

**EFFECT OF KENYAN SIGN LANGUAGE ON ACADEMIC PERFORMANCE
OF LEARNERS WITH HEARING IMPAIRMENT: CASE OF KEDOWA
SPECIAL SCHOOL, KERICHO COUNTY, KENYA**

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**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE
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DECLARATION

Student's Declaration:

I confirm that this research thesis is my original work and has not been presented in any other university for certification. The thesis has been complemented by referenced works duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other works- including the internet, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.

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DEDICATION

This thesis is fully dedicated to my dear wife Rose Jepkemboi, whose material support and prayer helped me produce this work, my children Evans Rotich, Kelvin Rotich, Vicky Cheruto and Ivy Cheron, who stood by me and always encouraged me perpetually through this thesis writing. I love you.

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ACRONYMS AND ABBREVIATIONS

ASL	–	American Sign Language
DHH	–	Deaf and Hard of Hearing
EFA	–	Education For All
HI	–	Hearing Impairment
IDEA	–	Individuals with Disabilities Education Act
KICD	–	Kenya Institute of Curriculum Development
KNAD	–	Kenya National Association for the Deaf
KSL	–	Kenyan Sign Language
LRE	–	Least Restrictive Environment
MDG	–	Millennium Development Goals
MoEST	–	Ministry of Education Science and Technology
SASL	–	South African Sign Language
SNE	-	Special Needs Education
UNZA	-	University of Zambia
ZAMISE	-	Zambia Institute of Special Education

ABSTRACT

The purpose of the study was to establish the effect of Kenyan Sign Language (KSL) on academic performance of hearing impaired learners in Kedowa Special School, Kericho County, Kenya. The government has done all it could to make KSL an acceptable mode of communication to the deaf and the hearing. This includes its recognition in the new Constitution and its inclusion as an examinable subject in the National examinations. Despite all these efforts, it has been noted that learners with hearing impairments continue to lag behind their hearing peers in the national examinations like Kenya Certificate for Primary Education (KCPE) and Kenya Certificate for Secondary Education (K.C.S.E). The objectives of the study was establish the extent of Kenya Sign Language use by teachers on academic performance of hearing impaired learners in Kedowa Special School; determine the availability of Kenya Sign Language teaching and learning resources on academic performance of hearing impaired learners in Kedowa Special School Kericho County; establish the effects of teachers training in Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County and establish the effects of social factors in use of Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County. The study employed a case study as its research design and used interviews, archival records, questionnaires and observation as its instruments. The reliability of the instruments was determined using the test-re-test method while its validity was determined by the help of KSL experts and the researcher's lecturers and supervisors. A purposive sampling technique was used to arrive at the sample size of 181 respondents. Data was analyzed using the SPSS version 21 by first categorizing the responses from the different respondents, editing them and then computing them in respect to the objectives and research questions of the study. The findings of the study, shows that KSL was not used in the schools due to lack of teaching materials and resources like books. KSL has a positive influence on learners' academic performance and on other subjects. The teachers who teach in KSL did not have adequate training in Kenya Sign language. This is a big setback in the desire for effective academic performance of learners. The study recommends that the Ministry of Education should provide adequate teaching and learning resources for special schools for the deaf for successful implementation of KSL. 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. Teachers in special schools should be trained through workshops, seminars or in- serviced on methods of teaching deaf students using KSL and Teachers Service Commission (TSC) should post teachers who have been trained in KSL to special schools for the deaf. Further research can be done in other schools and on the Teachers' attitude towards the use of Kenya Sign Language as a language of instruction to learners with hearing impairment, or on availability and utilization of teaching and learning resources in special schools for the deaf on the implementation of Kenya Sign Language.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the background to the study, objectives of the study, research questions, purpose of the study, scope of the study, limitations and delimitations of the study, assumptions of the study, theoretical and conceptual framework and finally operational definition of terms.

1.2 Background to the Study

Kenyan Sign Language (KSL) is a complete language with all properties of human languages and people with hearing impairments in Kenya, need to be educated through this natural language, which they prefer to use and understand with ease. The use of KSL not only enable them master the curriculum content but also to become bilingual, capable of participating in complex discourse in both KSL and written English as these will later be important in their career and social life. This is only possible through the guidance of a teacher who has Kenyan Sign Language competence (Hope et al, 2010).

Kenya became party to the Salamanca Statement and Framework for Action of 1994 that urged all schools to accommodate all children irrespective of their physical, mental, and emotional or any other condition that might hinder them from acquiring the much needed education (United Nations Educational, Scientific and Cultural Organization (UNESCO) 1994).

Kenya joined party to this international call for the right of the child by emphasizing on quality Education For All (EFA) by 2015. Many special schools have been started all over the country to cater for these children. The hearing impaired learner is a beneficiary of this and has seen Kenyan Sign Language (KSL) gain legal recognition (Constitution of Kenya 2010). Sign Language is an integral form of communication among the deaf and is as old as human history. Early in the human history, humans used simple sign language to express basic ideas (www.deafwebsites.com/sign-language/history-sign-language-html).

Since then, the Language has undergone many changes and developments to become what it is today. It has been accepted as a mode of communication to the deaf society and as a medium of instruction in schools for learners with hearing impairment. The United State of America National Research Council 2001 was mandated to identify the practice of educational assessment to determine how well students are learning and as an integral part of the quest for improved education. It was intended to bring feedback to students, educators, parents, policy makers and public about the effectiveness of educational services especially relevant to assessing the academic achievements of deaf students (Ross, 2008).

The Gallaudet Research Institute carried out a research to look at the national norms for deaf and hard-of- hearing learners' performance on the Stanford Achievement Test series. The results of the research highlighted serious concerns about the academic achievement level of deaf students. The institute carried out assessments on

mathematics and reading and found out that there was a big gap between deaf students and their hearing peers.

It established that deaf students continue to lag behind their hearing peers as seen in the academic achievement test scores. It concluded that there was a large achievement gap between deaf students and their hearing peers because of lack of learning platform for the deaf students. This disparity has existed for a long time and has changed very little if at all (Gallaudet Research Institute, 2005).

In the United States of America, disabilities inspired fearful or superstitious reactions, babies born with disabilities were sometimes left to die from exposure while adults were hidden away out of shame. They were not accepted in schools (Sacks, 2001). A rights-based approach to education can address some of societies' deeply rooted inequalities in education like those mentioned above. These inequalities condemn millions of children, particularly girls and the disabled to a life without quality education and, therefore, to a life of missed opportunities.

Education enhances lives. It ends generational cycles of poverty and disease and provides foundation for sustainable development (Kenya Education Sector Support Program Session paper 2005). Universal Declaration of Human Rights (1948) article 26 emphasizes that everyone has a right to education. The research done by Opondo (2001) on factors contributing to low performance of hearing impaired in Nyanza Province states that people saw it not relevant to educate children with serious disability because the society saw them contributing nothing to community development.

Up until the 18th and 19th centuries, people who were different or with disabilities inspired fearful or superstitious reactions. Some people believed God (or a god) inflicted disabilities as a punishment. Various individuals, some motivated by religion, others by science, eventually called for the reform on how society treats those with disabilities (Sacks, 2001).

In Zambia, findings by Mbewe (1983, 1991); Kalabula (1993) and Kitwishi (1995), have shown that learners with hearing impairments have consistently trailed behind their hearing counterparts in academic performance. The performance of learners with hearing impairment is worrisome because it is too low (The Zambian Ministry of Education, Science, vocational Training and Early Education; Planning unit, 2012).

In 1997 amendments to Individuals with Disability Education Act (IDEA) (PL 105) introduced a requirement to consider when making decisions for placements for individuals with HI. What might be Least Restrictive Environment (LRE) for many individuals with disabilities may not be LRE for learners with hearing impairment because of the child's unique communication needs. The IDEA (PL 105) sought to answer the questions, are there peers at the recommended placement site who can communicate with the child? Does the teacher have adequate skills in the communication mode used by the child? Does the teacher possess the skills in communication to the unique instructional needs of students with hearing impairments so as to improve the academic performance which is just below average? (Richard, 2009).

Education of learners with hearing impairments worldwide has been one of the most controversial topics. Article 21 of the Salamanca Framework for Action (1994), states that;

Owing to the particular communication needs of learners with hearing impairments, their education may be more suitable provided in special schools or classes and units in mainstream schools.

The Kenyan Sign Language was included into the school curriculum as an option for Kiswahili as an examinable subject in January 2007 (Geneva Conference, 2008). Despite this change, it is important to note that deaf students continue to perform poorly in school especially when it comes to reading and writing. Kenyan Sign Language is popularly used in schools for the deaf to teach other subjects as well. It is therefore important to determine the effect of KSL on academic performance of hearing impaired learners in Kenya. Kedowa Special School for the Deaf was established mainly to cater for educational attainments of learners with hearing impairments from the region and beyond.

Children with special needs have a right to education just like any other regular children as stipulated by Universal Declaration of Human Rights (1948) article 26. Education is a fundamental human right: Every child is entitled to it. Education is critical to our development as individuals and as societies, and it helps pave the way to successful and productive future (Wolfenson, 2000). According to Grerheart (1980) in pre Christian era, all categories of handicapped people were not catered for. They were either abandoned or put to death. Those who lived were beggars. If you were physically strong

then you were used as a slave, but many were eventually put away in prisons or dungeons, for the society was offended by their presence, they were treated in a cruel manner (Oliver, 1990). According to Universal Declaration of Human Right this was a violation of human rights.

Kenya is considered to be one of the most advanced Countries in provision of special education services to the handicapped in Africa. Laws of the land are adequately covering the needs of all people including the handicapped. There is careful attention and consideration being given to the disabled through amendments of various pieces of legislation like the review of the 1968 Education Act (Abilla, 2007). The government has put in place special institutes such as in Maseno University and in Kenyatta University and Kenya Institute of Special Education which offers diploma courses to teachers so as to be able to handle student with special needs. High academic performance is always associated with availability of teaching and learning resources. Despite all the efforts made by the government to provide learning and teaching resources, special schools still post poor academic results.

1.3 Statement of the problem

In Kenya, despite the high allocation of government funds to special schools, special training of teachers, provision of learning resources, all these are not fully effective as special schools continue posting poor results. Schools of hearing impaired learners are faced with many challenges affecting their academic performance namely communication, curriculum, social and economic just to name but a few. In order to

improve the academic performance there is need to look at the use of Kenya sign language in teaching and learning in Kedowa Special School.

The implementation of KSL was haphazardly done without regard to formal curriculum process and measures on training of teachers was not adequately exhausted (Bunyasi, 2010). The Kenya Sign Language has reached a national status and has been recognized as one of the official languages (other than English and Kiswahili) to be used as a medium of instruction in schools for learners with hearing impairments.

Most of the researches done on hearing impaired pupils have mainly focused on social interaction and family perception of the deaf. A review of related literature indicates that although a number of studies have been carried out on issues of special education, few studies have dealt with factors influencing the hearing impaired academic performance more so at Kedowa Special School. For example, Opondo (2001) investigated general factors contributing to low academic performance in hearing impaired schools in Nyanza Province. This study focused mainly on social, economic and cultural factors influencing academic performance at St. Martin school for the hearing impaired. Hence the current study sought to establish the effect of Kenya Sign Language on academic performance of hearing impaired pupils in Kedowa Special School and in order to improve the academic performance of these pupils, there is need for data on the various factors that influence their performance.

1.4 Purpose of the Study

The purpose of this study was to find out the effect of KSL on the academic performance of hearing impaired learners' at Kedowa Special School.

1.5 Objectives of the Study

The objectives of the study were to;

- i. Establish the extent of Kenya Sign Language use by teachers on academic performance of hearing impaired learners in Kedowa Special School Kericho County.
- ii. Determine the availability of Kenya Sign Language teaching and learning resources on academic performance of hearing impaired learners in Kedowa Special School Kericho County.
- iii. Establish the effects of teachers training in Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County.
- iv. Establish the effects of social factors in use of Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County.

1.6 Research Questions

The research questions which the study sought to answer were;

- i. What is the extent of Kenya Sign Language use by teachers on academic performance of hearing impaired learners in Kedowa Special School Kericho County?

- ii. How does the availability of Kenya Sign Language teaching and learning resources affect academic performance of hearing impaired learners in Kedowa Special School Kericho County?
- iii. Does teachers training in Kenya Sign Language affect academic performance of hearing impaired learners in Kedowa Special School Kericho County?
- iv. What are the effects of social factors in use of Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County?

1.7 Assumptions of the study

The following were the assumptions of the study:

- i. The respondents would be co-operative, honest and accurate upon giving information.
- ii. The teachers who have not trained in special education lack competence to handle learners with hearing impairment and may develop negative attitudes towards the use of Kenya Sign Language in their classes.
- iii. The time allocated to teach Kenya Sign Language is equal to the time allocated to teach other subjects.
- iv. Kenya Sign Language has been implemented in the school and the respondents were aware of its use

1.8 Limitations of the study

In this study, the researcher did not have control on some respondent's unwillingness to respond to some questions. In addition, the researcher encountered problems with the

head teacher for refusing some of the selected teachers and classes to be observed teaching using Kenya Sign Language. This was a major limitation to the study. However the researcher assured the respondents that the data was used for academic purposes only. This ensured, they answered the questions without fear. The researcher guided the teachers in interpreting the questions. Some gave answers that are acceptable hence affected the reliability of the data.

