one or the other mode causing a compromise between the two modes (Ekwama, 2003). Although the
idea of individualization is at the heart of TC, teachers are limited to how many different modes they can use at one time.

Language of instruction policy in schools for learners with hearing impairment in Kenya has changed over the years. From 1958 to 1985, Kenya used a pure oral system of education (MoEST, 2004). From 1986 to date teachers are using TC which according to Adoyo (2002) is simultaneous communication. The communication mode has not produced the wide scale expected academic improvement, although there had been a marked improvement in curriculum access and academic improvement. There is still however dissatisfaction on the type of education for the Kenyan hearing impaired graduates as they have continued to lag behind their hearing counterparts in all academic achievements. As a way of improving learners with hearing impairment education, suggestions have currently been offered to implement the sign bilingual approach, a strategy in which sign language and spoken (written) language are used complementarily as languages of instruction (Adoyo, 2004). Ademokoya (2008) found that even when speaking and signing simultaneously, as was often the practice while engaging TC (speech and signs) to teach learners with hearing impairment, more things were said than signed. Actually the adherent of total communication argues that, TC promotes communication.

**Writing** is also part of mode of communication in total communication. It plays a vital role in classroom communication for learners with hearing impairment. This is because learners with hearing impairment who were not very proficient in sign language benefited from written communication (Duncan, 2006).

**Sign Language** is a visual language expressed by hands, arms and eye movement. It is a language for persons with hearing impairment. SL was the only language that a learner with hearing impairment could acquire from others without special education. In the same way a
learner without a hearing impairment uses spoken language (Ekwama, 2003). Enns (2007) asserts that, sign language could be used as a mode to improve pre-linguistic skills such as eye contact, attention control, imitative and social behaviors. Though SL became the accepted language of communication for learners with hearing impairment, Okeke (2003) found that, this choice was more of necessity than of preference. The incontestable superiority of speech over signs had been confirmed as far back as 1880 at the international conference on Deafness held in Milan. A study carried out by Heward (2006) also found that sign language was practiced in many schools for learners with HI in United States, although it was not very effective in educational circles. A study by Marschark et al (2006) revealed that regardless of teaching pedagogy, philosophy or classroom management, effective communication was fundamental to the instructional process.

Recognition of the potential of SL came from the oral failures, an unfortunately large proportion of learners with hearing impairment who had been educated orally did not perform well in academic achievement tests and their speech was intelligible. Those mentors who based academic attainment on the development of good communication skills argued that, learners with hearing impairment signers who were expert in their native SL could benefit educationally from good signed communication with their teachers (Enns, 2007). However this attitude quickly ran into problems because few of the teachers who were mainly hearing, were not fluent in sign language, rather they used form of signed English. (Enns, 2007) The educational attainment of learners with hearing impairment as a whole continued to be unacceptably low, whether the learners were educated orally or manually.

Enns (2007) asserts that, curriculum objectives are well understood by learners if they are delivered in the respective learners’ first language. The teachers’ ability to communicate clearly in sign language has been characterized as being unique to learners with hearing
impairment and as being the most favored characteristics of effective teaching. The fluent use of sign language in explaining scientific concepts, for example, has led to active learner classroom engagement, participation and innovativeness among learners with hearing impairment. Moreover the results emerging from studies of reading, writing and academic achievement indicated that, learners with HI of deaf parents are more successful academically than learners with HI of hearing parents are (Lang, McKee, and Conner, 1993).

2.1.3. Kenyan Sign Language

There is no international sign language, but different national sign languages due to the fact that signs are culturally determined. Different sign languages have therefore developed in different parts of the world. For example, Germany Sign Language, Ugandan Sign Language, American Sign Language among others. Kenyan Sign Language is therefore the visual gestural language that serves as the primary means of communication for learners with hearing impairment in Kenya (MoEST, 2003). While many Kenyans still doubts KSL as a complete language, research done by Adoyo (2004) show that, like other sign languages it is a formal, socially agreed on rule governed symbol system that is generative in nature. The components of Kenyan Sign Language are not phoneme (sound) combinations that form words as in spoken languages, but rather are phonological combinations (i.e. hand shapes, hand positions, hand movements and orientation of the palm) that form signs (Lewis, 2009).

Kenyan Sign Language was adopted as a medium of instruction for learners with hearing impairment in 2004 after various modes were tried out and seemed not to fulfill the communication need of learners with hearing impairment (MoEST, 2003). Teaching and learning of KSL must be addressed, because though learners with hearing impairment may acquire sign language in the natural setting provided by the school community, the degree of competence they require for educational purposes, and for complex discourse in their adult
life after school, cannot be achieved from mere exposure to a language spoken or signed. The pertinent question is; “how competent are the teachers in KSL, to not only teach the language but also to use it in curriculum delivery”. As a way of improving academic performance of learners with hearing impairment, suggestions have currently been offered to advocate for KSL as language of instruction (Owiko, 2009). Adoyo (2002) in his research comparing bilinguals and monolinguals noted that bilinguals have high cognitive flexibility, are more sensitive to semantic relation among words, and are creative in solving problems. One way of approaching sign bilingualism in the education of learners with HI in Kenya, is to let KSL and English share the role of medium of instruction in the teaching at all levels of education. Improving English literacy would lead to improve academic performance (Adoyo, 2004).

Lewis (2009) carried out a study on sign languages of the world, in his findings on KSL, he reported that 32 schools out of 71 were using KSL, they included Kerugoya, Nyangoma, Bondo, Karen, St, Angela Mumias, St. Antony Webuye, Machakos, Sakwa and St. Martin Mumias for learners with hearing impairment among others. In his study in Nyanza Province on factors contributing to poor performance at KCPE among standard eight pupils in primary schools for learners with HI, Owiko (2009) reveals that, there is need for research on the use of KSL as an instructional mode to enhance better performance among learners with hearing impairments. This is backed by Bunyasi (2010) who revealed teachers lack of skills in KSL.

In Kenya, learners with hearing impairment need a lot of exposure to KSL for cognitive development and for second language acquisition. The school administration must ensure that the school environment is linguistically rich to facilitate rapid and easy sign language acquisition at the same time using it to deliver curriculum content (Lewis, 2009). In her doctoral dissertation; Bunyasi (2010) revealed that teachers proficient in KSL were inadequate. Bunyasi (2010) cited remarks from one principal who said that; “Teachers
require constant refresher courses in sign language because it is a language like any other language and it grows with time. Now we are introducing KSL in our curriculum yet not all teachers are good at it”. Bunyasi (2010) also observed that, most teachers were not conversant with KSL, but noted that most learners with hearing impairment preferred using KSL for purposes of interacting with one another outside the classroom. Muiti (2010) in her study on; Hindrances to effective learning of learners with hearing impairment in Meru North District, Kenya, asserted that most head teachers and teachers were not trained in the use of KSL and hence were ineffective in communicating using KSL. She suggested that all teachers in schools for learners with hearing impairment should be trained in KSL because learners with hearing impairment learn just like their hearing counterparts if given access to modes they need and the language they understand.

A study by Adoyo (2004) reports teacher’s lack of competence in KSL and attributes this to lack of interest in it. Adoyo (2004) argues that although teachers interact daily with learners with hearing impairment who are native KSL users and who can provide them with an ideal environment for signing, there is still a low attitude towards this language. This is contrary to other countries that have reported significant academic improvement through the use of their respective sign languages such as American Sign Language, Germany Sign Language, etc. Muiti (2010) and Adoyo (2004) findings reveal the existing gaps hence necessitate determining classroom communication and academic performance of learners with HI. It should be noted that KSL is not a written language. The function of Kenyan Sign Language is to transmit information visually between people and not on paper. While this helps learners with HI communicate effectively, it does create some confusion because signs are known and used by a small minority of people (Adoyo, 2004).
The Kamunge report (Republic of Kenya, 1988) on language policy states that, the mother tongue within the catchment area of a school is to be used as the language of instruction in pre-school, the first three years of school and in adult education programs. English is recognized as the official language and the language of instruction from classes 4 up to university. This justifies the use of bilingual approach (KSL) in instruction of learners with hearing impairment where KSL is their mother tongue (Republic of Kenya, 1988).

A report carried out in Nigeria by Ademokoya (2008) found out that, it was important to bear in mind that, learners with hearing impairment have varying degrees of understanding of English. Some learners could still be acquiring a full language base and errors could occur in their written expression. Teachers who are not proficient with signing can also use writing to express concepts. Findings by Malunga (2007) in a study carried out in Zambia showed that learners naturally try to learn a language that enabled them to be understood. The communication mode used by learners with hearing impairment was dependent on a number of factors such as the level of hearing impairment and which modes they were comfortable with. Research carried out by Ainscow (2007) in New York highlighted that without communication there would be no education, no matter how qualified a teacher and relevant of the adaptation of content. Opinions about the modes to use in programs for learners with hearing impairment should be used on best approaches to instruction.

2.2. Classroom Environment

The classroom environment and activities are what learners experience directly and they are the mechanism through which educational interventions are most likely to produce desired improvements in learner’s performance (Ekwama, 2003). Peters (2004) in a study titled inclusive education, and education for all strategy for all children; revealed that, environment played a significant role in disabling majority learners. Ademokoya (2008) in a study titled
classroom communication and placement of learners with hearing impairment in an inclusive class carried out in Nigeria found that, to support improved outcomes of learners with hearing impairment, it was important that, their direct experiences in the classroom were understood.

A study carried out in Zambia by Malunga (2007) titled an investigation on the use of sign language and language by regular teachers teaching learners with hearing impairment showed that in relation to the learning environment, the best possible conditions were a quiet place with good lightening. This allowed learners with hearing impairment to concentrate and follow what was being lip-read. A study by Liwakala (2003) carried out in Mpika, Zambia, reported that, learners with HI were visual learners. As a result, an attractive classroom with talking walls such as interesting notice boards and charts around the room, visual teaching aids such as pictures, diagrams and world maps assisted the learners to learn. In relation to seating arrangement, Liwakala (2003) found that it was very cardinal that learners with HI sat on chairs so that they could see both the teachers and their peers as much as possible. This was attributed to the fact that, the learners are able to see the various signs, lip-read and interpret body language as they were in full view of all participants in the classroom.