1.9 Delimitation of the study

The study was conducted in Kedowa Special School in Kericho County. The respondents of the study were class 8 pupils, form 1 students, head teachers and teachers. The main areas addressed by the study were: effects of Kenya Sign Language on academic performance of hearing impaired learners. The study variables were; use of Kenya Sign language, availability of teaching and learning materials, teachers training and social factors in use of Kenya sign language.

1.10 Significance of the Study

The study would provide significant useful information to the Ministry of Education and educational policy planners on ways and the use of Kenya Sign Language as an instructional method of teaching in the classroom. The findings will form a basis for use of Kenya Sign Language for all hearing impaired learners in public primary schools. The study would help the school administration and teachers to be informed on the effect of Kenya Sign Language use on academic performance. The people and institutions charged with the responsibility of training teachers may use the study in understanding the situation of Kenya Sign language in schools and facilitate any

necessary changes. Finally, the study could also be used to provide empirical evidence to other researchers who may want to carry out research in future on Kenya Sign Language. Educational experts, policy makers and other concerned parties would use the study findings to review the educational policies influencing the hearing impaired children.

The study findings would provide information to donors, sponsors and other organizations to assist the school the purchase of teaching and learning resources aimed at improving academic performance. The findings would assist the government through the ministry of education, allocate more funds to special schools during financial year budgeting for use in the teaching of Kenya Sign Language. The learners were also expected to benefit from the study as it would help them create a competitive environment for learning hence enhancing their academic performance. Policy makers and planers were also expected to benefit from the end results of the study. It was intended to help lay down strategies for teaching KSL as an examinable subject and the course of implementation in the country and hence the move towards the achievement of the Millennium Development Goals and EFA by 2015.

1.11 Theoretical Framework

The study was guided by Piaget's (1964) theory of cognitive Development. Jean Piaget's theory of intellectual development is considered a leading theory on cognitive development (Flavell, 1963). Piaget's theory asserts that intellectual development is a direct continuation of inborn biological development. Piaget maintains that intelligence is rooted in two biological attributes found in all living creatures: organization and

adaptation. According to Piaget's theory each stage in the learning of KSL provides the foundation for the next stage permitting progressively complex and effective adaptations to the skill. Piaget stresses that as children mature mentally, they pass sequentially through four major stages of cognitive development which are; Sensory motor stage - 0 - 2 years; Preoperational or intuitive stage - 2 - 7 years; Concrete operations stage - 7 - 11 years and Formal operations stage - 11 - 15 years and that each stage having several sub stages. Each stage is a system of learning that is quantitatively different from the preceding stage in this case learners at grade 1 are acquainted with basic skills of Kenya sign language while pupils at class 8 is perceived to have mastered the Kenya sign language. Each stage is a major transformation in thought processes compared to the preceding stage. The stages are sequential and follow an invariant sequence. This means that the child cannot skip or miss a stage or by - pass a stage. He must go through each stage of Kenya sign language in a regular sequence.

Piaget's theory of cognitive development has far reaching implications for curriculum development, planning, implementation, evaluation and instructional of Kenya Sign Language in schools. Curriculum planning for KSL should revolve around the subject matter, the society and the learner. When the orientation has the learner as a basis, then we must consider his interests, felt needs, basic urges or drives and concerns as he move through the various classes. The teaching methodology and teaching materials, and the learning activities for Kenya Sign Language should be those that are appropriate to each of the cognitive developmental stages of the learners. Since the theory says that there is a mutual interaction between the learner and the environment, teaching materials should

come from the learner's environment. Teachers as instructional managers should use the hierarchy to: understand why children think and reason as they do; and to help the children master intellectual processes at the appropriate age. Children at various ages have different capacities for attention and comprehension. This means for instance that a standard one pupil may not endure a seventy minute double period as would a standard seven (Anita 2004).

According to Piaget (1994), teachers as instructional managers should ensure that the learning environment should be rich in physical (concrete) experiences because growth in any one stage depends upon activity. Indeed Piaget calls for an active school involvement, which is a key to intellectual development, and should include direct physical manipulation of objects. The child must touch, sequence and push to experience and understand his environment. Curriculum, instructional and assignments should be centered on the child's world. Teachers should design educational experiences based on the child's need and readiness. By understanding how cognitive systems develop, they can avoid teaching children something before they are ready to learn it and missing a golden opportunity by waiting until well past the most sensitive moment. Teachers should use diagnosis to determine a child's stage of development and then design individualized instruction to provide the optimal amount of stimulation and challenge.

Acquisition of a new structure of material operations (real learning) results from the equilibration process. Piaget demonstrates that this type of learning is the only stable and permanent one. It is only when the child has acquired the mental structure to

assimilate new experiences that true learning takes place. It is only when the true learning has taken place that the child is able to generalize to novel situations. When the child has acquired the essential cognitive structures (schemas), he can begin to understand reality; but when the child does not have the schemas; new experiences have only a superficial effect. Thus, the teachers should strive to present those experiences and materials that are relevant to what the child knows and then expose him gradually to novel situations. Piaget's argues that teachers should understand that each individual child's cognitive development does not occur quickly and little, if any progress, may be assessed on a weekly or even monthly basis. They must not think that because something has been presented, it has been learned. They should be given time to understand the school world which is different from the home world. Piaget emphasizes social interaction in that children must be involved in the learning process, that is, learning should be child centered (Piaget 1994).

1.12 Conceptual Framework

The conceptual framework is presented in Figure 1.1

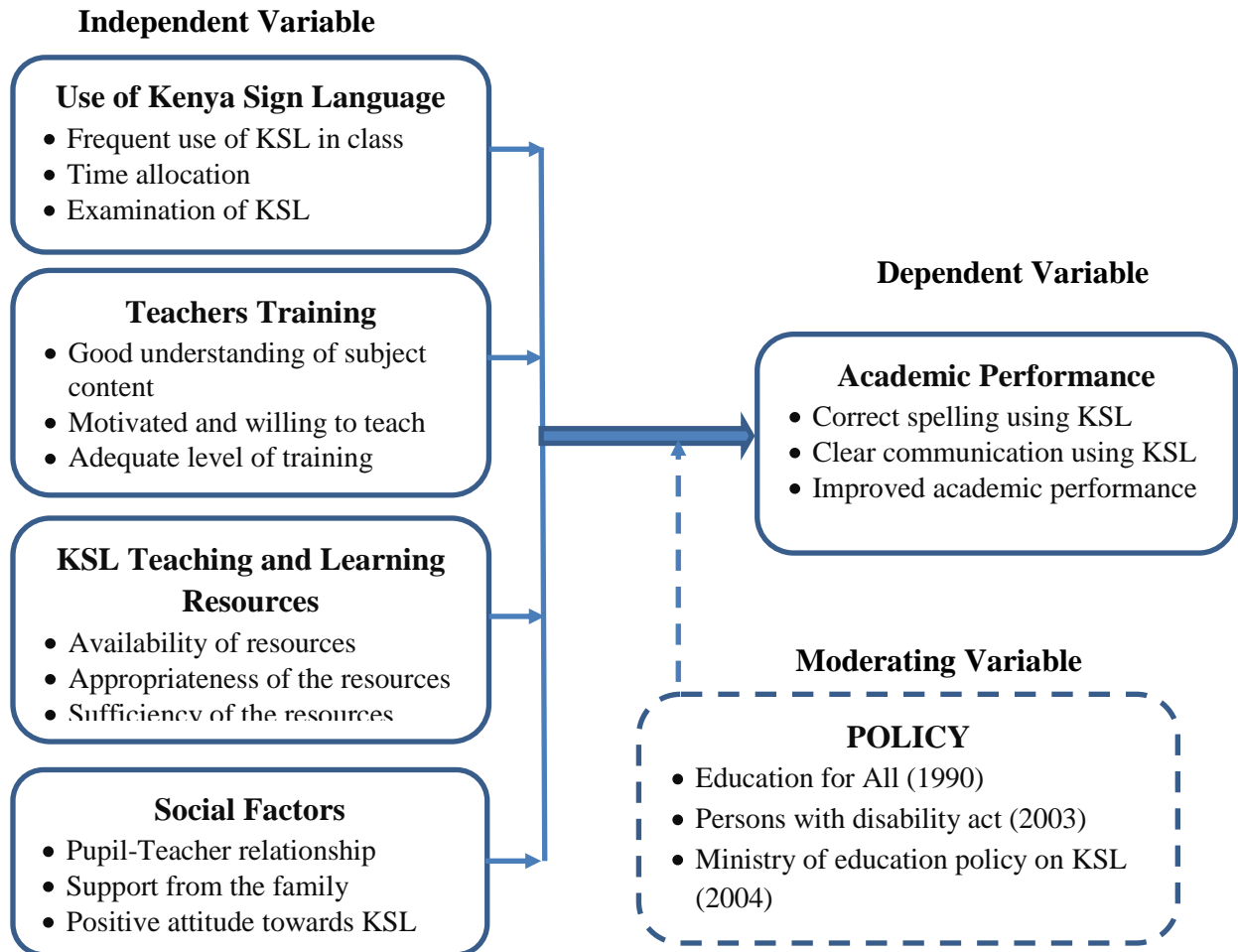


Figure 1.1: Conceptual Framework

Source: Research Data (2019)

For successful academic performance to be realized by learners with hearing impairment, they have to know how to use Kenya sign language in their learning. This is possible if the learners have positive and good attitude towards Kenya Sign Language; they must frequently use KSL in their class so that they master the skill and that they need to have support from their family who will ensure that they motivate

these learners to learn Kenya Sign Language by ensuring that the learner has revision resources while at home or an expert who will guide them.

A teacher who teaches KSL ought to have been trained on how to teach using KSL for there to be good academic performance. The teachers ought to have good understanding of the language, they need to be motivated and be willing to teach the language and the teachers need to have adequate training on Kenya sign language. Good academic performance will not be actualized without the relevant teaching and learning resources. Hence, schools need to ensure that they have different types of KSL learning materials which are appropriate, adequate and readily available for learners to use.

There are social factors which hinder good academic performance and ought to be addressed. The factors include pupil –teacher relationship which requires teachers to be social with the learners and be friendly at all time so that learners can embrace their teaching methodologies on KSL easily. KSL ought to be timetabled and adequate time allocated just like other subjects. The language also ought to be examinable so that learners can give all the attention and seriousness it requires. Schools also need to ensure that all the policies which the government formulates are adhered to for there to be an improvement on academic performance.

1.13 Operational Definition of Terms

Deaf: is a person with hearing impairment and cannot use oral-aural modes of communication with or without sound amplification.

Hard of hearing: Refers to hearing loss where there may be enough residual hearing that an auditory device such as a hearing aid or FM system provides adequate assistance to provide speech.

Hearing Impairment (HI): This is a term often used to describe persons with any degree of hearing loss from mild to profound including those who are deaf and hard of hearing

Lip reading: (speech reading). This is a technique of understanding speech by visually interpreting the movement of the lips.

Manual communication: This is a system that uses articulation of hand signs and gestures to mediate a message between persons.

Oral communication: This is communication through mouth. It includes individuals conversing with each other through talking.

Profound deafness: Refers to hearing loss so severe that the person cannot hear anything at all. They are unable to detect sound.

Kenya Sign language: This is a language which, instead of acoustically conveyed sound patterns, uses manual communication and body language to convey meaning

Academic Performance: is the performance of a learner in his or studies. In the study it is measured by the ability of the learner to spell correctly, communicate correctly and improve in other subject studied.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers literature related to the study which are; use of Kenya Sign Language, teachers training, Kenya Sign Language teaching and learning resources, social factor, policies of Kenya Sign Language, academic performance of hearing impaired learners and finally the summary and identification of research gap.

2.2 The Concept of Kenya Sign Language

Sign Language was developed by Pedro Ponce de Leon (1520-1584 AD) in Spain in the 16th century. He was the first teacher for the deaf. He was a monk who started a deaf school for Spanish royals. During this time deafness was common in Spanish aristocracy. He was motivated to start his work by two deaf brothers in the monastery whom he was instructed to teach. During this time there were two methods of teaching the deaf, oral and manual methods.

At the time de L'Epee was promoting use of SL in France, there was a strong wave towards oralism in other parts of Europe especially in Britain and Germany. The developed countries concern of Oral Language has shifted to Kenya Sign Language communication by accepting the use of Kenya Sign Language in classrooms as opposed to natural language in teaching the deaf. The first kind of communication is what is referred to in the United States and Canada as American Sign Language (ASL) (Stokoe, 1992).

Kenyan Sign Language can be traced back to the time of Greek philosopher Socrates (469-359 BC). It is a language used by deaf community in Kenya and is also a mode of instruction in schools for the HI. Unlike English language, Kenyan Sign Language cannot be consulted in a dictionary when checking the meaning or origin of signed words as would happen in an English dictionary. Kenyan Sign language dictionaries are guided on how to sign a word in written English. Sign Language uses symbols while communicating. For example signs to show direction or movement either circular movement, slow movement, double circular movement, repeat to and from movement and so on (Botswana Sign Language Research project, 2008).

Kenya Sign Language is the language of communication for and with persons who are deaf. Kenya Sign Language therefore, is the first language for those who are pre-lingual (KICD, 2010). In Kenya, Sign Language has grown and developed into Kenyan Sign Language (KSL) (KSDC, Ogutu, 2006). KSL is accepted as the mother tongue for children who are deaf. It is also the medium of instruction for learners who are hearing impaired in both pre-school and lower primary levels. At higher levels, Kenyan Sign Language and Signed English are used interchangeably in addition to usage of other components of Total Communication during the learning process and in other co-curriculum activities.