A study carried out by Ekwama (2003) in Nigeria, found that, in order to accommodate learners with hearing impairment who used hearing aids, it was vital to minimize noise. If there was noise from outside, doors needed to be shut and in certain instances, windows were shut. These measures were put in place in order to reduce background noise. It was highlighted that background noise, reverberation and distance from the speaker were real issues for learners with hearing impairment, even those with mild or unilateral hearing loss who were able to hear in the classroom.
2.3. Effects of Classroom Communication on Academic Performance of
Learners with Hearing Impairment

Classroom communication is important for transmitting information and imparting knowledge. Communication process is vital for effective teaching and learning within a classroom environment. Classroom instruction that produce positive results, acknowledge the need for a liberal use of non-verbal cues, learner’s involvement and team communication (Ainscow, 2007). Luckner and Muir (2001) pointed out that learners performance was usually defined by a learners success in an academic discipline, an exhibited level of competency on some type of standardized test. Additional identifiers of learner’s performance included organization participation, leadership activities, and good conduct. Hearing contributed greatly to understanding especially in a world where oral communication dominates. Avoke (2005) revealed that hearing stimulated thinking. Thinking was an exercise that concerned the use of the brain and the brain developed in quality as enough stimulation is given. He also revealed that, those who did not hear lived in silence, in isolation from the world of sound and that sound was what guided us socially and intellectually.

A study by Educational Quality Improvement Program, (EQUIP3, 2006) titled building human capacity among at risk youth with HI through academic support targeted at persons with hearing impairment in Malawi, Namibia, DRC, Kenya and Zambia reported that, in developing nations like Kenya, Zambia, Uganda, most teachers working in schools for learners with HI were hearing and had inadequate skills in signing EQUIP3 (2006). Since sign language was rarely used in communication between teachers and learners, learners could not understand their lessons and found it very difficult to learn. Most teachers resorted to writing and pointing as their primary means of communication, Marschark et al; (2006). In his study in New York revealed that regardless of teaching pedagogy, philosophy or classroom management style, effective communication was fundamental to the instructional process.
Academic development therefore was the demonstration of learning of subject content and process. Consequently, while communication access was extremely important to the overall successful education of learners with hearing impairment, no one communication should be at the forefront of academic performance. EQUIP3 (2006) further reported that in developing nations, ninety percent (90%) of learners with hearing impairment were born into hearing families where there was no exposure to sign language or to the existing culture of hearing impairment. These learners with hearing impairment were typically deprived of the communication skills they needed for social development, incidental learning, academic pursuits and gainful employment. A study carried out in the United States of America by Reed (2009) on oralism, TC and American Sign Language revealed a shared characteristic of learner’s diversity in academic, cognitive and communication needs.

Learner’s diversity in academic, cognitive and communication needs, influence the design, development and implementation of a consistent school-wide writing literacy curriculum. Borefoot (2011) reported that when classroom communication was effective learning was easier, goals were met, opportunities emerged for expanded learning learners and teachers connected better and more positive perceptions influenced the overall learning experiences. A study carried out in Britain by Luckner and Muir (2001) found that learners with hearing impairment performed poorer in reading and mathematics than learners with ‘normal’ hearing. This implied that if teachers did not have any knowledge of signing, the performance of these learners was below average all the time. A special report from the special education Elementary Longitudinal Study carried out in the US of America by Marschark et al, (2006) titled “Optimizing academic performance of learners with hearing impairment, access, opportunities and outcomes revealed that, effective communication was critical for both academic success and positive social interactions for all learners. With reference to the aforementioned, it can be argued that when communication skills are lacking, academic
performance is negatively affected. A study done by Albertine & Lang (2001) that aimed to determine how well learners with hearing impairment understood science concepts. They analyzed a sample of 288 written contents in science literacy for learners in grade 6 through 11 and reflective comments from their teachers. The teachers views in this research established that the mode of communication (verbal or non-verbal) well acquainted to the learners who are hearing impaired had an impact on their scientific content understanding and writing (Albertini & Lang, 2001).

Similarly, Smith and Ramsey (2004) describe the classroom discourse practices of teachers with hearing impairment (native ASL) with 35 years of experience. The teacher used American Sign Language as the medium of instruction in a fifth-grade classroom, in a residential school (Smith & Ramsey, 2004). The analysis of three lessons illustrated the use of American Sign Language linguistic features to encourage learner’s participation. In constructing a teaching style using ASL, the teachers also employed discourse practices common among skilled teachers (regardless of the medium of instruction) such as maintaining a moderate level of control and selectively modeling naïve questions. Smith and Ramsey (2004) analysis confirmed that, the teachers ASL fluency and experience interacted to yield an effective strategy for increasing learners’ involvement. In an action research study on the reflection of Norwegian deaf science teachers in teaching and learning science subjects, fine deaf teachers participated in an interview questionnaire (Roald, 2002). The findings of the Roald (2002) study revealed that;

- The systematic communication of science topic concepts using sign language prior to the reading of the textbooks was considered helpful in content understanding.
- The students benefited from visual illustrations of concept combined with developing and consistently using concept related signs in class.
The students benefited from the discussion of homework questions before engagement since they found the language used in explaining the concepts to be more challenging than the concept itself.

This research study showed that teacher’s communication skill and language of instruction are vital in effective content delivery (Roald, 2002).

Research has shown areas of practical performance in which learners with HI show deficit, this can generally be attributed to communication problems earlier discussed. Children with hearing loss have difficulty with all areas of academic achievement, especially reading and mathematical concepts. Furthermore, studies show child with mild hearing loses (26dB-40dB) to moderate heavily losses (41dB-55dB) on the average achieve 1-4 class levels lower than the hearing peers. (ASHA, 2001) children with severe hearing losses (71dB-90dB) to profound hearing losses (91Db and above) usually achieve skills no higher than 3rd to 4th class level, unless appropriate educational intervention occurs early. The gap between hearing children and those with HI usually widens as they progress through school (ASHA, 2001). Findings also show that the identification of intellectual strengths in such children is hampered by people’s attitude in treating them as deficit learners in most formal educational contexts with the educators assuming that people’s facility in Standard English is an accurate reflection of their level of intelligence (Hunt & Marshal, 2002). Another hindrance on identification of intellectual strength in learners with HI is their inability to communicate during teaching and learning process. The reality is that many learners with HI experience difficulty in mastering skills in English as a second language, given inadequate educational support services and inappropriate teaching methods (Ekwama, 2003).

Research in the United States and Canada has consistently shown that the vast majority of people who were born deaf bid not acquire functional Language competence despite many
years of schooling (Hunt & Marshal, 2002). Teachers of learners with HI even those with special training are accustomed to identifying language and reading problems in their students and, as a result, educational programs are often on remediation.

Continuity of educational provision for learners through early special education, that is from pre-school, primary and secondary years is vital if they are to participate in programs which seek to minimize their potential and provide continuous learning. Students should be categorized on knowing the exact kind of communication assistance required for a student in variety of classroom situation to help the students to benefit from learning experiences.

2.4. Teaching and Learning materials

Large scale school effectiveness studies have highlighted the importance of textbooks and other learning materials on students’ performance. Much studies in developing countries does seem to suggest that resources do matter and the single most important cost effective input to the textbooks and other pedagogical and learning materials. A study carried out in the United Kingdom by Stubbs (2002) tilted inclusive education where there are few resources found that, the availability of adequate textbooks and other instructional materials had been shown to be one of the most positive and consistent determinant of teachers willingness to teach as well as learners learning achievements. Findings by Turnbull & Whehmeyer (2010) in a study carried out in New Jersey revealed that instructional strategies for learners with hearing impairment were particularly effective when they emphasized experiential learning, built on the learners current knowledge and skills required them to interact with peers, capitalized on the visual medium and reduced environmental distribution.

The adequacy or lack of school resource may play a less important role than the efficiency in the use of such resources. The outcome in performance would depend on the quality of
inputs, their suitability to curriculum or the school environment. Not only do materials need to be selected and/or developed to support desirable pedagogical practice but conversely the availability of instructional materials has implication for pedagogical practice. Research carried out by Ainscow (2007) in New York highlighted that without communication there would be no education, no matter how qualified a teacher and relevant the adaptation of content, methods and organization may be often, opinions about the methods used in the learners current knowledge and skills required them to interact with peers, capitalized on the visual medium and reduced environmental distribution.

The adequacy or lack of school resource may play a less important role than the efficiency in the use of such resources. The outcome in performance would depend on the quality of inputs, their suitability to curriculum or the school environment. Not only do materials need to be selected and/or developed to support desirable pedagogical practice but conversely the availability of instructional materials has implication for pedagogical practice. Research carried out by Ainscow (2007) in New York highlighted that without communication there would be no education, no matter how qualified a teacher and relevant the adaptation of content, methods and organization may be often, opinions about the methods used in programs for learners with HI were based on best practices or approaches to instruction. Therefore, it is very important that the learning materials that learners with HI used to be adapted to fit their communication and educational needs. In the past, educators of learners with hearing impairments focused primarily on language and communication variables (Marschark, 2006) at the expense of quality education.

Instructional materials such as diagrams, pictures, graphs and wall charts are very essential in the teaching and learning process and more so to a learner with Hearing Impairment as they reduce reading and language demands. This is because visual methods of teaching and
learning create a more lasting experience and related most reading to other sensory experiences (Marschark et al, 2006) instructional materials accomplish (83%) of what is learnt through sight activating learners in the learning process. They make the learning become very interesting even to hyperactive and hypoactive learners. By seeing over and over again, the brain may be able to recall what has been learnt. Some of the concepts become more visible and self-explanatory from the diagrams. It reduces the language demands especially for learners with HI. According to the researcher, when charts and pictures are well displayed in the classrooms, the learner can look at the charts and review their own work. This can also help the learner to connect ideas and remember other related facts. For example, a chart with multiplication table will assist the learner to work out addition, division and multiplication problems.