While children with hearing abilities acquire language spontaneously from members of the family and community, those with deafness come to school without any structured language skills. It is in hearing impaired schools that children are taught Sign Language that it enables the teaching and learning process to flow smoothly.

Wilbur (2008) asserts that natural languages are those that can be acquired and learnt without formal intervention and teaching. This process however naturally takes place in a normal environment where there are plenty of adult role models from whom children can naturally learn the rules and conventions of that language. The deaf child's environment is not normal since he cannot hear. Hence he cannot be exposed to language through normal means. Despite this, deaf children like their hearing counterparts are genetically predisposed to acquire language and will enter the same stages of linguistic developments as hearing children including the critical period from ages 3-5 years. As soon as a parent learns that his/her child is deaf, steps should be taken to ensure that he is exposed to a language that he can acquire. Wallwork (1985) noted that a great deal of aspects of language still remains to be learnt at that stage. However, there is not always unanimity on what it is that is left to be learnt.

According to Wallwork (1985), language teaching should have as its central aim the nurturing of the process of growth that gives a child the necessary linguistic resources to handle the increasingly difficult tasks involved as he goes through school life not only in the educational process but also in the total emotional and intellectual demands made on him. Such educational processes will for instance demand that he masters complex conceptual materials of high degree of abstraction and also demand that he should be aware of and be able to select appropriately from resources of the mother tongue those elements which will best suit particular and specialized purposes. Deaf pupils who may not be exposed to their language through competent teachers may not be able to achieve this.

In Kenya, Okombo (1994) points out that the teaching and learning of Kenyan Sign Language must be addressed because although deaf children may acquire Sign language in their 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 whether spoken or signed. This seems to agree with the British and American government policies whereby although English is a mother tongue which many children acquire naturally, they are still required to learn it formally in schools hence sign language also ought to be taught as a subject to deaf children who grow up in an environment of hearing parents where it cannot be acquired naturally.

2.3 Effect of KSL on Learners' Academic Performance

Interactions between the hearing and the deaf communities rarely run smoothly. There is a good deal of mutual distrust between the two groups making it difficult for even well-meaning hearing persons to successfully penetrate the deaf community as agents of positive change (Viehman 2005). Deafness is often divided into two categories, depending on whether or not an individual was deaf prior to or after learning spoken language: pre-lingual deafness and post-lingual deafness. As a rule, Viehmann (2005) states that those who were pre-lingual deaf rely primarily on signed language for communication as it is their first language, whereas those with post-lingual deafness have access to at least Total Communication where spoken language would be a preferred mode of communication thus this groups requires different approaches for them to acquire the skill necessary for improvement of their academic performance.

Communication, speech and language sound like the same thing and are often used interchangeably in our daily conversations. Language is a socially shared code, a set of arbitrary symbols and rules that govern the combination of these symbols which are used to convey ideas, thoughts, emotions and intentions. Language includes speech but it can also be written or signed (Hartas, 2005). According to Ndegwa (2008), there are several factors affecting Kenyan sign language variations. The most obvious is geographical differences. People in different areas speak differently, schools, towns and tribes are prone to variations. Deaf culture is built within another existing culture. The deaf being a minority exists within the hearing community. They observe activities within the larger community and come up with related signs. Regional differences in a country where different activities are done differently in various regions, the signs for the same activity will be different.

According to Avoke (2005), learners with HI can lead perfect normal lives with their families if communication is not difficult. The inability to communicate freely with others limits their choices of careers. Education is one of the most important aspects of human resource development thus every child should have the opportunity to achieve his/her academic potential. Poor school performance not only results in the child having a low self-esteem, but also significant stress to the parents. The United State of America National Research Council (2001), was intended to bring feedback to students, educators, parents, policy makers and public about the effectiveness of educational services especially relevant to assessing the academic achievements of deaf students.

The Gallaudet Research Institute established national norms for Deaf and Hard-of-Hearing (DHH) learners' performance on Stanford Achievement Test series. The institute put the results of the scores in a bar graph representing the general (hearing) population and deaf and hard- of hearing learners. Each vertical bar in the bar graph has four stacked segments, which represent the proportion of students whose scores corresponded to each of the four quartiles of the general population norms. This was used to test performance in Mathematics and reading.

The results showed that 82% of the deaf students attained scores that corresponded to the lowest quartile of the general population. About 90% of the students scored below the median of the general population. Nearly 97% of the deaf students scored in the first three quartiles. Only 3% of the deaf students scored in the fourth quartile of the general population distribution. The results highlighted serious concern about the academic achievement of deaf students. It established that there was a large achievement gap between deaf students and their hearing peers (Gallaudet Research Institute 2005). This disparity was also seen in other parts of the world. In Zambia for example, studies showed that learners with hearing impairment have consistently trailed behind their hearing counterparts in academic performance.

Owino (2009) carried out a study on *factors contributing to poor performance in Mathematics at KCPE among standard 8 pupils in primary schools for learners with hearing impairments*. The purpose of his study was to investigate factors that contributed to poor performance in Mathematics and suggested possible ways that might be followed in the schools to improve the performance in Mathematics.

He targeted standard 8 pupils with hearing impairments who were going to sit for their KCPE exams and their Mathematics teachers. His study population included four schools for the deaf who had been presenting candidates for the last five years and used descriptive research design. His study was carried out in Nyanza Province and his results revealed that the learners with hearing impairment lacked most of the skills necessary for the solution of most mathematical problems. He also argues that linguistic acquisition and competence has influence on the learner's performance in mathematics. The learners can easily solve numerical problems in Mathematics but cannot solve the same when it is word problem. This suggests that the use of KSL will greatly influence the performance in Mathematics.

Kenyan Sign Language has been introduced in both primary and secondary schools as a medium of instruction and is now being examined in the national examinations like K.C.P.E and K.C.S.E and this is expected to bring an effect on the acquisition of mathematics' skills and the performance of other subjects as well. Owino's findings has been supported by other scholars like Paul and Jackson(1993) who posited that linguistic deficit has a hindrance to learning subjects like mathematics, science and other subjects.

This is the position adopted by the current study, trying to look at the performance of learners with hearing impairment in Kedowa special school after the introduction of KSL as an examinable subject. Owino, (2009) cited the poor performance in mathematics to wording problems in mathematics. The effect of language in teaching mathematics disadvantaged students as noted by Zevenbergen,(2000), who reveals that

students with hearing impairments experience difficulties in mathematics. Such difficulties are due to the development of an alternative form of language, such as sign language.

It was therefore the assumption of the researcher that the use of KSL as an examinable subject, would bring a positive impact on learners' academic performance in all subject areas now that KSL is being used by teachers as a medium of instruction replacing total communication commonly used in the classrooms. From previous research studies it was established that teachers still preferred using total communication in teaching. Learners with hearing impairments should be given necessary support to help them attain relevant and quality education that would help them perform well in national examinations.

2.4 Use of Kenyan Sign Language in Special Schools

Okombo (1992) noted that most teachers in schools for the deaf have for a long time, been handicapped especially in imparting knowledge. These teachers are normally individuals who have gone through university in the case of secondary school teachers or through college for primary school teachers. These are brilliant individuals who are handicapped by lack of preparation for teaching in a non-speech environment. For fresh college or university graduates posted to schools for the deaf for the first time, they are handicapped by many factors, among them; negative attitudes towards deaf children perpetrated by the older generation teachers; their speech-based training throughout their life (some may be seeing deaf children for the first time); and lack of KSL communication skills.

These handicapping factors were alluded to by Okombo (1992) 28 years ago but there doesn't seem to have been any meaningful change to date. Commenting on the state of deaf education in Kenya, he said,

“For thirty years, our teachers have tried to speak to deaf children but they have failed. And because of this failure, our teachers have come to the conclusion that the Deaf are not meant for college and University education”.

The teachers feel successful if a deaf child is able to mumble some few words and can do some elementary job as a craftsman, say in a carpentry shop. The teachers therefore need to be equipped with KSL skills for them to be effective in their job. Language teachers specifically need to be competent signers to be able to lay the foundation that other teachers can build on in terms of teaching academic subjects in school to do what Anderson (1994:6) calls “conducting complicated mental operations” and thus prepare deaf children for the real world. This challenge does not seem to be an entirely Kenyan one. Even in countries where SL has been adopted as a language of teaching, there are still issues concerning the quality of teachers. According to the proceedings of the deaf Australia national conference (2013), although the Australian Sign Language is included in the national curriculum as a language of teaching, there is concern surrounding the linguistic understanding of some teachers delivering the courses.

According to Okombo *et al* (2006), the teacher can play this important role if and only if he or she has the following capacities: a) Fluency in KSL as a language of communication across the curriculum and particularly as a medium of instruction. b) Skills and knowledge of teaching KSL as a language i.e. (i) basic linguistics of KSL

including KSL language skills; and (ii) methods of teaching and assessing a non-spoken language.

The proceedings of Hong Kong Red Cross Special and Rehabilitation Service 50th Anniversary International Conference 2004, on the teachers' and students' views on the use of sign language, concluded that teachers had a different view than their students. The teachers' opinion was that a mixed code of signs and spoken Chinese was the most effective mode of teaching in and outside classroom. The students had a negative view towards simultaneous communication. Teachers had a misunderstanding about the KSL and therefore more seminars had to be conducted to clarify this.

Mulonda (2013) in his study on *a situational analysis on the use of sign language in the education of the deaf in Zambia*, wanted to provide a baseline information on the current practices in the education for the deaf which are used to guide policy on language and education for the deaf. The study was carried out in two schools located in the Eastern Province and the Copper Belt Province of Zambia and the target population included, deaf pupils, teachers in deaf schools and units in Zambia, lecturers from Zambia Institute of Special Education (ZAMISE) and University of Zambia (UNZA), standard officers, curriculum specialists in special education, NGOs working with the deaf and parents of deaf children. He used a case study design and the findings of the study, showed that many teachers had not received adequate training in sign language.

The study found that sign language was the main medium of communication to both the teachers and the pupils and that it seems that there is no policy on the teaching of sign

language to guide the teachers as was seen from the responses. The teachers' views were supported by the curriculum specialist for the hearing impaired, who stated that there was need to introduce sign language as an examinable subject (Mulonda, 2013).

Eagly and Chicken (2003) argue that attitude is a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person or situation. Teachers are instrumental to the successful implementation of Sign Language in schools for the hearing impaired. Teachers' abilities and attitudes can be major limitations to learners' academic performance (Lieberman and Houston, 2009). Teachers' attitudes which do not promote the use of Sign Language are fear, limited expectations and lack of signing skills. Teachers' unfamiliarity with disability often results to poor academic performance in the classroom.

Therefore sensitivity and awareness on the part of the teacher in school is essential towards the promotion of Sign Language use (Hodge, 2004). Studies have shown that if a teacher has low expectations towards deaf learners then the children will unlikely receive satisfactory education in hearing impaired schools (Oracha, 2007).

2.5 Teacher Training in Kenyan Sign Language

The taskforce on Special Education (MoEST, 2003) established that there are approximately 4255 Special Needs Education (SNE) teachers trained in Kenya. When this number is weighted against 1.8 million learners with SNE, then the demand for trained SNE teachers becomes very high. The taskforce found that only 20% of teachers in SNE programs are trained in SNE, most of these SNE teachers lack the necessary

proficiency in Kenyan Sign Language (KSL). Teaching styles and high quality of education depends on the quality of the human resource available and this can be found in teachers (UNESCO, 2004).

Education must offer an instrument of change and development and not only to focus on the availability of teachers. The teacher factor is important as a basis to academic achievement (World Bank Report, 1986).

Teachers qualification is a technique that is widely accepted (Carr-Saunders and Wilson 1994). Problems that lead to poor quality education persists because of the shortage of both qualified and properly trained teachers. This has impacted negatively on the academic achievement of the learners (UNESCO, 1991). Earlier, teachers without proper academic qualifications and professional training failed to do justice to their subjects. High qualifications develop self confidence in the teacher who in turn serves as a source of inspiration to his/her pupil (Kiarie, 1996). He further suggests that a teacher must possess theoretical knowledge about human learning behavior, demonstrate better teaching skills and facilitate pupils learning. A teacher must also display positive attitude that foster learning and genuine human relationships and also should have knowledge of the subject matter. It is noted that learners' academic performance level is caused by teachers because it's them who most matter in a child's life in school (Ominde, 1964).

If a teacher lacks in appropriate qualification and self-confidence, then he has a lower self-esteem due to lack of content mastery that leads to poor performance by learners.

Teachers academic and professional qualification are a prerequisite to the mastery of Sign language that contributes to the nature for pupils performance; citing lack of efficient use of Sign Language in teaching methods as good setup reflection of teachers professional qualification (Kathuri and Nyaga, 1997).

Teachers must master Sign Language Structure before she/he develops Signing Skills that will be used at all times for proper learning to take place in the classroom. Sign Language therefore plays a pivotal role that affects all activities in the school (Oracha, 2007).

An American NGO, Global Deaf Connections (GDC), in partnership with the Ministry of Education and Deaf Organizations have supported the training of deaf teachers to teach deaf learners in primary schools (Kimani 2012). They are supported to acquire the initial teacher training for regular learners but not the specialized training at KISE. The Kenya National Alliance for the Deaf (KNAD) is also offering courses to interested persons including teachers. The course offers basic KSL training programs for communication skills. It is therefore mandatory to start more sign language training opportunities like seminars all-round the regions. This would open up training opportunities for many more teachers (The Dancing Interpreter Diary Oct. 2012).