According to Stubbs (2002) other areas of instructional materials are the technological explosion in the area of HI. These are hearing aids (group/individual), television, telephones and computers. All these devices assist persons with HI to communicate with and/or have access to information. The researcher sought to find out the adequacy of learning materials for enhancing classroom communication.

2.5. Summary

The literature reviewed had examined issues and agreements underlying the classroom communication and academic achievement for learners with HI as brought out by various researchers. The reviews had vividly captured gaps existing concerning communication in schools for learners with HI. Previous studies that were conducted dwelt on factors hindering effective teaching and learning activities for learners with HI (Kamonya, 2008) and effects of sign language as mode of instruction, and acquisition of English affixes by learners with HI form two learners (Wamae, 2003). Analysis of the literature showed that a study by EQUIP3
(2006), Adoyo (2004) and Marschark et al (2006) focused on capacity building of learners with hearing impairment and that of Malunga (2007), identified learners and teachers knowledge of HI. Evidence has emerged showing the need to use appropriate medium of instruction accompanied by relevant teaching and learning materials. None of those studies addressed the impact classroom communication and academic performance of learners with HI in Kenya. This gap motivated the researcher to conduct a study which investigated on classroom communication and academic performance of learners with HI. The general conclusion that was drawn from the revealed literature was that, when individual learner’s classroom communication needs were met, teacher to learner communication improved and the academic performance also improved.

CHAPTER THREE:

RESEARCH DESIGN AND METHODOLOGY

3.0. Introduction

The purpose of the study was to determine classroom communication and academic performance and academic performance of learners with hearing impairment. This chapter describes the procedures and strategies used in the study. The chapter thus contains the research design, variables, locale of the study, target population, sample size and sampling procedure, research instruments, piloting, reliability and validity, data analysis, finally the logistical and ethical considerations.
3.1. Research Design

Research design provides framework for the collection and analysis of data. The study adopted descriptive case study design, utilizing both quantitative and qualitative techniques in gathering data. The design produces data that is holistic and in-depth. It has ability to determine and report things the way they are and describe what is in a social system such as a school (Orodho, 2009). This design was considered appropriate because according to Aaker, Kumar, and Day (2007), a case study looks intensely at an individual or a small participant pool, drawing conclusions only about that group and in that context. A case study therefore can be individual person, an event, social group or an institution. The design was chosen because the researcher focused particularly on Deaf community within a concentration. An in-depth first hand data on determining classroom communication and academic performance of learners with hearing impairment, its effects and challenges were evaluated and descriptively reported. The researcher therefore utilized this design to collect exhaustive information from head teacher, teachers and learners with hearing impairment. A mixed method procedure was used in which survey and observations were employed throughout the study. The survey was important to find out learners and teachers perception relating to classroom communication and its necessity and importance for academic performance. A questionnaire was used for this survey. Classrooms observations were necessary to investigate classroom communication practices of teachers and learners with hearing impairment.

3.2. Research Variables

According Mugenda and Mugenda (1999), available is a measurable characteristic among the subjects. It is also an empirical property that is capable of taking two or more values (Orodho, 2009). Independent variables are those that influence the outcome. A dependent variable on the other hand is a result of the influence of independent variable s. The study had
both independent and dependent variables. The independent variable in the study was
communication. The dependent variable was the academic performance of learners with
hearing impairment.

3.3. Location of the Study

The study was conducted in a school for learners with hearing impairment in Kiambu
County-Kenya, namely Kambu School for the Deaf. The school caters for all categories of
hearing impairment. The institution was started in 1965 by the P.C.E.A Women’s Gild as a
feeding and rehabilitation programme: now it offers school facilities for learners with hearing
impairment. It also offers a secondary and Vocational Training Centre. It has a long waiting
list due to its proximity to Nairobi. Vocational training is offered in hair styling, knitting,
tailoring, metal work, cooking and carpentry/joinery. Learners in upper primary and
vocational training do computer training in the afternoon. The researcher identified the
institution since it is the only institution of its kind in the county. The institution is well
established in terms of facilities for learners with hearing impairment and has admitted
learners with hearing impairment from within the country Kenya and from the neighboring
countries such as Tanzania, Uganda, Sudan and Somalia who learn up from primary,
secondary and vocational levels. This study focuses on primary section only. The school has
251 learners (129 boys and 122 girls) in primary section. It has 25 teachers (12 male and 13
female), of which 3 female teachers are hearing impaired. The teachers come from different
parts of the country (Kenya) and are specially trained for learners with special needs. The
institution was chosen because it is easily accessible to the researcher. Another reason is
because no current study has been carried out in the institution regarding classroom
communication and academic performance of learners with hearing impairment.
3.4. Target Population

A target population is the larger group which one aspires to apply findings (Fraenkel & Wallen, 2006). The total target population comprised of 276 respondents (N-276). The target population of the study consisted of all the 251 learners (129 boys and 122 girls) with hearing impairment and 24 teachers (11 male and 13 female) as well as the head teacher. According to reports from Githunguri Sub-county Education Office (KCPE 2012) learning in the school has been on the decline. It was therefore necessary to conduct a study from the person’s whose general holistic behavior is believed to play a great role in the learning process of learners with hearing impairment.

The teachers were purposively sampled on the basis of being trained in special needs education for learners with hearing impairment and they were the implementers of academic achievement in the school, hence assured to have appropriate information on the classroom communication and academic performance of learners with hearing impairment. The head teacher was also considered appropriate because he coordinated all activities in the school including how teaching and learning takes place in classroom for learners with hearing impairment. He also has information on training levels of teachers in SNE and resources available. Learners were also considered important in the sense that they had information regarding their academic performance in relation to classroom communication. It was from this population that sample was drawn.

Table 3.1 shows target population as for the year 2014.

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>11</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Learners</td>
<td>129</td>
<td>122</td>
<td>251</td>
</tr>
<tr>
<td>Head teacher</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>141</td>
<td>135</td>
<td>276</td>
</tr>
</tbody>
</table>
3.5. Sample Size and Sampling Technique

A sample is a small portion of a target population. Sampling means selecting a given number of subjects from a defined population as a representative of that population (Kothari, 2004). Kothari adds that the size of the sample should neither be excessively too large nor too small and generally it must be optimum. He adds that the sample size depends on sizes of population, kind of study as well as the nature of the population. According to Didier (2013), 30% of the target population is really acceptable. The current study therefore adopted a sample size of 25.7% of the total population in reference to the nature of the population under study. In the current study, probability and non-probability sampling techniques were used to select the sample size. Probability sampling is a method of sampling that involves randomization whereas non-probability sampling is the method that does not use random selecting techniques while selecting the sample (Fraenkel et al, 2006).

The current study used purposive sampling to select the head teacher. Simple random sampling was used to select a sample size of 10 teachers and 60 learners giving a sample total of 71 participants (n-71). Information in Table 3.2 presents the sample distribution of respondents.

Table 3.2 Sample size

<table>
<thead>
<tr>
<th>Sample</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Learners</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Head teacher</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>35</td>
<td>71</td>
</tr>
</tbody>
</table>

As shown in the table 3.2, the sample comprises of the head teacher, 10 teachers, (5 male and 5 female) and 60 learners (30 boys and 30 girls) giving a total of 71 sampled respondent. Both the questionnaires and the interview schedule were constructed in open-ended and closed-ended questions.
3.6. Research Instruments

The methodological instruments used for gathering information for this study were questionnaires, interviews, observations and documents.

3.6.1. Questionnaires for Learners with Hearing Impairment

The questionnaires for learners with hearing impairment were intended to allow the learners to highlight their view on communication and academic experiences in the institution and the challenges they face during learning activities. All the questionnaires contained closed-ended and open ended questions which requested the informants to articulate their views and opinion. The respondents were given time to fill-in the required information. The questionnaires were collected at agreed time. Questionnaires were prepared and administered to learners with hearing impairments. The research took the role of facilitator by explaining the questions so that the respondents could follow through as they answered. Upon completion of the questionnaires, the researcher scanned the questionnaires in order to ascertain which respondents had difficulty writing and answering the questions. Out of the 60 respondents, 9 (15%), had difficulty answering. This could be observed from the illegible handwriting that did not make sense. To correct the situation the researcher had a one on one with the 9 respondents by signing the questions items to the respondent and indicating and/or writing the responses.

3.6.2. Interview Schedules for Head teacher and Teachers

All interview schedules with semi-structured interview questions and interview guides were used during the scheduled interviews. The aim of using this was to allow flexibility in probing and exploring certain subjects in greater depth. All these interview schedules were administered in different sessions. The head teacher and ten teachers were interviewed. The interview guide allowed the researcher to make follow up questions where the questionnaire
could not, Avoke (2005) highlighted that interviews were an important aspect of qualitative studies they were a way of verbally interacting with participants or respondents in conducting research. Interviews were also described as a form of conversation between two people. In terms of structure, they could be fully structured, semi-structured or conversational or unstructured. He continued that interviews could also be in-depth as in the case of ethnographic study, and specific strategies of interviewing which could involve the use of telephone, face to face or one-on-one or focus groups. For this study one-on-one interview method was employed. The researcher asked questions and recorded answers from the ideal for respondents in the study one at a time. This enabled the respondents not to be hesitant to speak and enabled a comfortable environment in which the respondents could share ideas comfortably. The interviews took thirty-forty minutes and nothing more. The researcher used semi-structured interview questions with the teachers and Head teacher since they were available to be interviewed. According to Creswell (2005) semi-structured interviews allowed the respondents considerable degree of latitude. Although certain questions were asked, the respondents were given freedom to talk about the topic and give their views in their own time, unlike structured interviews where the respondent was limited to a range of responses previously developed by the researcher.

3.6.3. Observation Schedules

An observation checklist was also prepared for recording during the field inspection. Participatory observation technique was included in order to directly examine the classroom communication modes and the supportiveness of the classroom environment. This gave the researcher an opportunity to look at what was happening or taking place within the classroom. According to Avoke (2005), observation enables the researches together data on the physical, human interaction settings and programme of study. Particularly observation is done when there is a clear agenda of issue you are seeking the data to show. The researcher
observed activities that went on in the classrooms during lesson presentations, communication modes used and teaching and learning materials available in the classroom that support effective communication.

3.6.4. Documentation

Documentation was another instrument used in the data collection process. Avoke (2005) highlighted that documents to a researcher were important source of qualitative data and documentary analysis of educational files, and records could prove to be extremely valuable. Creswell (2005) also noted that documents consisted of public and private records that qualitative researchers obtain about a site or participant in a study and they included newspaper, journals, letters and minute of meeting. They also included school records, folders, registers or government papers. In relation to this study documents such as students examination reports, class exercise books and assessment records were reliable sources for tracking the academic performance of learners with hearing impairment. It must be highlighted that class exercise books alone did not reflect the true performance of the learners since they may be helped by classmates hence the need for assessment and examination reports. The assessment records of learners with hearing impairments gave a continuous account of the overall performance of the learners. These documents helped assess classroom communication and the academic performance of learners with hearing impairment.

3.7. Pilot Study

The researcher carried out a pilot study at Kerugoya School for the Deaf. The school had a similar characteristic as the actual study school. The pilot study sample had a total of 6 teachers and the head teacher, and 20 (10 boys and 10 girls) learners with HI giving a total of 27 respondents. The aim of piloting was to help identify any weakness and ambiguities in the instruments and to gain administrative experiences, in conducting the research in
preparation for the main study. The pilot study was of help in validating the instruments and improved their reliability. It also enabled the researcher to plan for the time needed to fill-in the questionnaire and how to analyze the data collected. For instance, the respondents were given half an hour to fill-in the questionnaire. That time was found not to be enough and therefore, in the study, one hour was given to fill-in the questionnaire.

Kerugoya School for the Deaf was used to pre-test the instruments. The pre-test was done to establish the reliability and validity of the research instruments. Questionnaires were given to the respondents to fill-in in the presence of the researcher. This helped the researcher in finding out if the respondents experience any difficulty while responding to the questions. The researcher personally took part in piloting and in the main study.

3.8. Reliability and Validity

An equally significant aspect of the study was reliability and validity. Kombo & Tromp (2006), defined validity as testing the appropriateness, meaningfulness and usefulness of specific inferences mode. However, in social science, validity refers to whether a method measured what was intended to measure in order to enhance the reliability of the findings. The data collected was certified using triangulation and respondents’ validation. Triangulation was done by comparing data collected using different instruments to ascertain whether or not they collaborated. On the other hand, respondent validation was done by relating the findings of the study with evidence from literature reviewed. In order to ensure that the findings were valid, both triangulation and respondents validation was used. For instance, data collected on classroom communication modes from all respondents was cross-checked with data collected from observations.

3.8.1. Validity
For the purpose of validating the instruments in this study, the researcher sought opinion from experts who included her supervisors, from the department of special education and early childhood competent in the area being investigated. They assessed the instruments to determine the relevance of the questionnaires and the observation schedule by establishing whether the set of items included, accurately represented the variables under study.

3.8.2. Reliability

Reliability of the instruments was determined by test-retest method on the pilot study sample. The questionnaires were administered to the subjects selected for piloting who did not participate in the main study. The answered questionnaires were scored. The same questionnaires were administered to the same group of subjects after two weeks. The scores for the first test were compared to those of the second test. Comparisons of the answers obtained from both tests were done by calculating the correction coefficient using Pearson product moment correlation coefficient formula of about 0.75. The result of the correlation was 0.7 which was slightly above the stated correlation the researcher had set in the proposal. This was considered high enough to judge the reliability of instruments, hence established the extent to which respondent’s responses were consistent (Orodho, 2005).
3.9. Data Analysis

According to Kothari (2004), data analysis is the process of bringing order and meaning to raw data. In the current study, both quantitative and qualitative methods of analysis were used. Data collected from the closed-ended questions was analyzed quantitatively using SPSS version 20. In order to generate frequencies, qualitative data was analyzed using the thematic framework. According to Bernard (2010) thematic framework is a way of organizing or defining history to identify and place sites, persons and events in context. In this study the focus was on identifying and describing both implicit and explicit ideas within the themes as stipulated in the research objectives. Coding was used to represent themes and linked to raw data for analysis. The results were in line with the obtained study themes.

3.9.1. Quantitative Analysis

Quantitative analysis entails analyzing numbers about a situation by choosing specific aspect of that situation. According to Leedy & Ormrod (2005), quantitative data method rely on random sampling and structured data collection instruments that fit diverse experiences into predetermined response categories. They produce results that are easy to summarize, compare and generalize. Leedy & Ormrod (2005) states that, quantitative data gathering strategies include obtaining relevant data from management information, systems, administering surveys with closed-ended questions, observing and recording well defined events. In this study quantitative data was gathered from the closed-ended questions in the learner’s questionnaires and classroom observations. Questionnaires were administered to learners with HI by the researcher, she also gave guidelines on how to fill-in the questionnaires.
The researcher collected the questionnaires for analysis the same day. Descriptive statistics was used to analyze the quantitative data obtained. The statistics used included frequency counts, means and percentages. As Martine & Acuna (2002) observed, SPSS is able to handle large amount of data and given its wide spectrum of statistical procedure purposefully designed for social sciences. It is also quite efficient. The result of data analysis was presented using frequency distribution tables and pie chart.

3.9.2. Qualitative Data Collection Procedure

Qualitative research data usually involve direct interaction with individuals on one on one basis; or direct interaction with individuals in a group setting. The main method for collecting qualitative data are individual interviews focus groups, observation and action research (Leedy & Ormrod, 2005). In this study qualitative data was collected through face to face individual interviews that were conducted among the teachers and the head teacher. There was also lesson observation. In addition, open ended questions in the learners questionnaire also yielded qualitative data. Qualitative gathered using interview had a distinct advantage of enabling the researcher to establish rapport with potential participants and therefore gained their cooperation. The data obtained from the open ended questionnaires and interview guide were analyzed using thematic framework. After this, initial codes were generated, themes were searched for, reviewed, defined and themes named to produce the final report (Harding, 2013). The key points which emerged from the interview discussions were reported in narrative form and presented in form of narrative, direct quotes and experts based on the research questions.
3.10. Logistical and Ethical Considerations

According to Resnik (2012), ethic/morals are norms that distinguish between acceptable and unacceptable behaviors. Resnik adds that, they are methods, procedures or perspectives for deciding how to act in a particular event. Before the commencement of the data collection processes, the researcher obtained an introductory letter from the graduate school at Kenyatta University and then went to permanent secretary National Council for Science and Technology (NCST) to seek for a research permit. The researcher also booked informal appointments with the respondents to establish rapport and to discuss the relevance of the study. However, only the willing respondents were involved. The researcher ensured that any personal details that could reveal their identity. Cultural values were considered and observed with respect since the school has a variety of cultures from diverse ethnic groups. Equally, religious values were given utmost respect because the school has a mixture of both Christians and Muslims. All the respondents were assured that the information gathered was to be used for academic purposes only. The respondents were fully aware of the study and were very cooperative and participated fully.
CHAPTER FOUR:

PRESENTATION ANALYSIS AND DISCUSSION

4.0. Introduction

In this chapter, data analysis, presentations and discussion of the major findings are presented. For systematic presentation, the chapter is divided into the following four sections; Communication modes, Classroom Environment, Classroom Communication and Teaching and Learning materials. Each analysis is followed by interpretation and then discussion.

4.1. Communication modes

The researcher sought to find out the classroom communication modes used in classrooms for learners with hearing impairment. Learners, teachers and the head teacher were asked to state the mode of communication that was used by both learners with HI and teachers during teaching and learning activities. In relation to communication modes used in classrooms for learners with hearing impairments, the finding from the learners are tabulated in Table 4.1

Table 4.1 Communication modes used in classrooms for learners with hearing impairment (N-60)

<table>
<thead>
<tr>
<th>Communication modes</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenyan Sign Language</td>
<td>60</td>
<td>100%</td>
</tr>
<tr>
<td>Finger Spelling</td>
<td>53</td>
<td>88%</td>
</tr>
<tr>
<td>Writing</td>
<td>45</td>
<td>75%</td>
</tr>
<tr>
<td>Total communication</td>
<td>21</td>
<td>35%</td>
</tr>
<tr>
<td>Signed Exact English</td>
<td>15</td>
<td>25%</td>
</tr>
<tr>
<td>Lip-reading</td>
<td>8</td>
<td>13%</td>
</tr>
</tbody>
</table>

The results of the finding carried out in Kambui School for the deaf, showed that there were various communication modes being used by learners with hearing impairment. Findings showed that, KSL was used by 60 learners representing a 100%, followed by finger spelling which was used by the 53 learners representing (88%) while lip-reading was the least mode
used by 8 learners with hearing impairments at 13%. The teachers pointed out that they used Total Communication, Kenya sign language, finger spelling, sign language, writing, sign Exact English and verbal (oral) combined with facial expressions, gestures and body language.

4.1.1. Communication modes preferred by learners with hearing impairment

In relation to classroom communication modes that learners with hearing impairment Preferred using during learning activities, the responses are tabulated in Table 4.2.