Studies by Adoyo (1995), revealed that many teachers in schools for the deaf had difficulties in communicating ideas to deaf pupils through simultaneous communication. This shows lack of proper training strategies for our teachers. To date this issue has not been given its due attention and should be handled with utmost

urgency. All stakeholders, MOEST, KICD and policy makers, should now work together and address this issue once and for all. One of the causes of poor academic performance by hearing impaired learners could be attributed to poor communication skills by the teachers. Stephens, (1980) says;

“In order to improve the educational system for deaf learners, we must first re-educate the teachers, and reduce the prejudice that leads to oppression”.

All the institutions mandated to teach SNE should have qualified personnel who are competent in Kenyan Sign Language so as to give the teachers that be, the necessary knowledge in communication skills. According to the Kenya Institute of Curriculum Development (KICD, 2009) report, it was established that the country lacked enough trained personnel to teach KSL. This limits the learners in acquiring information and getting education. This was said in a launch of a Manual for parents/guardians of children who are deaf held in Kisumu (Daily Nation August 31st 2015).

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The head teacher has a role in enforcing the use of Sign Language in school as the school is the best place where any intervention takes place. Therefore the head teacher has an important role in making sure that teachers under him/her have mastered Sign Language (Carol and Chau, 1996).

Most teachers in any school will not use Sign Language in classroom work unless they are supervised by their head teacher. The head teacher should also master Sign Language and teach lessons for the teachers to emulate before drawing up work plans or schedules among others (Codally and Nystrand, 1983).

The quality of the head teacher is very crucial in determining the use of Sign Language outcome in her/his school. He is the most important influential individual in a school therefore he must have good managerial skills set for the benchmark. The head teacher should ensure that school follows signs agreed upon to be used for teaching in the curriculum and that Sign Language is effectively implemented in order for the school to achieve its goals, the main one being academic excellence (Hinger, 1995).

The teacher's professional role is a demanding one. According to Wamai (1991), a research conducted in the Kenyan schools indicated that the academic qualification of teachers is a key factor that determines learners' academic achievement. Teachers are, therefore, supposed to have undergone sufficient training. A management handbook by

the Teachers Service Commission (TSC) (1999:21) shows that school effectiveness and improvement can be achieved through contributions made by various inputs, but effective teaching by far plays the biggest role.

Due to inadequate Sign language training, Wakumelo (2009) observed that teachers depend mainly on learners who are hearing impaired whereby they write words and the signs are given to the teachers by the learners. “The pupil who is supposed to be the learner now becomes the teacher,” Wakumelo (2009) notes.

In a country where schools for the HI and education for the HI has been in existence for some time, this system is strange. Other times, the teachers end up using apparatus, aids or objects so as the children may see what the teachers are referring to.

Muiti (2010) in her study; Hindrances to effective learning of pupils 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 Kenyan Sign Language. She suggested that all teachers in schools for learners with HI should be trained in Kenyan Sign Language because learners with HI learn just like their hearing counterparts if given access to methods they need and the language they understand.

In her findings, Imbiti (2012) found out that although most teachers had a positive attitude towards KSL use they were short of knowledge and skills in it due to inadequate training. She also found out that human resources who included teachers with HI, Teachers trained in KSL and support staffs with HI were insufficient. Mulonda

(2013) in his situational analysis on the use of sign language in Zambia: Magwero and St Joseph schools for the HI, the study revealed that majority of the teachers felt having inadequately received Sign language training. From the available literature, no studies seem to have been carried out on the same in Kedowa Special School for the Deaf in Kericho County, thus, a knowledge gap exists in the area and the researcher was out to fill it.

2.6 KSL Teaching and Learning Resources

In 2003, the Government of Kenya implemented Free Primary Education (FPE). Funds to buy instructional materials were availed and this was expected to boost educational standards in all primary schools, special schools for learners with hearing impairments included. Many scholars have argued that the poor performance in schools for the hearing impaired learners, are attributed to lack of learning materials like textbooks and learning aids.

The government noted lack of necessary resources, training and equipment's in schools for the hearing impaired learners and therefore availed these resources by introducing FPE. The government made education compulsory for all irrespective of their special needs in order to meet the government's EFA by 2015.

The experience of using a range of teaching/learning resources and related equipment's, supplies, furniture and various forms of printed media for teachers are critical in facilitating the process of teaching and learning worldwide (UNESCO, 2007). These resources include hearing aids that offer services to teachers to enrich their teaching.

However the resources are expensive and need a replacement (Koech, 1999). The high expenditure incurred on repair can be cut down by training teachers on how to use and maintain the equipments with proper instructions to learners on how to use them.

In the United States of America (USA) 50% of teachers reported to lack adequate teaching materials (Good, 1999). Differences in school facilities seem to account for differences in achievement. Facilities such as library, textbooks, laboratories, dormitories, visual aids, electricity, water and playing grounds enhances better learning (Postlethwaile, 1998).

The central role that learning materials play towards the quality of education, impact of the work and motivation of teachers and the pupils which undoubtedly constitutes an important factor in the academic performance and the success of any learner (Lockheed and Verspoor, 1991). He further stated that to improve learning, teaching resources like textbooks should be used as instructional materials at all levels of teaching because they reflect and deliver the curriculum.

The report on studies carried out in Malawi and Guinea Bissau which established that teachers lack essential teaching materials such as teacher's guides and other pedagogical documents to accompany the text books contributed to poor performance of the candidate at the examination level. Also lacking were teaching aids such as globes, wall maps and laboratory equipment's.

Some schools have no proper classrooms that affect the quality of education leading to low academic achievement and poor performance in examinations (Wanjau, 2005).

Lack of teaching equipment's in most rural schools have discouraged the teachers from doing their best when teaching. He concludes that if schools were well equipped, they would motivate the teachers to facilitate learning.

However, Wanjau noted that teachers were not innovative enough and failed to utilize and improvise from the resources available from the school environment to improve their teaching. He also argues that it is not only the availability of teaching resources that can motivate use of Sign Language but rather how teachers make proper use of the teaching resources provided. The experience of using a range of teaching/learning resources and related equipment's, supplies, furniture and various forms of printed media for teachers are critical in facilitating the process of teaching and learning worldwide (UNESCO, 2007).

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Lack of teaching equipment's in most rural schools have discouraged the teachers from doing their best when teaching. He concludes that if schools were well equipped it will motivate the teachers to facilitate learning hence improvement in academic performance of the learners. However, Wanjau noted that teachers were not innovative enough and failed to utilize and improvise from the resources available from the school environment to improve their teaching. He also argues that it is not only the availability of teaching resources that can motivate use of Sign Language but rather how teachers make proper use of the teaching resources provided.

Ayiela (2012) carried out a study to determine the factors affecting KCPE performance of learners with hearing impairments in special schools. She carried out her study in

four counties namely, Kuja in Migori, Nyangweso in Homabay, Nyangoma in Siaya and Maseno in Kisumu. Her target population was made of 62 teachers, 4 head teachers and 654 learners. The study sample was 125 participants. She used descriptive as her research design and the results obtained from the study, showed that text books were the most widely used learning resource that teachers had at their disposal.

She observed that teachers rarely used learning aids whether developed, improvised or otherwise. Total communication was a preferred mode of communication and that since sign language is a component of total communication, it posed a challenge to majority of the teachers who were not fluent in both the expressive and receptive skills of sign language. This made the teachers handle the learners with hearing impairments like other learners by using and very minimal signs. She also argued that various studies have showed significant positive association between academic achievements and school inputs. She cited World Bank Operations Evaluation Departments' review on the determinants of education quality in developing countries.

Boissere (2004) confirmed textbooks and writing materials as key contributors to schools' effectiveness at primary level in developing countries. Ayiela (2012) cited Hanushek, (1995) who argued that "there are no clear systematic relations between key inputs and students' performance" the central theme as he argues, is that the traditional approach to providing quality education by simply providing more inputs, is frequently ineffective.

Teaching/learning resources are important to teachers for effective teaching not only for the regular learners but also for learners with SNE in explaining abstract concepts (Wangechi, 2007). Lumumba (2009), in his findings on factors contributing to job satisfaction and dissatisfaction among teachers in special schools in Rift Valley Province, Kenya, argued that teaching /learning materials and facilities were dissatisfying to teachers thus impacting negatively on the learning process. Bunyasi (2010) also reveals that there is inadequacy of resources in Kenyan schools for learners with HI such as assistive devices due to lack of spare parts.

Okombo (2008) in his presentation on KSL development at Nairobi University - Kenyan Sign Language, Research Project (KSLRP) - postulates that there is a wide range of materials to be developed for KSL use in schools for learners with hearing impairments. Such materials include video recordings of stories told in KSL and reference materials such as maps, charts, Kenyan Sign Language text books and KSL dictionaries.

Okombo observes that the development of these materials will need to take a continuous process because there will be new knowledge in the present era of advanced technology and lack of resources in schools for learners with HI affects learning. A study by Imbiti, (2012) only discusses teaching learning materials as a strategy for enhancing the learning of KSL but it leaves out the impacts of such materials on the teaching of KSL hence the need for this research to be conducted.

2.7 Social factors on academic performance

The social factors that may be influencing the academic achievement of the hearing impaired students are: the social ecological, family parental environment, cultural perception and practice and school factors. Socially, H.I. persons are commonly labeled with disparaging and superstitious labels that push them outside human communication and social life, and deny them access to education, work, and other equal opportunities that would make them self- supportive and full members of their respective societies (Joutsalainen, 1993). Tirusew (1998) states that the extent to which a hearing impaired child successfully interacts with family members, friends, and people in the community depends largely on the attitudes of others and the child's ability to communicate in some mutually acceptable way.

The Zambian National Association for the Deaf also supported this view and asked all the stakeholders to advocate for the rights of the learners with hearing impairment and the right to better education through the use of sign language in all the academic deliberations. The teachers supported the view that sign language should be examinable and that they had the capacity to teach the subject, (Mulonda, 2013).

In 2008 there was an outcry of teachers expressing their discomfort in teaching KSL without adequate preparation (Daily Nation, 15th July 2008). The teachers though in support of KSL as an examinable subject, have noted that learners with hearing impairment, still lag behind their hearing peers. It was expected that learners with hearing impairment would undergo a remarkable change with the introduction of KSL as an examinable subject to replace Kiswahili (Koech Report 2000). However, little if

not, no improvements have been noted in performance since its introduction as an examinable subject in 2007.

2.8 Policy on Kenya Sign Language

The Amendment Act (2011) on Persons with Disabilities stipulates that Sign Language is an assistive device where the deaf person uses an interpreter in broadcast sense as a basis of all human communication. Sign Language is a system of using manual-general signs as a medium of communication by the members of a given deaf community (Kenya Society for deaf children, 2006). Based on the linguistic research in the second half of the twentieth century is the finding that sign Language has all the properties that distinguish human language from the other (non-linguistics) modes found in the animal kingdom.

Persons with Disabilities Amendment Act (2011), stipulates that Kenyan Sign Language is an assistive device where the deaf uses an interpreter in broadcast sense as a basis for all human communication. It uses manual-general signs as a medium of communication by the members of a given deaf community (KSDC, 2006). Based on the linguistic research in the second half of the twentieth century is the finding that Kenya Sign Language has all the properties that distinguish human language from the other (non-linguistics) modes found in the animal kingdom. Kenya Sign Language is used naturally by deaf people in Kenya, as elsewhere. Sign is defined by its codification and standardization and it is developed using a system of graphic symbols and it is formed by a group of deaf persons living in a community and it is not imposed on them (Okombo, 2006).

It is also noted that though KSL has been around since the early 1960s, it took years of advocacy to have it recognized as a language (Georgine, 2014). The Constitution of Kenya 2010 Art.7 (3)(b) mandates the state to promote the development and use of KSL, while Art.120(1) recognizes KSL as one of the official and business languages of parliament (Kenya Constitution 2010).

2.9 Summary and Gap Identification

The foregoing reviewed literature presented a number of researches on Kenya Sign Language. The studies indicate general factors contributing to poor academic performance for the hearing, some of the factors revealed that the difficulty hearing impaired children have with speech and verbalization, affects their academic achievement (Opondo 2001).

The researcher also found out that children with hearing impaired problems tended to be three or five years academically behind normal hearing children. Other researches were concerned with disciplines of other disabilities.

Chitechi (2006) carried out a study on the implementation of Kenyan sign language and researcher found out that most teachers were not competent in the Kenyan sign language. The researcher did not investigate the social factors influencing academic performance as in the current study. Makachia (2010) carried out a study on the Public perception of the hearing impaired and their academic achievement of St. Martin school. The study recommended that head teacher and teachers need to have positive attitude towards the deaf learners and recognize the use of Sign Language to deaf

learners who acquired deafness before the development of speech and language hence the need for this study to determine teachers attitude towards Kenya Sign Language and if they are motivated and willing to teach the subject.