<table>
<thead>
<tr>
<th>Communication mode</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSL</td>
<td>32</td>
<td>53.3%</td>
<td>1</td>
</tr>
<tr>
<td>Finger Spelling</td>
<td>13</td>
<td>21.7%</td>
<td>2</td>
</tr>
<tr>
<td>Writing</td>
<td>4</td>
<td>6.7%</td>
<td>4</td>
</tr>
<tr>
<td>TC</td>
<td>7</td>
<td>11.7%</td>
<td>3</td>
</tr>
<tr>
<td>SEE</td>
<td>3</td>
<td>5%</td>
<td>5</td>
</tr>
<tr>
<td>Lip-reading</td>
<td>1</td>
<td>1.6%</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Findings showed that, thirty two learner (53.3%) preferred KSL while 13 (21.7%) used finger spelling, 7 (11.7%) used TC, 4(6.7%) preferred writing while (5%) preferred SEE. The least preferred classroom communication mode for learners with HI was lip-reading at (1.6%). The learner who preferred oral communication did so because she had lost her hearing at a later stage and could easily follow speech. She had also no sign language skills, since she had been in a regular school where no special education services were being offered. The study results were supported by Borefoot (2011) who found out that, the communication of learners with hearing impairment can be diverse and included language modality, cultural identity, emotional, gender and physical influences. He reported that classroom communication was about using a suitable language to convey and decode ideas or meanings, to exchange views,
explain processes or demonstrate skills. It’s true that learners with hearing impairment value learning with their communication strengths such as access to visual information and opportunity to use their strongest language (Borefoot, 2011). Most learning occurs through interaction with other people; such learning is possible only when individuals are able to communicate with understanding. Likewise, the quality of a relationship between a learner with hearing impairment and his/her teachers was dependent on the quality of communication between them. Thus the choice of communication mode that would be most effective is utmost importance.

**4.1.2. Communication Modes Preferred by Teachers**

With regard to classroom communication modes preferred by teachers during lesson presentation, teachers responses are tabulated in Table 4.3.

**Table 4.3 Communication modes preferred by teachers during lesson presentation (N-10)**

<table>
<thead>
<tr>
<th>Communication modes</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSL &amp; finger spelling</td>
<td>1</td>
<td>10%</td>
<td>4</td>
</tr>
<tr>
<td>Writing &amp; oral</td>
<td>2</td>
<td>20%</td>
<td>3</td>
</tr>
<tr>
<td>T.C</td>
<td>4</td>
<td>40%</td>
<td>1</td>
</tr>
<tr>
<td>SEE</td>
<td>3</td>
<td>30%</td>
<td>2</td>
</tr>
<tr>
<td>Total respondents</td>
<td>10</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

The findings showed that, four teachers representing (40%) preferred Total Communication, 3 (30%) used Sign Exact English, 2 (20%) used writing and oral while only one 1 (10%) used KSL and finger spelling. The most commonly communication mode used by teacher during lesson presentation was Total Communication. However, classroom observation by the researcher revealed that SEE was mostly used for instructions while Total Communication was used in discussing difficult concepts during the lesson. This indicated that, in real sense teachers admitted to be using TC for instruction as shown in Table 4.3, used Signed Exact
English. This could be because they feared victimization by the administration which advocates for Total Communication. During an interview with the head teacher, he confirmed that most of the teaching and communication that took place in classroom was done in TC. He emphasized that, he encouraged teachers to engage as many classroom communication modes as possible. This was because he observed most teachers struggled to present good lessons because they had poor signing skills. In relation to classroom communication one teacher said:

"While teaching learners with hearing impairment I rely on other teachers and learners to assist me in signing most phrases. What I most use is writing and verbalizing as I try to sign".

The study results showed that, most teachers were not conversant with KSL. It was also noted that most learners with HI preferred using KSL for purposes of interacting with one another outside the classroom. Adoyo (2004) in support of this study findings reported teachers lack of competence in KSL and attributes this to lack of interest in it.

In comparison, 4(40%) teachers of learners with hearing impairment preferred using Total Communication while only 7(11.7%) of learners with HI preferred TC. This showed clearly that there was a gap between the classroom communication modes that learners and teachers preferred. It must be noted that when teachers engaged SEE and T.C as a classroom communication mode, learners were not able to fully benefit from lesson presentation. This in-turn affected learners’ academic performance. One teacher indicated that, of all the classroom communication modes used in classroom for learners with HI, the most comfortable classroom communication modes was writing. In relation to communication, one teacher who have long served learners with HI said,

"Due to my vast experience in teaching learners with hearing impairment, I came to realize that, signing combined with finger spelling are the easiest ways of communicating with learners with hearing impairment. My sign language vocabulary has increased with extensive years of teaching learners with hearing
impairment. Such that, I use more of signing than, any other type of classroom communication”.

Teachers agreed that, classroom communication either enhanced or negatively affected the academic performance of learners with HI. The findings also reviewed that Kenyan SL was rarely used in communication between teachers and learners with hearing impairment; this resulted in learners failing to understand lessons and found it very difficult to learn. The current trend in the education of learners with HI as earlier stated emphasize the use of total communication as a philosophy that encourages incorporation of oral communication, manual communication and other components such as writing, gestures, body language, drawing and facial expression. The findings of my study are supported by Duncan, Rhodes and Fitzpatrick (2012) who revealed that communication can be verbal or non-verbal. It can also involve the use of gestures, signs, speech or a combination of both methods. If teachers could have proficiency in sign language as a component of TC philosophy, they could easily interact and motive learners with HI to engage in constructive dialogue and as such boost their communication as well as their academic performance. However, the study results showed that despite learners with HI being able to communicate, their teachers’ proficiency in KSL was inadequate. This shows the need for in-service courses for teachers who teach learners with HI to improve their skills in sign language lest they lag behind their learners.
4.1.3. Communication Challenges Teachers Encounter during Lesson Presentation

In relation to challenges that teachers encounter during teaching and learning activities, teachers cited limited sign language vocabulary, differences in signs among learners, lack of formal assessment reports, big class sizes, insufficient lightening and ventilation, as well as inadequate teaching and learning materials. Findings further showed that, learners came from different backgrounds and each learner posed different communication challenge to the teacher. The competence in sign language among learners with hearing impairment varied and as a result teachers found it difficult to cater for individual communication needs. To this effect, one teacher narrated that,

“There was a common myth that if you have a hearing impairment, then you automatically know sign language but that is not the case. We have noticed that, some learners who came from different schools learnt to sign certain words differently and this is a huge challenge. These learners academic performance is below average because classroom communication is a huge challenge. My greatest challenge with such learners is how I can best communicate with them without inconveniencing the other learners. This is mainly because they need to be communicated to like they are in lower classes (1-3) yet they are in upper classes (4-8)”.

It can be argued that, such a scenario where there is variation in sign language, the pace of the lesson is affected. This is because communication at this point, between the learner and the teacher, involved a lot of finger spelling and assigning of an appropriate sign to a proposed word. It must be highlighted that when too much time was spent in finger spelling, the pace of the lesson was slow, some learners got bored and the teacher failed to complete assigned tasks. This in turn negatively affected the academic performance of learners with H1 because they never completed the syllabus and exams were set covering the whole syllabus.
The findings also showed that, teachers had problems in making learners with H1 to understand written instructions. They felt that the reasons for learners not able to understand written instructions were:

- Teachers’ incompetence in signing thus making it difficult in signing the written instructions.
- Learners inadequacy in English vocabulary thus not able to understand written instructions
- Learners with H1 are good in KSL and when a teacher uses SEE, the two have different sentence structure thus causing confusion.

It must be highlighted that, the teaching and learning process of learners with H1 must include the use of different classroom communication simultaneously. For instance, the teacher may use facial expressions, signs, verbal and body language at the same time. All languages have expressive and receptive features for communication. Teachers are therefore encouraged to use different communication modes to teach learners with H1. The findings were supported by Borefoot (2011), who reported that, learners with H1 value learning with their communication strengths such as access to visual information, opportunity to use their residual hearing and use of their strongest language.
4.1.4. Communication Challenges encountered by learners with HI.

In relation to communication challenges encountered by learners with hearing impairment, the researcher sought to find out if learners were able to follow through lessons using the teacher’s classroom communication modes. The results are tabulated in Table 4.4

Table 4.4 Communication challenges encountered by learners with HI (N-60)

<table>
<thead>
<tr>
<th>Communication modes</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Have problems in understanding speech</td>
<td>25</td>
<td>41.7%</td>
</tr>
<tr>
<td>• Have problems in understanding signs</td>
<td>20</td>
<td>33.3%</td>
</tr>
<tr>
<td>• Have problems in understanding written instructions</td>
<td>15</td>
<td>25%</td>
</tr>
</tbody>
</table>

The findings showed that, all the learners experienced problems in one way or another in understanding teachers during lesson presentations. The findings revealed that, twenty five learners representing 41.7% experience problem in understanding oral communication. This showed that, it was difficult for most learners with hearing impairment to rely solely on lip-reading to communicate as they could only pick up a small percentage of what was being said. Speech requires patience, in observed lessons, most learners with HI were observed frustrated and humiliated in the process of learning. Though it’s difficult to lip-read, many learners with hearing impairment naturally try to lip-read. It must be noted that, learners with moderate hearing usually do not understand what the teacher says without using hearing aids. However, some learners could only lip-read for a certain period of time. The study results were supported by Duncan (2010) who found that, learners who only used lip-reading for a long period of time lagged behind in their comprehension, had limited vocabulary, had poor pronunciation of words and speech sounds and felt fatigued towards the end of a lesson and
lost concentration. Not only did such learners misinterpret verbal speech but they also frequently misinterpreted written lessons and reading materials.

Twenty learners representing (33.3%) had problems in understanding teachers’ signs during lesson presentations while fifteen representing (25%) reported having problems in understanding teachers written instructions. This can be traced from an interview with the head teacher, who revealed that, most teachers struggled to present good lessons because they did not know or had not yet grasped how to effectively communicate with learners with HI. During observation, the researcher noted that, teachers and learners had difficulties in understanding each other signs. Learners signed and finger spelt very fast, while teacher’s signs were hard to understand due to incorrect positioning of hands. This implied that, if teachers did not have knowledge and skill in signing, the performance of such learners would be below average all the time. Therefore, patterns of communication ought to be improved in the case of learners with HI. However, there is an observable increasing gap vocabulary growth, complex sentence comprehension and construction among learners with HI to the point of posing a challenge on their academic performance.

4.2. Classroom Environment

The researcher sought to find out if classroom environment was supportive to classroom communication for learners with HI. This section presents, lightening, ventilation, how noise was kept away from the classroom and classroom seating arrangement.

In relation to classroom environment, teachers responded that, in some ways classroom environment was supportive and other ways it was not supportive at all. The findings reviewed that, the model of the classroom was made in such a way that it accommodated a maximum of 15 learners at any given time. This prescribed classroom enabled enough ventilation, lighting and one-on-one teaching interaction with the learners. This was
especially noted in the lower classes, where the class sizes were small and consisted of about a maximum of 12 learners. However, the classroom environment for the upper classes had been compromised by the large class sizes, therefore, making it difficult for the teacher to communicate effectively. What even made the situation worse was that, the class sizes were quite large, ranging from 20-35 per class and yet the classroom themselves were small. With such an arrangement of large class sizes, how could teachers offer one-on-one learning experience with their learners? It was difficult for the teachers to address the individual needs of the learners. This negatively affected academic performance of learners with HI.

When classrooms cannot manage noise, learners with hearing residuals usually tend to be irritated by the background noise. Many learners who had mild hearing HI failed to make use of their residual hearing because of environmental barriers such as a classroom environment that was not friendly for use of amplification devices. This was because classrooms lacked resources that could have enabled the environment to be least restrictive. These findings were supported by Ekwama (2003) who found that in order to accommodate learners with HI who use hearing aids; it was vital to minimize noise. If there was noise from outside, doors must be shut. These measures were put in place in order to reduce background noise. Findings revealed that, the background noise, reverberation and distance from the speaker were real issues for learners with HI; even those with mild or unilateral hearing losses who were able to hear. This included noises such as those made in woodwork and metal workshops, other machines found in the school such as for tailoring and knitting, and noise outside the classroom or in the corridor. Reverberation and background noise can be minimized by making sure that, the windows have some covering and learners keep noise at minimum.

In relation to the seating arrangements findings showed that, most learners could not see the teacher or the peers clearly from where they sat. It is very cardinal that learner’s with HI are
seated so that they can see both the teacher and their peers as much as possible. This can be attributed to the fact that learners are able to see the various signs, lip-read and read body language as they are in full view of all participants in the classroom. Similarly any seating arrangement should not isolate the learner. The implication of the seating arrangement in this study was that, learners with hearing impairment tend not to want to participate actively in class. The seating arrangement negatively affected the performance of learners with HI. Moreover certain learners with hearing impairments also had visual impairments. These learners needed to have a very clear view of the teacher, peers and chalkboard of which without, the learner were more handicapped. The study results were supported by a study carried out in Zambia by Malunga (2007) titled “An investigation on the use of sign language and oral language by regular teachers teaching learners with H1 which showed that, in relation to the learning environment, the best possible conditions would need to be in place, for example a quiet place and good lightening. This would allow learners with H1, to concentrate and follow what is being lip-read. Just like communication modes plays vital role in enhancing academic performance, classroom environment is vital in enhancing classroom communications. If classroom environment is to play a positive role in the academic performance of learners with H1, certain accommodations need to be made in the classroom. Accommodations such as small class sizes, spacious classroom, well ventilation, a good lighting all positively affect the learner’s performance.

4.3. Classroom Communication

The researcher sought to find out the effects of classroom communication on academic performance of learners with HI. The study findings showed that, almost all teachers agreed to the importance of classroom communication. They believed that teachers should be able to communicate effectively during lesson presentations. The study findings indicated that,
majority teachers agreed that, learners were more motivated and believed that they benefited more from the lessons effectively communicated.

In relation to academic performance, learners’ were asked to indicate their academic average performance. Learners’ responses are illustrated in table 4.6.

**Table 4.5 Academic Performance of Learners with Hearing Impairment (N-60)**

<table>
<thead>
<tr>
<th>Marks</th>
<th>Respondents</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below average (0 – 35)</td>
<td>52</td>
<td>86.7%</td>
</tr>
<tr>
<td>Average (36 – 69)</td>
<td>7</td>
<td>11.7%</td>
</tr>
<tr>
<td>Above average 70+</td>
<td>1</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Findings of these study showed that 52 learners representing (86.7%) performed below average, seven representing (11.7%) while only one representing (1.6%) reported performing above average. This performance affects the quality of education for learners with HI.

In relation to effects of classroom communication on learners’ academic performance, learners’ responses are illustrated in Figure 4.1

![Figure 4.1](image)

The study findings showed that, fifty-five learners with Hearing Impairment representing (91.6%) reported that teachers’ poor communication skills negatively imparted on their academic performance. This was noted during lesson observation especially in a social study and science lessons where the teachers kept on using finger spelling and the learners were
unable to give a sign to most of the words in the sentences. Similarly teachers also observed that learners who communicated constantly in class, performed far much better than passive learners. However, most of the learners lagged behind in classroom communication skills and this affected their academic performance. The study results was supported by EQUIP3 (2006) who reported that in developing nations, ninety percent (90%) of learners with HI were born into hearing families where there was no exposure to sign language or to the existing culture of persons with HI. These learners with HI were typically deprived of the communication skills they needed for social development, incidental learning, academic pursuits and gainful employment.

The analysis of the findings of this study highlighted a notable contrast between the classroom communication needs of the learner with HI and what the teacher had to offer. For instance, findings of the study revealed that most learners preferred KSL and finger spelling; teachers on the other hand preferred SEE, writing and TC. This discrepancy, negatively affected the academic performance of learners with hearing impairment. This was because the communication needs of the individual learners were not met. Moreover, the communication strengths of learners with HI were not fully utilized by the teachers. Questions that arise from these findings were firstly, is there effective classroom communication between the learner and the teacher if their communication needs are in contrast? Secondly, if not, who is to adapt, the teacher or the learner? Thirdly, how can the classroom communication management strike a balance between the communication needs of the learner and the capabilities of the teacher?

As whether there was effective classroom communication with regard to modes used, an analysis of the findings and observations of the study showed that, to a minimal extent, the classroom communication modes used were effective. However, the analysis of the
participant’s responses and observations indicated that the classroom communication modes used were somehow effective but this cannot be conclusive on a practical basis. This is because, to a larger extent, the individual classroom communication needs of the learners had not been clearly established. The deficit in classroom communication skills had created the perception by many learners with normal hearing that learners with HI were intellectually deficient. This classroom communication deficit has negatively affected the academic performance of learners with HI. These findings were traced to the difficulty in language usage which made it difficult for learners with HI to communicate intelligibly with hearing learners. With reference to the aforementioned, it can be argued that when communication skills are lacking, academic performance is negatively affected. It can be deduced from the findings of the study that the communication skills of majority of the learners with HI were lacking as a result of limited sign language vocabulary and unsupportiveness of classroom environment. Consequently, the learner’s sign language, reading and writing skills have equally been affected. This is supported by; Marschark (2003) who highlighted that, language serves as the vehicle for many thought processes. The influence of languages on thought processes was illustrated by the concept of verbal mediation which facilitates learning, retention and understanding.

Findings in this study also revealed that majority of learners with HI struggled to read, had poor memory and also struggled to understand what they read. These learners were slow even when it came to copying notes from the board, they required extended time to complete tasks, and as a result, they took much longer time to complete the curriculum syllabus as compared to the hearing counterparts. Many of the learners could not work independently in the classroom. These learners were slow because of poor linguistic skills for effective communication. Therefore, poor linguistic skills for effective classroom communication negatively affected the academic of learners with hearing impairment. The study findings
were supported by Marschark. M, Convertino & LaRock (2006) who found that, deaf adults in traditional learning environment often felt left out of classroom communication because of the language that existed between the delivery of information by the instructor and the signing of the content by the interpreter. Learners with hearing impairment also reported difficult responding to the instructor’s questions or asking timely question. Academic performance therefore, was the demonstration of learning of subject content and process. The study results was supported by a study done by Albertine and Lang (2001) that aimed to determine how well learners with hearing impairment understood science concepts. They analyzed a sample of 288 written contents in science literacy for learners in grade 6 through 11 and reflective comments from their teachers. The teachers views in this research established that the mode of communication (verbal or non-verbal) well acquainted to the learners who are hearing impaired had an impact on their scientific content understanding and writing. An analysis of the experiences of teachers of learners with hearing impairment who use sign language in teaching confirmed classroom engagement, active participation, and peak performance for learners with hearing impairment.

The study findings showed that teacher’s communication skill and language of instruction were vital in effective content delivery. Consequently while communication is extremely important to the overall successful education of learners with hearing impairment, no one communication mode(s) should be at the forefront of academic performance. It can be seen from the analysis that classroom communication was a very important component in teaching and learning process of learners with hearing impairment. This was because classroom communication enables learners to understand the content of the lesson and also to communicate effectively with the teachers as well as their fellow peers. The study results were supported by Ainscows (2007) who asserts that, classrooms instructor that produces positive results acknowledge the need for a liberal use of nonverbal cues, learner’s
involvement and team communication. Areas of achievement and failure in a learner’s academic life need to be evaluated in order to foster improvement and make full use of the learning process.

4.4. Learning materials

The question as to whether there were adequate teaching and learning materials in classrooms for learners with HI was intended to explore the availability of learning materials accessibility of textbooks, adequacy suitability and utilization for effective classroom communication. The researcher also wanted to find out whether the teacher simplified the vocabulary in the text books. Teaching-learning materials play a very important role in the teaching and learning process of learners with HI. This is because, learning materials such as books, charts, pictorial illustrations to mention but a few, help learners to build on their vocabulary. In order for learners with HI to fully benefit from academic learning and teaching modification of the curriculum to suit their communication needs cannot be overemphasized. Research carried out by Ainscow (2007) highlighted that will be no education, no matter how qualified and relevant the adaptation of content, methods and organization seems to be often, opinions about the methods used in programs for learners with HI were based on best practices to instruction. Teaching and learning materials are important for effective teaching. This is because they motivate learners with HI to learn and also increase their retention capacity, reducing the language barrier. Teachers and the head teacher were asked to state whether teaching and learning materials influenced the learners’ academic performance. Their responses are presented in Table 4.6.
Table 4.6 Teachers responses to Teaching/Learning materials.