Previous Studies that were conducted dwelt on effects of sign language mode of instruction on acquisition of English affixes by the hearing impaired form two learners (Wamae, 2003); development of signs for scientific terms in schools for hearing impaired (Wanjau, 2005); factors hindering effective teaching and learning activities for hearing students (Kamonya, 2008) and strategies facilitating Kenyan sign language progress in primary schools for learners with hearing impairments (Imbiti, 2012). None of the studies were on the effects of Kenya Sign Language on academic performance of hearing impaired learners hence the need for the study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covers, research design, location of the study, target population, sample size and sampling techniques, research instruments, piloting, reliability and validity of the instruments, data collection techniques, data analysis and logistical and ethical consideration.

3.2 Research Design

The researcher used a case study research design for this study. A case study is defined in the Kenya Institute of Management Hand Book (2009) as an in-depth study and detailed description of a single entity, situation or phenomenon. Yin (2009) gives it to mean an empirical inquiry about a contemporary phenomenon e.g. a 'case', set within its real-world context especially when the boundaries between phenomenon and context are clearly evident. The research study was carried out in Kedowa Special School for the Deaf which is a single entity.

3.2.1 Variables

Independent variables: The independent variables in the study were use of Kenya sign language, teachers training, Kenya sign language teaching and learning resources and social factors on Kenya sign language.

Dependent variable: The dependent variable was academic performance.

Intervening variables: The intervening variable was government policies on Kenya sign language.

3.3 Location of the Study

The study was carried out in Kedowa Special School for the Deaf in Londiani Sub-county of Kericho County Kenya. Kedowa Special School for the Deaf is situated 2 km from Kedowa town on Kericho-Nakuru highway. The researcher chose the school because of its accessibility and that the school houses both primary and secondary section which was appropriate in exploring the learners' performance and their transition to secondary and other tertiary colleges.

3.4 Target Population

The population under study was drawn from Kedowa Special School for the Deaf. This included all teachers and learners in the school. The learners' population stands at 100 in the secondary section and 206 in the primary section (school records) with 9 teachers in the secondary section and 15 in the primary section. The head teacher for the primary school and the principal for secondary school were also targeted. The total target population was 332 respondents. The researchers' accessible population was drawn from upper primary which was class 4, 5, 6, 7 and 8 and Form 1 and 2. This was a representation of the whole school and thus was easy to carry out the research study.

3.5 Sampling Technique and Sample Size

3.5.1 Sampling Technique

Selection of the population included in the sample was done by first having a sampling frame from the target population. From the sampling frame, a purposive sampling

technique was used to select the population for study. Class 4, 5, 6, 7 and 8 pupils, form 1 and 2 students and teachers, were purposively selected where the 2 head teachers were included because of their administrative positions. The two head teachers were purposively selected because of their collective administrative responsibilities in the primary and secondary sections respectively.

Head teachers were sampled so as to give information on the academic performance of their learners, adoption of policies on KSL and social factors on KSL. Teachers were sampled so that they could give information on the use of KSL, teachers training and KSL teaching and learning resources. Learners gave information on social factors and use of KSL.

3.5.2 Sample Size

The sample size was drawn from the target population of Kedowa Special School for the Deaf, which comprised of 332 respondents. The target population included the 2 head teachers for the primary school and secondary school, all teachers in both primary and secondary section, students and pupils of the school. The sample population was drawn from all standard 4, 5, 6, 7 and 8 pupils, form 1 and 2 students.

From the sampling frame, the sample population under study comprised of one hundred and eighty one (181) respondents. Sample size was obtained using the following formula, Yamane (1973) where N = Population size, n = sample size, and e is the sampling error or level of precision expressed in percentage (5 % or 0.05).

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{332}{1 + 332(0.05)^2} = 181$$

The correct sample size from the population above and the percentages used is indicated in the table below.

Table 3.1: Sample Size

Respondents	Target Population	Sample size	Percentage
Primary School Pupils	206	98	62%
Secondary School students	100	57	30%
Primary school teachers	15	15	4.5%
Secondary school teachers	9	9	2.7%
Head of school	2	2	0.8%
Total Population	332	181	100

Source: Kedowa Special School Records (2019)

3.6 Data Collection Instruments

In order to obtain the correct information about the study, the researcher employed interviews, questionnaires, archival records and observation as the main tools of the study.

3.6.1 Interviews

An open-ended interview was employed in collecting data in this study. A standardized open-ended interview as explained by Gall, Gall, & Borg, (2003) is, extremely structured in terms of wording of the questions. The open-endedness, allows the participants to contribute as much detailed information as they desire and it also allows the researcher to ask probing questions as a means of follow-up (Orodho, 2005). The interview guide comprised of two parts which was used on the head teachers. Part one which had three items sought demographic data alongside gender, level of education, area of specialization and experience of the head teachers. The second part which comprised of ten items was used to gather in-depth data on use of Kenya Sign Language in their school; teachers training; teaching and learning resources used to teach KSL and social factors.

3.6.2 Archival Records Analysis

Archival records were used to establish how the performance has been before and after the implementation of KSL as an examinable subject. The use of archival records was very useful in getting information on academic performance of the learners.

Past examination records (KCPE) and (KCSE) was used to establish the performance of the learners in the past and at present when KSL is being taught and examined in the national examinations.

3.6.3 Observation

Observation is a systematic data collection approach. Kothari (2004) says that under this method, through own direct observation the researcher observed the teaching and learning resources being used by the teachers, use of Kenya sign language and social factors. Collection of the information by the researcher was done using both descriptive and reflective field notes. An observation checklist was used to observe each participant in the observation class. The behavior observed was checked and described accordingly.

Such behaviors included, use of KSL in school, learners' attentiveness, learners' understanding of the concepts, teacher's use of the teaching and learning resources, teacher's mastery of KSL and the teacher's relationship with the pupils as well as time allocated for KSL. These behaviors were observed by the researcher in a normal classroom setting in regard to the objectives of the study.

3.6.4 Questionnaires for the Teachers

The teachers' questionnaire comprised of 3 parts. The first part had four items which aimed at finding out information on the teacher's background; gender, age and education level, area of specialization and the teaching experience. Part two had two items which sought to know the teacher's training in KSL and the use of KSL in school. The third part of the questionnaire had two items which sought information on KSL teaching and learning resources, social factors and their effects on academic performance of learners.

3.7 Pilot study

The Pilot study involved a small number of respondents who represented the population under study. The purpose of piloting the study was to ascertain whether the instruments were valid and reliable for the study. The pilot study was carried out at St Kizito Special School for the Deaf in Bureti Sub-county, Kericho County. This procedure was repeated twice after a lapse of one week to test the validity and the reliability of the research instruments. The school had the same characteristic as the study school since all the learners were hearing impaired and that the school has both primary and secondary school sections. The procedures used in the pilot study, was the replica of the procedures used in the actual study.

3.7.1 Validity of the instruments

Validity refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is trying to measure (Yin, 2003). The instruments that were employed in the study were; interview schedule, archival records and observation, were validated with the help of KSL experts and the researcher's supervisors whose comments were reviewed and the complex items reworded or discarded. The content validity of the instruments was enhanced at the initial stage and therefore its invalidity was checked.

3.7.2 Reliability of the Instruments

Reliability is the extent to which an experiment, test or any measuring procedure yields the same results on repeated trials (Yin, 2003). The reliability of the instruments in the

research study was determined during the piloting stage through a test-re-test method. This was done through a repeated trial until the desired results were determined.

The instruments used in the study yielded Cronbach Alpha value of 0.785 thus the instruments were reliable. Since the research study is qualitative, the consistency, dependability and replicability of the results obtained, should not only bring the same results but should be consistent and reliable (Nunan 1999). The Cronbach's Alpha ratings of research variables as shown in table 3.2 are congruent with Corbin, Strauss and Strauss (2014).

Table 3.2: Reliability Test

Constructs	Cronbach Alpha
Use of Kenya Sign Language	0.893
Teachers Training in Kenya Sign Language	0.791
Kenya Sign Language teaching and learning resources	0.743
Social Factors on Kenya Sign Language	0.820
Average	0.785

Source: Research Data (2019)

3.8 Data Collection Techniques

Authority to conduct research was sought from Kenyatta University, which offered an introduction letter, and the researcher sought permission from the National Commission of Science, Technology and Innovation. Thereafter, the District Education Officer was contacted for permission prior to the data collection exercise. The researcher then

sought permission from the head teacher of the primary school and Principal of the secondary school.

The researcher personally visited the schools and administered the questionnaire after explaining to the respondents of their expected roles in the research. Finally, the researcher collected the questionnaires upon completion of one week. Data was collected from the two sampled schools in two days, it took a day to collect data from each school. After collecting the filled questionnaires from the teachers, the researcher went round the school observing on social factors, got into the classes to observe teachers training on KSL and social factors.

3.9 Data Analysis

According to (Kombo and Tromp, 2006), data analysis refers to examining what has been collected and making deduction and inferences. Data was analyzed using the descriptive statistics. After collecting data using the various instrumentations, the researcher grouped the results according to the responses obtained from the different instrumentations used. The responses from the head teachers, teachers and the learners, were categorized, edited, coded and computed. The Statistical Package for Social Science (SPSS Version 21), was used to analyze the responses in respect to the objectives of the study. Each raw data was categorized based on the research questions.

Qualitative data was tabulated and analyzed using the attribution and assertions analysis which are techniques of content analysis. Attribution analysis examines the frequency with which certain descriptive phrases and qualifiers are used. Assertion analysis takes

the form of a matrix with objects as columns and descriptors as rows. The analyzed data was then presented in inform of tables and figures.

3.10 Logistical and Ethical Considerations

The researcher obtained an introductory letter from the graduate school of Kenyatta University addressed to the Director General National Commission for Science, Technology and Innovation (NACOSTI), who granted permission to conduct the research in Kericho County. After the permission, the researcher proceeded to the County Commissioner and the County Director of Education Kericho County for permission to conduct the research in the schools within the County. Permission was granted and the researcher proceeded to the pilot school and subsequently to Kedowa Special School for the Deaf to carry out the research study. The researcher assured the respondents of the confidentiality of their responses and that the outcome of the study would be shared with them. This was done immediately after data analysis and conclusion.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the findings, interpretation and discussion in line with research objectives and questions. The study sought to; establish the extent of Kenya Sign Language use by teachers on academic performance of hearing impaired learners in Kedowa Special School Kericho County; determine the availability of Kenya Sign Language teaching and learning resources on academic performance of hearing impaired learners in Kedowa Special School Kericho County; establish the effects of teachers training in Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County and establish the effects of social factors in use of Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School Kericho County.

The research question which the study sought to answer were; What is the extent of Kenya Sign Language use by teachers on academic performance of hearing impaired learners in Kedowa Special School Kericho County?; How does the availability of Kenya Sign Language teaching and learning resources affect academic performance of hearing impaired learners in Kedowa Special School?; Does the teachers training in Kenya Sign Language affect academic performance of hearing impaired learners in Kedowa Special School? And what are the effects of social factors in the use of Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School?

4.2 Response Rate

Questionnaires were distributed to 2 head teachers, 9 secondary school teachers, 15 primary school teachers, 57 secondary school students and 98 primary school pupils of Kedowa Special School, Kericho County, Kenya. The study targeted 181 respondents in collecting data but only 165 responses were received from the 2 head teachers, 7 secondary school teachers, 14 primary school teachers, 50 secondary school students and 92 primary school pupils of Kedowa Special School, Kericho County, Kenya, translating to a return rates of 91% thus deemed adequate for data analysis (Kumar, 2010). The implication of this good response and return rate was because the respondents were cooperative and willing to participate in the study.

4.3 Demographic Information of the Participants

The researcher sought to find out the demographic characteristics of the head teacher, teachers and learners who participated in the study. The questionnaires included a demographic data section, which explored demographic characteristics of the respondents. The aspects were regarded to be critical in comprehending the respondents in regard to the effect of Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School in Kericho County, Kenya. Percentages and frequency tables were utilized in depicting these demographic data and the results are presented in figures and tables.

4.3.1 Gender of Respondents

Gender was considered important in this study because it could directly or indirectly influence use of Kenya Sign Language in the school. The teachers and head teacher were asked about their gender and the response are shown in Figure 4.1.

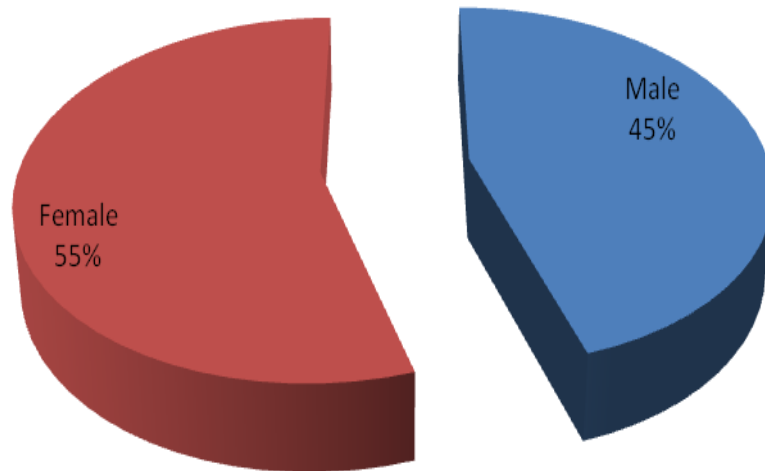


Figure 4.1: Gender for the Teachers

Source: Research Data (2019)

The majority teachers were women 55.7% and men were 44.2%. This shows more women likely to choose teaching as a career due to family obligations as opposed to men who seek for more masculine careers. Learners were also asked to indicate their gender and their responses are presented on Figure 4.2.