<table>
<thead>
<tr>
<th>Teachers responses n-10</th>
<th>Frequency</th>
<th>Percentages (%)</th>
<th>Ways teaching/learning materials influence learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Availability</td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>20%</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

The findings showed that, majority of teachers 80% agreed that learning materials affected the academic performance of learners’ with HI. In case of ways learning materials influenced the learners’ in the teaching and learning process, they gave varied responses in mentioned suitability and 40% adequacy, and only 10% attributed this to utilization. The teachers’ responses indicated that adequacy of the learning materials was the key factor, followed by suitability. Although there were few learning materials in classrooms, learners with HI require special assistance in the teaching and learning process to enable them use their full potential.

Teachers gave their views on the use of teaching-learning materials as the researcher also observed the lessons for confirmation purposes and the results are presented in Table 4:7
Findings showed that, textbooks were not available in most of the lessons observed (62%). However it was also noted that some textbooks were not enough in most of the lesson observed and hence not effective used (75%). This implies that, learners had to share the few textbooks available. This has negative implication on the teaching and learning processes, in turn learners with HI were unable to keep pace with hearing learners in their academic performance. It was also noted that even though there were charts, in some lessons observe (13%) they were hardly utilized by teachers in the teaching and learning process. In particular, majority of the lessons (90%), charts in classrooms were ineffectively utilized and only 10% utilized the charts. It was also observed those teachers made resources were not used at all. Use of such learning materials creates learners interest and motivation. This was particularly important for learners with HI who require motivational techniques in order to sustain their attention as well as promote their concentration (Borefoot, 2011). Therefore teachers ought to improve learning materials where necessary such as to create a satisfactory

Table 4:7 Teaching/Learning materials used in observed lessons.

<table>
<thead>
<tr>
<th>Teaching/Learning materials</th>
<th>In class</th>
<th>How used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes %</td>
<td>No %</td>
</tr>
<tr>
<td>Textbooks</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>Charts</td>
<td>13%</td>
<td>87%</td>
</tr>
<tr>
<td>Teacher made resources</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>
learning environment that would enhance academic performance among learners with HI. An analysis of the findings clearly shows that learning materials were scarce in classrooms for learners with HI. These findings call for concern because learners with HI are visual learners and require readily, available and accessible learning materials. When learning materials such as textbooks are inadequate learners with HI face challenges in building vocabulary. As a result they had very limited vocabulary. This limitation negatively affects their academic performance because there is a discrepancy between their vocabulary for communication and that of hearing learners.

Teachers and head teacher also cited scarce resources, high book to learner (ratio of 1:3) outsourcing learning materials and under stocked school library. An analysis of these findings showed that much as the simplified the vocabulary in textbooks, majority of the learners still found it difficult to comprehend. This can be attributed to the inadequacy of learning materials. Learners did not have the privilege to be exposed to extensive vocabulary and as a result they relied too much on the teacher to simplify most of the work. This entails that, when the teacher is not there to communicate or interpret the work, most of the learners will perform below average because of teacher dependent. This dependency negatively affected their academic performance. When learners are exposed to learning materials they build on their vocabulary in the long run they become more confident. This is because, their communication options are more. These findings was supported by Stubbs (2002) who found that the available of adequate textbooks and other instructional materials has been shown to be one of the most positive and consistent determinants of teachers willingness to teach as well as learners learning achievements with the scarce textbooks and minimal access, learners with HI continue to have limited vocabulary because they cannot practice their English. This is specially the case in Kenya where the language of instruction is English. There has been
very little information nationally on the classroom experiences and academic performance of learners with HI. For example, little is known and documented nationally about classroom communication practices, the challenges been faced or the accommodations and supports they need to ensure they receive quality education like their hearing counterparts.

4.5. Observation checklist

Table 4.8

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SPECIFIC ITEM</th>
<th>CONDITION</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication mode(s) in use</td>
<td>Oral/Aural (speech)</td>
<td>Most teachers used speech and lip-reading.</td>
<td>It was not effective as most learners lacked hearing Aids, and were also unable to follow the lesson through.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Few learners seemed to be able to lip-read.</td>
<td></td>
</tr>
<tr>
<td>Manualism</td>
<td></td>
<td>Few teachers were able to use signs.</td>
<td>It was fair but most teachers were not competent in SL.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Few learners were able to follow up the lesson.</td>
<td>Body language was not well incorporated.</td>
</tr>
<tr>
<td>Kenyan Sign Language</td>
<td></td>
<td>Most teachers had difficulties in KSL, they did their lesson summary in written form though were unable to make learners understand the main concepts.</td>
<td>Teachers need to be in-serviced and practice other mode of communication.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Since it’s the mother tongue of learners’ with HI. Teachers should learn and use it.</td>
</tr>
<tr>
<td>Total communication</td>
<td></td>
<td>Most teachers used this method, though body language and signs were hardly incorporated.</td>
<td>Since its combines all modes of communication teachers should use it.</td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td>All teachers used writing although most of them were not able to make learners’ understand the content material.</td>
<td>Teachers should find means and ways of making learners understand the content material.</td>
</tr>
</tbody>
</table>
From the researcher’s observation, some items were available, others were not. The classroom environment was not at all supportive to effective communication and this could have contributed to low academic performance.

<table>
<thead>
<tr>
<th>Classroom environment</th>
<th>Noise</th>
<th>written contents.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No sound proof learners with mild hearing were disturbed with outside noise.</td>
<td>Need for all to be sound proof.</td>
</tr>
<tr>
<td>Ventilation</td>
<td>Most classes had windows permanently closed.</td>
<td>All classes need fresh air.</td>
</tr>
<tr>
<td>Lightening</td>
<td>No enough light as most windows were covered with papers.</td>
<td>All classes needs enough light so that the learners can be able to see well all the activities taking place in class e.g. signs from teachers and their peers.</td>
</tr>
<tr>
<td>Teaching and learning materials</td>
<td>Textbooks</td>
<td>Not enough for all lessons observed.</td>
</tr>
<tr>
<td></td>
<td>Some subjects lacked completely.</td>
<td>Repair or replace the very old ones.</td>
</tr>
<tr>
<td></td>
<td>Few in some subjects are shared in ratio of 1:3.</td>
<td></td>
</tr>
<tr>
<td>Charts, pictures</td>
<td>Available in some classes.</td>
<td>Should be suitable and available in all classes well drawn and written.</td>
</tr>
<tr>
<td>Real object</td>
<td>None in all lessons observed.</td>
<td>Teachers need to use real objects where necessary.</td>
</tr>
<tr>
<td>Library</td>
<td>Small sized, and not well equipped.</td>
<td>Have a spacious library, with adequate reading materials.</td>
</tr>
</tbody>
</table>
4.6. SUMMARY

The study sought to obtain information on medium of instruction used in the school for learners with HI whether classroom environment was supportive to effective classroom communication. The study used interviews, questionnaires and observation schedules to collect data. Quantitative collected was categorized ordered, coded and tabulated in frequency tables. Qualitative data collected through observation scheduled and interviews was grouped according to the objectives which supplemented information collected through questionnaires. Results revealed that classroom communication was a casual for low academic performance. There was a great discrepancy between learners classroom communication as to what the teachers had to offer, this discrepancy affected negatively the academic performance of learners with HI. Further the various aspects of the study have been summarized in chapter five.
CHAPTER FIVE:

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.0. Introduction

In the previous chapter, a comprehensive analysis of data was presented. In this chapter the summary of the research findings based on objectives of the study are presented. It also gives the conclusion and recommendation of the study. There are also suggestions for further research.

5.1. Summary

The study sought to investigate how classroom communication affects the academic performance of learners with HI at Kambui School for the Deaf. It was guided by the following objectives: To establish the teachers knowledge and skills level in the use of communication modes in teaching learners with HI, to establish whether the classroom environment was supportive of effective classroom communication for learners with HI, to investigate the effects of classroom communication on academic performance of learners with HI and to find out whether teaching and learning materials influence the learners academic performance.

The first objective intended to establish the teachers’ knowledge and skills level in the use of communication modes in teaching learners with hearing impairment. In general classroom communication commanded a lot of support as observed from the cross section of the questionnaires, observations and interview schedule. This calls for improvement so as to be effectively used in our schools for effective learning and better performance. The respondents expressed many challenges which they faced and which had a big contribution to poor
academic performance of learners with HI especially in KCPE (National Examinations). Both teachers and learners found it hard to give or interpret instructions especially signed ones. Most teachers preferred using TC and SEE compared to KSL and finger spelling that learners with HI felt comfortable during lesson presentation. Teaching using TC also hindered the effectiveness of teaching as most teachers found it difficult in signing and at the same time talking. For the learners, it was also difficult as it was tiresome following a teacher’s conversation who was not expert in signing. Different signs being used by learners with HI made communication difficult. A mixture of all these sign languages distorted information, ending up with misunderstanding or misinterpretations of instructions. Teachers and learners should be conversant with different communication mode(s) so that they could be able to choose the most suitable models during lesson presentation. Teaching and learning require communication. Most classroom activities involve communication. Effective classroom communication ensures that learning takes place. Thus all elements of communication such as verbal and non-verbal communication within the classroom setting should be observed. A good communicator should be able to express non-verbal cues well. Therefore, it is vital for an educator to poses such knowledge and skills in order to communicate better with learners with HI and to take change of the class as a whole.

The second objective sought to establish whether the classroom environment was supportive of effective classroom communication. Findings of the study revealed that in some ways the classroom was supportive but in other ways, it was not supportive at all. The school reportedly did not have adequate lightening and the classrooms did not have sound proof ventilation was poor, as almost all classes windows were covered. With regard to seating arrangements majority of the learners could not see the teacher clearly from where they sat. Class sizes were large while classrooms were small. Therefore teachers could not move
around in class and it was also difficult to observe signs from the learners and teachers. This could have contribution negatively to learners’ academic performance.

The third objective sought to establish how classroom communication affects the academic performance of learners with HI. Findings of the study revealed that due to poor classroom communication skills, 86.7% of the learners had performed below the 35% pass mark. For instance, they could not analyze, explain, ask questions during lessons and participate in class activities. This could have negatively affected learners’ academic performance.

The fourth objective sought to establish the availability of teaching and learning materials. Teaching and learning are important for effective teaching of learners with HI. This is because they motivate the learners to learn and also increase their retention capacity, reducing the language barrier. However, teaching and learning materials must not only be available but also adequate, and well utilized to be effective in assisting learners with HI in their academic performance. Teachers were asked to state whether teaching and learning materials influence the learners’ academic performance. Findings of the study revealed that learning and teaching materials were not readily available. The learning materials that were available mainly were few text books which were shared at a ratio of 1:3 (book to learner ratio). Findings also revealed that learners occasionally used the textbooks. With regard to vocabulary in the textbooks, majority of the teachers indicated that the vocabulary was hard by the teachers tried to make the work simpler. Despite the importance and availability of using teaching and learning materials, teachers could not use them and this hindered grasping of concepts taught. This could be a reason for the minimal low in academic performance. Findings also revealed that the library was small and not well equipped. Learners hardly borrowed few story books from the library. This could have impacted negatively to their vocabulary development which in turn affected learners’ academic performance.
5.2. Conclusion

Through the findings of this study the possible factors that contributed to the poor academic performance by learners with HI have been clear. From the findings:-

❖ Teachers preferred using TC and SEE while on the other hand learners with HI preferred using KSL and Finger Spelling. This showed that there was a gap between what the teachers had to offer and what learners had to take. This discrepancy between teachers and learners classroom communication contributed to learners not asking questions during lessons participating in class activities and failing to analyze and explain what they were taught. As a result 86.7% of the learners’ academic performance was below 35% pass mark. This in turn had contributed to learner’s low academic performance.

❖ It was also observed that, majority of teachers lacked the knowledge and skills of Sign Language. Therefore, they could not effectively assist these learners to boost their academic performance. It was also noted that, teachers did not give individual attention to learners’ with HI. This probably encouraged those learners to be left out in the teaching/learning process. Such a situation is likely to result to low academic attainment by such learners’. This could be attributed to prevailing factors related to teachers, learners and the learning environment such as poor seating arrangements, suitability and adequacy of teaching/learning materials and lack of knowledge and skills in communication modes.

❖ The study also revealed that, the teaching and learning materials needed for enhancing classroom communication were inadequate. The classroom environment was totally not supportive to effective classroom communication as it was only in lower classes (1-3) that had talking walls. Most of the classes had poor lighting and ventilation.
Seating arrangement hindered most of the learners from seeing the chalkboard, teachers and other learners during lesson presentation.

- Some factors influenced the academic performance during the lesson proceedings, while others influenced them by consequential effects occurring either before or after the actual learning and teaching process. This study concluded that, classroom communication was a major cause towards low academic performance of learners with hearing impairment. It is apparent from the study findings that classroom communication is very crucial and much more so to learners with HI.

### 5.3. Recommendations

Despite the high qualifications that teachers at Kambui School for the Deaf had, there still existed a gap in Kenyan Sign Language proficiency by the teachers yet the KSL was the catchment language for learners with HI. Learners with HI used KSL for interaction with one another and for socialization. KSL had been approved as a subject area in the curriculum and it was also being taught as an examinable subject in the National Examination. However, poor communication would lead to misunderstanding of information and as a result yield poor academic performance. I therefore, recommend that, the Ministry of Education to organize regular KSL courses for all practicing teachers. This can be done at sub-county level to reach out many teachers if not all.

There is need for teacher resource centers and schools to support continuous professional development seminar and short courses for special education teachers on the education of learners’ with HI. This is to enable teachers to come up with more innovative ways of communicating with learners with HI.
There is great need for more schools for learners with HI to be established in the County. The Government of Kenya should establish such schools in every county. This would help to accommodate the growing number of such learners as the current enrolment in this school is too high and just to mention the waiting list for admission is equally long. In addition the facilities of this school need to be improved in order to accommodate more learners with HI.

Teachers need to display on the wall the charts and diagrams so that learners can read over and over again in order to enhance academic performance.

The MOE should supply relevant and adequate instructional materials to school to enable all learners access the school curriculum and also improve their vocabulary for communication purposes.

5.4. Suggestions for Further Research

Through this research findings, other necessary research ideas have come up which can be worked on. These may include but not limited to:-

- The study being a case study covered only one institution. An extended research should be conducted in all other institution for learners with HI in Kenya.

- Teachers’ attitude towards the use of KSL as a language of instruction to learners with hearing impairment.

- Research can be done to investigate the influence of teachers’ attitude towards academic achievements of learners with HI.
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Appendix I: Questionnaire for Pupils

Kindly answer the questions and give your honest response by ticking the most appropriate response in the box. All the information will be treated in strict confidential and will only be used for the purpose of this study.

Section A: Bio Data

Gender:  Male  Female

Age  Class

1. Which Classroom communication modes do you commonly use?
   Oral  Kenyan Sign Language
   Writing  Total Communication
   Gestures  Finger Spelling
   Sign Exact English  Others specify

2. Which classroom communication modes are you most comfortable with?
   Oral  Kenyan Sign Language
   Writing  Total Communication
   Gestures  Finger Spelling
   Sign Exact English  Others specify

3. Which classroom communication mode are you not very comfortable with
   Oral  Kenyan Sign Language
   Writing  Total Communication
   Gestures  Finger Spelling
   Sign Exact English  Others specify

4. Which classroom communication mode does your teacher commonly use?
   Oral  Kenyan Sign Language
   Writing  Total Communication
   Gestures  Finger Spelling
   Sign Exact English  Others specify
Questions related to how classroom communication affects the academic performance

5. How is your classroom communication?
   Poor ☐  Good ☐  Very good ☐

6. How is your performance in class?
   Below average ☐  Average ☐  Above average ☐
   Provide reason ____________________________________________

7. Are you able to follow through lessons using the teachers’ classroom communication modes?
   Yes ☐ ☐  No ☐  Sometimes ☐
   b. Provide a reason ____________________________________________

8. Does classroom communication mode(s) used by your teachers affect your academics performance?
   Very much ☐  Much ☐  Not very much ☐
   b. Give an example of your response ______________________________

9. Is there enough lighting in the classroom?  Yes ☐  No ☐

10. Is the classroom well ventilated?  Yes ☐  No ☐

11. Are you able to see the teacher clearly from where you sit in class?
   Yes ☐  No ☐  if no give one reason ______________________________

   THANK YOU FOR YOUR TIME
Appendix II: Interview Guide for Teachers

SECTION A:
Gender: Male ☐  Female ☐
Start time _________  End time _________

SECTION B
1. How long have you been teaching learners with H.I.?

2. Are you trained in the area of H.I.?

3. Do you have the knowledge and skills of all the modes of communication? Yes ☐ No ☐

4. What classroom communication modes do you usually use while teaching?

5. (a) Which classroom communication modes are you most comfortable with?

   (b) Please state your reasons.

6. In your opinion, which classroom communication mode have you observed to be most effective when teaching learners with H.I.?

7. What classroom communication challenge do you face? ______________

8. In your opinion, has classroom communication affected the academic performance of learners with H.I.?

9. What measures would you suggest for enhancing classroom communication?

10. In your opinion is the classroom environment supportive for effective classroom communication?

11. Does teachers’ use of T/L materials influence the learners’ academic performance? Give reasons…

12. How do T/L materials affect your teaching in terms of availability, suitability, utilization and adequacy?

THANK YOU FOR PARTICIPATING IN THE STUDY
Appendix III: Interview Guide for Head Teacher

SECTION A
School: ______________________________ Date: _____________
Start time:_____________________________ End time: _________
Gender: Male Female
Professional Qualification: ________________________________
Total enrolment: ________ Boys: _________ Girls: _________
Total teaching staff: Male ___________ Female: ___________

SECTION B
1. How long have you been a principal in this school? ________________
2. Are you trained in the area of H.I? ________________________________
3. What classroom communication modes are normally used in this school?
4. What classroom communication modes are learners with H.I. most comfortable with?
5. What classroom communication modes are teachers most comfortable with?
6. What are some of the classroom communication challenges that teachers and pupils commonly face?
7. In your opinion, has classroom communication affected the academic performance of learners with H.I?

THANK YOU FOR PARTICIPATING IN THE STUDY
Appendix IV: Observation checklist

1. Classroom communication modes used in classrooms for learners with hearing impairment. Observe comments

   Oral                   • Kenyan Sign language
   Writing                • Total Communication
   Gestures               • Finger spelling
   Body language          • Others specify
   Sign Exact English (SEE)

2. What challenges does teachers and learners with hearing impairment face during teaching and learning activities observers Comments

3. Classroom workload given to learners with hearing impairment per subject observes comments


   Is there enough lighting in the classroom? Yes [ ] No [ ]

   Are learners able to see the teacher clearly from where they sat? Yes [ ] No [ ]

5. Which of the following resource materials are in class and how are they used in assisting learners with HI?

   • **Resource materials**: Textbooks, Charts, Real objects and Library

   • **Classroom environment**: Ventilation, Noise, Lightening and Seating arrangement

   • **Skills in communication**: Fluency, Creativity and Confident

   • **Correct use of part of a sign**: Hand shape, movement, location, orientation

   • Appropriate placement and location of sign.