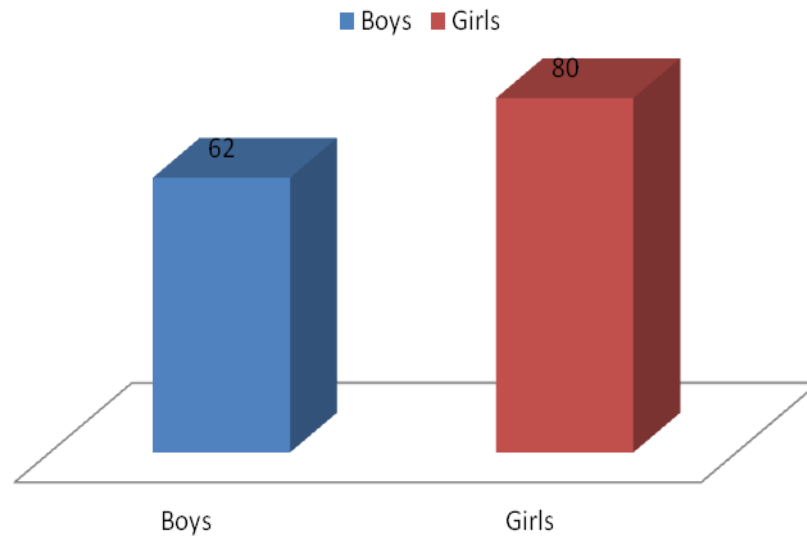


Figure 4.2: Gender for Learners

The findings show that the respondents for this study were predominantly female learners since they were 80 while the male learners were 62. The results are in agreement with Kenya national census 2009 that reflected that national population of women to be higher than that of men (Mutahi, 2009).

4.3.2 Age of the Respondents

The researcher determined the age of the respondents and asked them to indicate their age. The results are displayed in Table 4.1.

Table 4.1: Age of Respondents

Pupils	Age		
	Below 12 Yrs	12 – 15 Yrs	Above 15 Yrs
Primary school Pupils	26	29	37
Secondary school Students	0	24	26
Total	26	53	63

Teachers	Age		
	Below 30 years	30 to 50 years	Above 50 Yrs
Primary school Teachers	3	9	3
Secondary school Teachers	1	5	2
Total	4	14	5

Source: Research Data (2019).

The age distribution of participants was considered in an effort to confirm whether the participants are mature enough to give accurate information about the study. Teaching experience is significant in educational performance.

Table 4.1 shows that the pupils who were below 12 years were 26, those who were between 12 years and 15 years were 53 while those who were above 15 years were 63 and were all from primary and secondary sections of Kedowa Special School and therefore both genders of the learners were well represented. The findings showed that, majority of the pupils were over 15 years which is the school going age which is higher than the requirement of the Ministry of Education. This was due to delay in joining school due to communication barriers (Robbins, 2003).

The majority of teachers who were involved in the study aged between 30 to 50 years were 15 while the teachers who were below 30 years were 4 and the teachers who were above 50 years were 5. This shows that the teachers teaching special school were mature enough to respond to the study and that they were in a position to guide and mentor these learners well as parents.

4.3.3 Professional Qualification of Teachers

The highest qualification of teachers was a factor that the study sought to explore. It was necessary to know the highest qualification of the teachers so as to comprehend the prevailing qualification in the use of Kenya Sign Language on academic performance by the teachers in Kedowa Special School for the Deaf since it is presumed that the higher the academic qualification of school teachers, the higher the push for use of Kenya Sign Language thus better academic performance. The teachers were asked about professional training and results are shown in Figure 4.3.

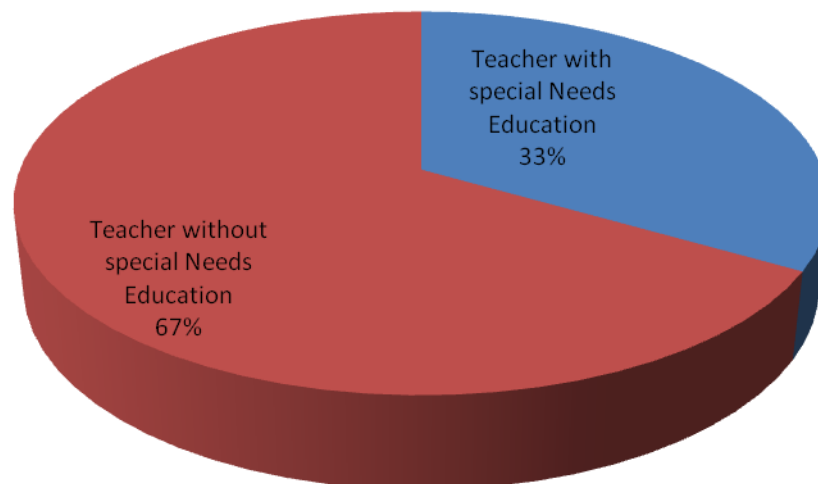


Figure 4.3: Professional Training of teachers

Source: Research Data (2019)

Figure 4.3 shows that all teachers had received professional training as a teacher and that 33% had trained in special education while 67% of the teachers had not received any training on special needs education and were offering a helping hand in the institutions due to lack of adequate specially trained teachers in Kenya.

4.3.4 Years of Experience as a Teacher

Job experience is essential when it comes to working. The more experienced the person is on job the better. Teachers of the hearing impaired need more experience in teaching the hearing impaired children for them to be more conversant and become more competent in sign language. The teachers were asked to indicate their work experience in the schools, to which they responded as shown in Table 4.2.

Table 4.2: Teaching Experience

Teachers	Experience		
	Below 1 years	1 to 5 years	Above 5 Yrs
Primary school Teachers	3	7	5
Secondary school Teachers	1	3	4
Total	4	10	9

Source: Research data (2019)

According to Table 4.2, 43% (10) of the teachers had a working experience of between one to four years, 39% (9) had served as teachers for a period above 5 years while 17% (4) had served for a period of less than 1 year. Based on these results, it can be concluded that majority of the respondents had worked for a long time, so they had enough experience to do their jobs accordingly, and were in a position to give useful

insights into the effects of Kenya sign Language use by Hearing Impaired learners in their studies. Special needs teachers should acquire competence in strategies for effective inclusion for the deaf and enabling a healthy communicative environment for the entire class which encourages classroom participation as well as be able to control the pace of discussion with pauses in between communication turns (Adoyo, 2002).

4.4 Findings per Objectives

The study was guided by four objectives namely use of Kenya sign language on academic performance, teachers training on academic performance, Kenya sign language Teaching and learning resources on academic performance and social factors on academic performance. Below are the findings based on each objective.

4.4.1 Use of Kenya Sign Language on Academic Performance

The first research question which the study sought to answer was; What is the extent of Kenya Sign Language use by teachers on academic performance of hearing impaired learners in Kedowa Special School? To answer the question, the researcher asked the respondents who were teachers and head teachers in both primary and secondary school how the use of Kenya Sign Language affected their academic performance. The responses were as per Table 4.3.

Table 4.3: Use of Kenya Sign Language on Academic Performance

Response	Frequency	Percent
Yes	15	65.2
No	8	34.8
Total	23	100.0

Source: Research Data (2019)

From Table 4.3, majority of the respondents 15 (65.3%) agreed that the use of Kenyan Sign Language in school enables learners to perform well in their academic performance while 8 (34.8%) disagreed that the use of Kenyan Sign Language in school does not improve the academic performance of learners. This means that for good results to be posted in Kenyan Sign Language, primary and secondary management need to emphasize on daily basis the need for learners to frequently use KSL in school.

Interviews with head teachers revealed that all of them noted that teachers preferred to use Total Communication in teaching with emphasis on Communication. Reasons provided by the teachers on use of Total Communication in teaching was it is teacher centered hence favored the teacher especially because of limitations in sign language and hence easy to explain concepts. Teachers didn't know the format of K.S.L and were comfortable with the use of Sign Exact English. Total communication helped the post-lingual deaf students especially by lip reading and use of residual hearing and all

textbooks were written in English hence the use of Sign Exact English to enable students to read.

Research findings on medium of instruction by the teachers through head teachers and teacher's interview schedule were contrary to the researcher's observation indicating that, the teachers admitted to be using Kenyan Sign Language for instruction while in real sense they used Total Communication. This could be because they feared victimization due to the policy in place on Kenya Sign Language use (MOE 2004, 2009) or for ease of communication.

Further findings revealed that Kenyan Sign language was rarely used by most teachers to clarify concepts in all subjects yet KSL was learner centered and enhanced understanding. These findings agreed with Kamonya (2008) who found out that teachers preferred Total Communication for teaching learners with hearing impairments. Muiti (2010) showed that learners with hearing impairments learn and understand better through KSL hence suggested that teachers need to be proficient in using Kenyan Sign Language in order to pass the expected knowledge and skills to the learners with hearing impairments.

This concurs with Adoyo (2015) study which revealed that many teachers in schools for the deaf used simultaneous communication and had difficulties in communicating ideas to deaf students through it. This was observed during one of the lessons where majority of the learners were not happy with one of the teachers who spoke rather than sign.

According to Ochwal (2008), total communication strategy is characterized by omissions and mismatches which have great impact on what is communicated to the learners leading to communication difficulties such as distortion of the message, unintelligibility and no message.

The academic performance of the learners in the national examination was retrieved from the school records. The researcher was able to record the results in a Table 4.4.

Table 4.4: KCPE Results Analysis

Subject	2012	2013	2014	2015	2016	2017	2018
English	25.31	28.27	21.00	25.92	25.36	33.36	30.00
KSL	41.19	42.43	46.00	48.00	48.73	49.73	48.78
Math	25.19	29.00	26.06	28.15	32.00	26.64	32.00
Science	22.06	18.43	24.78	23.46	19.82	24.09	25.89
S/S	14.75	17.00	17.00	15.54	15.64	19.91	19.89
MSS	128.5	135.14	131.22	141.08	141.55	153.73	156.56

Source: Kedowa Special Primary School Exams Results Analysis (2019)

From the research study, it was established that the form 1 entry mark had been raised because of the improved academic performance after the introduction of KSL as an examinable subject. The principal of Kedowa secondary school confirmed that before the introduction of KSL as an examinable subject the form one admission mark was as low as 100 but after the introduction of KSL the admission mark was raised to above 100.

The researcher observed several behaviors which assisted in answering the research questions through the observation schedule. Such behaviors included learners' participation in the lesson, learners' attentiveness in class, learners' understanding of the concepts and teacher's mastery of the lesson, teacher's use of the teaching learning materials, teacher's mastery of KSL and the teacher's mastery of the teaching skills.

4.4.2 Teachers Training on Academic Performance

The second research question which the study sought to answer was; do teachers training in Kenya Sign Language affect academic performance of hearing impaired learners in Kedowa Special School for the Deaf? To answer the question, the researcher asked the respondents who were teachers in both primary and secondary school how the teachers' training affected the academic performance of their learners. Teachers were asked if they were motivated and willing to teach in Kenyan Sign language and their responses are recorded in Figure 4.4.

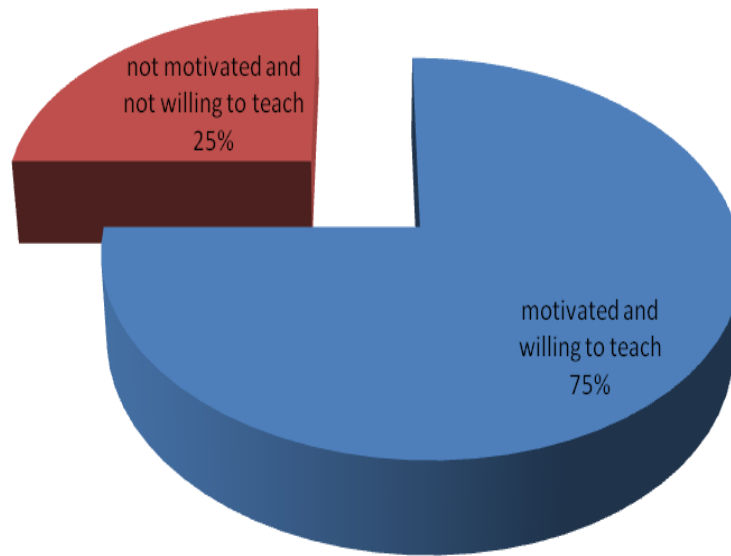


Figure 4.4: Motivated and Willing to Teach KSL

Source: Research Data (2019)

The findings showed that 9 (75%) of the teachers who teach in Kedowa Special school for the deaf were motivated and willing to teach Kenya Sign language while only 3 (25%) of were not motivated and not willing to teach Kenyan Sign Language. This is a positive thing towards teaching of Kenyan Sign Language so as to ensure effective academic performance of pupils. The teachers had only experience in the use of KSL but had no formal training.

The head teachers and teachers were asked if they had adequate level of training on Kenya Sign Language. Teachers and head teachers’ response on adequate level of training on Kenya Sign language was achieved with the use of interview schedule and the response was as per Table 4.5;

Table 4.5: Adequate Level of Training in KSL on Academic Performance

Response	Frequency	Percent
Not adequate	14	60.8
Adequate	9	39.2
Total	23	100.0

Source: Research Data (2019)

The study findings indicated that majority of the respondents who were 14 (60.8%) did not have adequate training on Kenya Sign Language while 9 (39.2%) had adequate training on Kenya Sign Language. For there to be good academic performance it requires that the teachers who teach it must be trained teachers in Kenya Sign Language hence their need to organize for in- service or workshops or seminars where teachers can gain more skills on appropriate teaching methodologies using Kenya Sign Language.

Table 4.6: Good understanding of KSL on academic performance of the learners

Response	Frequency	Percent
Yes	10	43.5
No	13	56.5
Total	12	100.0

Source: Research Data (2019)

The findings in Table 4.6 shows that majority of the teachers 13 (56.5%) were not having good understanding of Kenyan Sign Language while 10 (43.5%) noted that they

had good understanding of Kenya Sign Language hence they could assist learners to perform well in their academics. The findings showed that majority of the teachers did not have good understanding of Kenya Sign language. The results are in support of Bunyasi (2010) who among other findings, revealed that teachers' proficiency in Kenya Sign Language was inadequate.

The study findings support Muiti (2010) who reported that the government should initiate training for teachers in Sign Language and provide specialized learning materials for learning. In considerations of teacher's role model on the use of Kenyan Sign Language, the study found out that they were not adequate in the schools under study since only one teacher in the primary wing was hearing impaired. These findings are in agreement with Mukangu (2008) and Bunyasi (2010) who observed that teachers with hearing impairments who would serve as role models for learners with hearing impairments were not available in schools for learners with hearing impairments. Kedowa Special School for the Deaf had three quarter of its teachers being deaf.

The researcher's findings on teacher's role model does not conform with MOE (2009) results on the National Special Needs Policy Framework which states that "There is need for other personnel like teacher aids, house mothers/fathers, Sign Language interpreters, readers among others in institutions " pg 2. Services of these professionals are lacking in education system either due to lack of training or funds for their remuneration. Teachers need to be trained on the use facial expressions, signs, verbal and body language at the same time. All these languages have expressive and receptive features for easy communication. The findings were supported by Borefoot (2011), who

reported that, hearing impaired learners value learning with their communication strengths such as access to visual information, opportunity to use their residual hearing and use of their strongest language.

4.4.3 KSL Teaching and Learning Resources on Academic Performance

The third research question which the study sought to answer was; How does the availability of Kenya Sign Language teaching and learning resources affect the academic performance of hearing impaired learners in Kedowa Special School? To answer the question, the researcher asked the respondents who were teachers and head teachers in both primary and secondary school how KSL teaching and learning resources affected the academic performance. The response were as per Table 4.7.

Table 4.7: Availability of KSL teaching and learning materials

Response	Frequency	Percent
Available	8	34.8
Not available	15	65.2
Total	23	100.0

Source: Research Data (2019)

From Table 4.7, that the teaching and learning materials used in the teaching of Kenya Sign language was not available as noted by 15 (65.2%) of the respondents while 8 (34.8%) respondents noted that the teaching and learning materials used in the teaching of Kenya Sign language was available. This implies good academic performance cannot be achieved since the essential materials used in the teaching and learning of Kenya Sign Language were not available.

These findings support Wangechi (2007) who revealed that schools for learners with special needs lacked adequate resources which are very essential in the learning process and teachers did not make appropriate use of materials in classrooms such as charts, maps, models and real objects to enhance teaching of learners with special needs.

The researcher's results are also in agreement with Okombo (2008), who observed that instructional materials were lacking in schools for learners with hearing impairments and suggested that a wide range of materials needed to be developed including; materials for teaching other subjects using KSL and materials for teaching Kenyan Sign Language that would provide the learners with an opportunity to enjoy stories told in KSL.

The results also support Lumumba (2009) who observed that lack of adequate instructional materials such as reading materials and lack of accompanying signs especially in science subjects like chemistry and physics proved very difficult for the students to follow. These materials are necessary for easy interpretation and quick mastery of concepts and impede communication between the learners and the teachers.

The inadequacy of these resources could make it difficult for head teachers and teachers to perform their functions adequately. Table 4.8 shows the responses of pupils when asked whether the resources for use in the teaching of Kenya Sign Language were adequate or not.

Table 4.8: Adequacy of KSL teaching and learning resources

Adequacy of Resources	Frequency	Percentage
Adequate	38	27
Not adequate	104	73
Total	142	100

Source: Research Data (2019)

Table 4.8 reveals that majority of the respondents who were 104 (73%) noted that teaching and learning resources for Kenya sign language were not adequate. The respondents who said that the resources were adequate were 38 (27%). The management of material resources entails planning, acquisition, allocation, distribution and controlling the use and maintenance of the materials.

Onyango (2001) states that planning for material resources involves the identification of the resource requirements, assessing quality in terms of the needs, establishing criteria for standards, determining the cost per unit, and the use of the materials whether by individuals or groups.

Interview with the head teacher and teachers on teaching/learning resources usefulness in promoting Kenya Sign Language were in agreement. The head teacher, teachers and learners need related equipment's in print media to facilitate the process of teaching and learning worldwide (UNESCO, 2007). These affect the use of Kenya Sign Language and subsequently the academic performance of learners.

According to (Koech, 1999), resources include hearing aids that offer services to teachers to enrich their teaching. Teaching/learning resources are used widely in Hearing Impaired schools and teachers might not run away from them because they are part of Kenya Sign Language promotion in schools.

4.4.4 Social Factors on Academic Performance

The fourth research question which the study sought to answer was; What are the effects of social factors in using Kenya Sign Language on academic performance of hearing impaired learners in Kedowa Special School? To answer the question, the researcher asked the respondents who were pupils in both primary and secondary school how social factors affect their academic performance. The response were on a Likert Scale of 1 to 5 where 1 was strongly disagree, 2 was disagree, 3 was undecided, 4 was agree and 5 was strongly agree as shown in Table 4.9.

Table 4.9: Social Factors on Academic Performance

Social Factors	1	2	3	4	5
Teachers use Kenya Sign language to interact freely with deaf learners.	18 12%	20 14%	6 4%	42 30%	56 40%
Teachers are friendly to deaf learners	10 7%	30 21%	4 3%	48 34%	50 35%
Deaf learners are treated with respect by the teachers as well as their peers	28 20%	10 7%	3 2%	40 28%	61 43%
Parents come often to school to check on the progress of their children	58 41%	36 25%	6 4%	11 8%	31 22%

Source: Research Data (2019)

From Table 4.9, majority of the respondents who were 98 (70%) agreed that teachers use Kenya Sign language to interact freely with deaf learners. The respondents who disagreed were 38 (26%) while those who were undecided were 6 (4%). The respondents who agreed that teachers are friendly to deaf learners were 98 (69%) while those who disagreed were 40 (28%) while those who were undecided were 4 (3%). The respondents who agreed that deaf learners were treated with respect by the teachers as well as their peers were 101 (71%) while those who disagreed were 38 (27%) while those who were undecided were 3 (2%). Majority of the respondents who were 98 (66%) disagreed that parents come often to school to check on the progress of their children while those who agreed that parents come often to school to check on the progress of their children were 41 (30%) while those who were undecided were 6 (4%). This implies that the use of Kenya Sign language by teachers enables free interaction with learners who will in turn share their problems regarding their academic performance.

The teachers being friendly to the learners and the way they treat them with respect enables them perform better in their academic so that they do not offend their teachers. Parents who do not check on the progress of their children makes them feel they have been abandoned and feels lonely thus affect their academic performance. Hearing is what keeps people in touch with our world. It plays a significant role in expressing and receiving language. Hearing loss creates problems in how an individual expresses and receives language in turn causing social, communication, and educational problems (Hall, Oyer, & Haas, 2001).

Table 4.10 shows that 64% of pupils noted that positive relationship with teachers influence on performance due to good relationship they have between them and their teachers. Those who do not learn well because of poor relationship between them and their teachers were 21 %. Those who were not affected by the relationship between them and the teachers were 15%. This implies that good relationship between hearing impaired pupils with teachers is of great importance as it influences pupil's performance.

Table 4.10: Pupils- Teacher Relationship

Pupil - Teacher Relationship	Frequency	Percentage
Positive influence	91	64
Negative influence	30	21
No influence	21	15
Total	142	100

Source: Research Data (2019)

Teacher pupil relationship has a lot of effect on the academic performance of pupils. Neil (1991) points out that a school with positive climate is a place where teachers and pupils would like to spend most of their time. So schools should be a place where both pupils and teachers feel at home.

Relationship between pupils and their teachers play a major role when it comes to academic performance of pupils. Teachers must create physical environment that is conducive to learning in order to avoid student's absenteeism and a feeling of

intimidation (Perry, 2009). According to Neil (1991) good relationship between teachers and pupils proves to be important not only for pupil’s learning but also for pupil’s social and emotional development.

The evidence suggests that decreased social interaction reduces what a deaf child can achieve in life (Tesfay, 2002). Communication between teachers and their deaf children is extremely important too. This contributes to how the child's language will develop and how he will communicate with other individuals. Studies revealed that the children actually understood less than what the teachers believed they did (MacKay-Soroka *et al.*, 1988). Successful communication depends on the skill of the child and the skill of the teachers at adapting to her child's communicative needs.

4.4.5 Kenya Sign Language on the Learner’s Academic Performance

The effect of Kenya Sign language on learner’s academic performance in special school for the deaf was inquired by the researcher through the head teachers’ interview and the archival records. The response on use of Kenya Sign Language to enhance academic performance of learners was achieved through the use of the interview schedule and the responses were as per Table 4.11.

Table 4.11: Use of KSL to Enhance Learner’s Academic Performance

Response	Frequency	Percent
Yes	21	91.3
No	2	8.7
Total	23	100.0

Source: Research Data (2019)

Majority of respondents 21 (91.3%) agreed that the use of Kenyan Sign Language enhance learners academic performance while 2 (8.7%) disagreed to KSL enhancing academic performance of learners. The responses on how the Kenyan Sign Language influenced the learners academic performance is as shown in Figure 4.5 where majority of respondents 16 (69.6%) reported that it had a positive influence and 7 (30.4%) said that it had a negative influence.

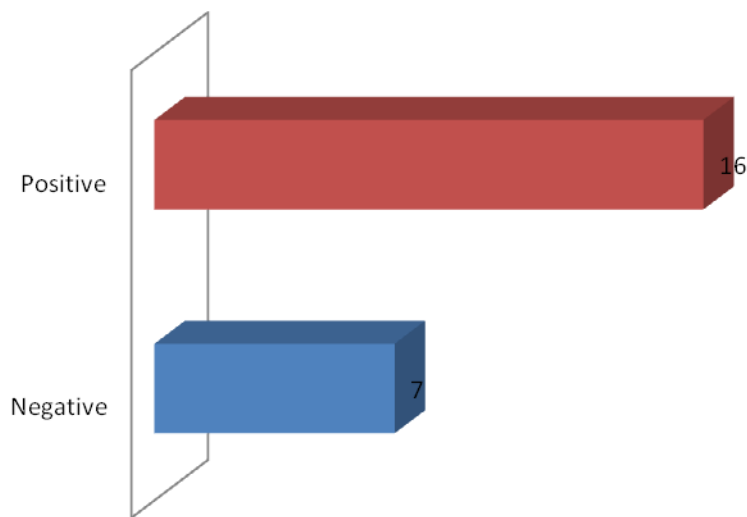


Figure 4.5: Kenya Sign Language on Academic Performance

Source: Research Data (2019)

The study sought to determine if the use of Kenya Sign Language has an effect on the performance of other subjects and the findings from the teachers and head teachers interview schedule was as per Table 4.12.

Table 4.12: Effect of KSL on learner’s academic performance on other subject

Response	Frequency	Percent
Improved	19	82.6
Not Improved	4	17.4
Total	23	100.0

Source: Research Data (2019)

The effect of Kenya Sign language on learners academic performance on other subjects as noted in Table 4.12 showed that other subjects have since improved where majority of the respondents 19 (82.6%) agreed to it while 4 (17.4%) disagreed.

The responses on the interview schedule for the head teachers and the teachers on the effect of Kenya Sign Language on learner’s academic performance revealed that it enhanced the academic performance of learners positively. It also enhanced the performance in other subject because from the response of the head teachers and teachers they noted that other subjects had improved. Other subjects though improving was through a small percentage. The results support Okombo (2004) who revealed that learners with hearing impairments found it easy to interact and understand information when Kenyan Sign Language was used because it served as a mother tongue.

CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings of the main study, conclusions and recommendations. It begins with the summary of the study, conclusion and recommendations followed by suggestions for further studies.

5.2 Summary

The purpose of this study was to find out the effect of Kenya Sign Language on academic performance of hearing impaired learners at Kedowa Special School. It was guided by the following objectives; determine the extent of use of KSL on the learner's academic performance; teachers training in KSL on the learner's academic performance; teaching and learning resources on learner's academic performance and social factors on academic performance of learners. The study involved 165 responses were received from 2 head teachers, 7 secondary school teachers, 14 primary school teachers, 50 secondary school students and 92 primary school pupils. Questionnaire, interviews schedule, documentary review and observations were used to capture information. The following are the summary of the findings based on each objective;

5.2.1 Use of KSL on Academic Performance

Majority of the respondents agreed that the use Kenyan Sign Language in school enables learners to perform well in their academic. Interviews with head teachers revealed that teachers preferred to use Total Communication in teaching with emphasis on Communication since teachers didn't know the format of Kenya Sign Language and

were comfortable with the use of Sign Exact English. Further findings revealed that Kenyan Sign language was rarely used by most teachers to clarify concepts in all subjects yet Kenya Sign Language was learner centered and enhanced understanding.

5.2.2 Teachers' Training on Academic Performance

Teachers who teach in Kedowa Special School for the deaf were motivated and willing to teach Kenya Sign language but majority of them were not having good understanding of Kenyan Sign Language and were not having adequate training on Kenya Sign Language. For there to be good academic performance it requires that the teachers who teach it must be trained teachers in Kenya Sign Language.

5.2.3 KSL Teaching and Learning Resources on Academic Performance

The teaching and learning materials used in the teaching of Kenya Sign language in Kedowa Special School were not available and not adequate. The inadequacy of these resources made it difficult for head teachers and teachers to perform their functions adequately. Learners need related equipment's in print media to facilitate the process of teaching and learning worldwide but were not sufficient.

5.2.4 Social Factors on Academic Performance

Teachers use Kenya Sign language to interact freely with deaf learners and that they were friendly since they treated learners with respect. Majority of the parents do not come often to school to check on the progress of their children.

Kenya Sign language enables free interaction between teachers and learners who will in turn share their problems regarding their academic performance. The teachers being

friendly to the learners and the way they treat them with respect enables them perform better in their academic so that they do not offend their teachers. Parents who do not check on the progress of their children makes them feel they have been abandoned and feels lonely thus affect their academic performance. The positive relationship which the learner had with teachers influenced their performance in that good relationship between hearing impaired pupils with teachers is of great importance as it influences pupil's performance.

5.2.5 Kenya Sign Language and Academic Performance

The use of Kenyan Sign Language enhances learner's academic performance and that it had a positive influence. The responses on the interview schedule for the head teachers and the teachers revealed that it enhanced the academic performance of learners positively. It also enhanced the performance in other subject because from the response of the head teachers and teachers they noted that other subjects had improved.

5.3 Conclusion

There's need to organize for in- service or workshops or seminars where teachers can gain more skills on appropriate teaching methodologies using Kenya Sign Language. The teaching materials and resources for teaching Kenya Sign language which was lacking in the special school for the deaf need to be provided so that learners have enough reference materials.

Thus there is need for the provision of learning and teaching resources required to teach Kenya Sign language in both primary and secondary schools for students with hearing impairment.

There is need for use of Kenyan Sign Language in school so as to enable learners to perform well in their academic. Teachers need to learn the format of Kenya Sign Language to enable them feel comfortable while teaching or talking with the students and clarifying concepts in all subject areas. There is need to encourage teachers and make them motivated and be willing to teach Kenya Sign language by facilitating them to go for training on KSL so as to have good understanding of subject and be well trained on it.

There is need to have adequate teaching and learning materials for use in the teaching of Kenya Sign language so as to enable teachers perform their teaching functions adequately. There is need for free interaction between the teachers and the learners who will in turn share their problems regarding their academic performance. Parents need to be encouraged to often come and check on the progress of their children because it will enhance their academic performance.

5.4 Recommendations

Based on the findings of the study, the following recommendations are made;

Teachers need to be trained on Kenya Sign Language through in- service or workshops or seminars so that they gain more skills on appropriate teaching methodologies of

Kenya Sign Language. Special school need to have adequate teaching materials and resources for use in teaching Kenya Sign language.

The use of Kenyan Sign Language in school need to be encouraged since it enables learners to perform well in their academics. Teachers need to learn the format of Kenya Sign Language so as to be able to teach or talk with the students well. Teachers need to be encouraged and be motivated to teach Kenya Sign language.

There is need for adequate teaching and learning materials for teaching of Kenya Sign language so as to enable teachers perform their teaching functions adequately. There is need for free interaction between the teachers and the learners who will in turn share their problems regarding their academic performance. Parents need to be encouraged to often come and check on the progress of their children because it will enhance their academic performance.

5.5 Suggestions for Further Research

Through this research findings, further research can be done on the following areas which this study did not do and are gaps on the implementation of Kenya Sign Language:

- a) Teachers' attitude towards the use of Kenya Sign Language as a language of instruction to learners with hearing impairment.
- b) Utilization of teaching and learning resources in special schools for the deaf on the academic performance of Kenya Sign Language.

- c) This was a case study of Kedowa special school for the Deaf. The study recommends that this study be carried out in other schools as well.

REFERENCES

- Adoyo P. O., Okutoyi J. (2015). Primary School Deaf Childrens' Competence in Kenyan Sign Language in Kenya: *An Investigation International Journal of Research in Humanities and Social Studies* 2(7), 25-33.
- Adoyo P. O. (1995). An investigation of Kenyan Sign Language Development. *Unpublished PhD Dissertation*, University of Bristol, U.K.
- Adoyo P. O. (2004). *Kenyan Sign Language and Simultaneous Communication: Differential effects on memory and comprehension in deaf children in Kenya* Kisumu : Lake Publishers & Enterprise Ltd.
- Adoyo P. O. (2007). *Educating deaf children in inclusive setting: Challenges and Considerations*. Retrieved May 21, 2009 from <http://www.ed.wright.edu/~prenick/Winter-Spring-08/Inclusiveeducation-2-D.htm>.
- Adoyo, P.O. (2002). Emergent Approaches towards Sign Bilingualism in Deaf Education in Kenya.
- Ayiela, O.J (2012). Factors affecting KCPE performance of learners with hearing impairments. Kenyatta University.

- Beatrice I., Beatrice B. A., Jacinta K. (2014). Strategies facilitating Kenyan sign language progress in Primary schools for learners with hearing impairments, In western province, Kenya. *International Journal of Education and Research* Vol. 2 No. 1 January 2014.
- Bossiere, M. (2004). *Determinants of Primary Education Outcomes in Developing countries: Background Paper for the Evaluation of the World Banks Support to Primary Education*, (Washington, D.C): The World Bank Operation Department.
- Bunyasi, B.A (2010). *Relationship between self- esteem and academic achievement for girls with hearing impairments in Kenya*. (Unpublished Doctoral dissertation) Kenyatta University, Nairobi, Kenya.
- Edward, A.P, James, R.P & Loretta, S. (2001). *Strategies for Teaching Learners with Special Needs*; Upper Saddle River, New Jersey. Columbus, Ohio.
- Everline N. M., Adoyo P. O., Francis C. I. (2011). Curriculum factors influencing performance of deaf students in mathematics. *Educational Research* (ISSN: 2141-5161) Vol. 2(3) pp. 956-964 March 2011. Available online@ <http://www.interestjournals.org/ER>
- Hanushek, E.A. (1995). Interpreting recent research on schooling in Developing Countries. *The World Bank Research Observers*, ID (2) 227-246.
- Helmer, R.M; (2nded.). *The Psychology of Deafness; Sensory Deprivation, Learning and Adjustment*. North Western University. New York.

- Kalabula D.M (1993). Special Needs Education in Zambia: In: R.J. Mitchell & G. Upton (Eds). The view fonder: Expanding boundaries and perspectives in special Education, Vol.2.Reston VA: Council for exception children.
- Kamonya, K. (2008). Factors hindering effective teaching and learning activities for hearing impaired students at Karen Technical Training Institute of the deaf. Master Thesis Kenyatta University, Nairobi, Kenya.
- Katwishi S.C.M.(1995). Viability of developing early identification and intervention services for young with impairment in Zambia and published Ph.D. Thesis. University of Birmingham.
- Kenya Institute of Management, (2009). Fundamentals of Research Methods; Judda, Forest Road. Nairobi. Kenya.
- KIE. (2004). Primary Education syllabus for learners with hearing impairments: Kenyan Sign Language. Nairobi: K.I.E.
- Koech, D. (1999). TIQET. Totally Integrated Quality Education and Training Report of the Commission of Enquiry into the Education System of Kenya. Nairobi. GPO.
- Kyle, J. G (1990). BSL development Centre for Deaf Studies, University of Bristol England
- Kyle, J. G. (ed) (1994). Growing up in sign and word. Centre for Deaf Studies University of Bristol. Chippenham: Antony Rowe

- KSCD, (1979). Final report on deaf education in Kenya.
- Lucas, E. (1980). Semantic and pragmatic language disorders: assessment and Remediation Rockville, MD: Aspen System.
- Lumumba, O. (2009). Factors contributing to Job Satisfaction and Dissatisfaction among teachers in Special Schools in Rift Valley Province, Kenya.(Unpublished Master thesis)Kenyatta University: Nairobi, Kenya.
- Makumi, E.C.N. (1995). A study of special education programs in Kenya with special emphasis on education of HI, and causes of their semi- illiteracy. Unpublished Thesis. Kenyatta University.
- Marshack, M. (1993). Psychological Development of deaf children. New York; Oxford.
- Mbewe M.S (1991). Is sign language superior to speech language? In : partnership between deaf people and professionals (q.v.)`122.6.
- Mbewe M.S.& Serpell R.(Eds) (1983). Basic Education for the Deaf in Zambia. Report of the National conference, 17-20th August 1982 .LSK:IAS,UNZA.iii +100pp.
- MoEST,(2012). Report of the Task Force on the re-alignment of education sector to the New Constitution. Nairobi Kenya.
- Moore, D.F. (2001). Educating the Deaf; Psychology Principles and practices (5th ed.). Boston; Houghton, Mifflin.

- Moore, D.F. & Meadow-Orlans, (1990). Educational and Development Aspect of Deafness. USA; Gallaudet University Press.
- Mugenda, O.M. & Mugenda, A.G. (2003). Research Methods. Quantitative and Qualitative Approaches; Africa Centre for Technology Studies. Nairobi, Kenya.
- Muiti, J.M.(2010). Hindrances to effective learning of pupils with hearing impairments in Meru North District, Kenya. (Unpublished Master thesis)Kenyatta University: Nairobi, Kenya.
- Mukangu, G..M. (2008). Resources and pedagogical constraints to teaching Social Studies at Kerogoya School for learners with hearing impairments. (Unpublished Master thesis) Kenyatta University, Nairobi, Kenya.
- Mulonda, M. (2013). Situational Analysis on the use of Sign Language in the Education of the Deaf. University of Zambia.
- Ochwal A. A. (2008). Communication strategies used by non-specialised teachers of the deaf learners in Nyanza province. Unpublished M.Ed Thesis, Maseno University.
- Okombo, O. (2004). Language development: Kenyan Sign Language situation in Africa. A paper presented at Kenyan Sign Language Research Project, Nairobi University. Kenya.

- Okombo, O. (1994). Kenyan Sign Language (KSL). Some Attitudinal and Cognitive Issues in the Evolution of a Language Community. In Algren, I and Hyltenstam (eds.) Bilingualism in Deaf Education. Hamburg Signum.
- Orodho, J.A (2005). Elements of Education and Social Science Research Methods. Nairobi. Masola Publishers.
- Owino, J. (2009). Factors attributing to Poor Performance in Mathematics at KCPE Among Standard 8 Learners with Hearing Impairments. Kenyatta University.
- Piaget, J.(1960). The child's conception of the world. Routledge.
- Republic of Kenya (2009). The National Special Needs Education Policy Framework. Nairobi: Government printer.
- Richard, M.G. (2009). Special Education in Contemporary Society; an Introduction to Exceptionality. Birmingham U.K.
- Schmaling, C. (2000). Maganar Hannu, Language of the Hands. A descriptive analysis of Hausa Sign Language, Hamburg, signum
- Skinner, B. F. (1957). Verbal behaviour Englewood Cliffs, N. Prentice Hall.
- Stevenson, E.(1994). A study of the educational achievement of deaf children of deaf parents. California News. 80; 143.
- Stephens, R. (1980). Education in Schools for the Deaf; In; Baker, C. and Battison, R.(eds). Essays in honour of William Stokoe, NAD (34); 177-191.

Task Force Report, (GoK, 2003). Task Force Report on Special Needs Education in Kenya Appraisal Exercise. Nairobi, Jomo Kenyatta Foundations.

The New Kenya Constitution, (2010). Government Printers. Nairobi.

The Kenya Gazette Supplement Act, (2012). The County Government Act, (2012), Article 18.

UNESCO, (2005). EFA Global Monitoring Report 2005. Education For All, The Quality Imperative, (Paris, UNESCO).

UNESCO, (2005). Challenges of Implementing Free Primary Education in Kenya. Nairobi. MoEST.

Wangechi, L. N. (2007). Pedagogical constraints in the learning of upper primary children with Emotional Behavioural Disorders in Central Province Rehabilitation Schools, Kenya (Unpublished Master thesis) Kenyatta University: Nairobi, Kenya.

Wilbur, R. (1979). American Sign Language and sign systems. Baltimore; University Park.

Yego, E. (1992). Activities of Kenya Institute of Special Education towards the Development of Deaf Education in Kenya. Workshop paper presented at the East Africa Sign Language Workshop in Nairobi, Kenya 23rd to 28th August 1992.

Yego, E. (1991). Teachers' perception of factors that influence the implementation of 8-4-4 curriculum in for the HI in Nairobi province and its environs. unpublished M.ED Thesis. Kenyatta University.

APPENDICES

Appendix I: Interview Guide for Principal/Head Teacher

This interview guide is intended for the principal and the head teacher. It is intended to look at the effects of KSL on learner's academic performance in your school. Please be free as you participate in the interview. Your responses will be treated with utmost confidentiality and will not in any way be used against you. Welcome.

1. Is KSL being taught as a subject in your school? Yes No
2. Have you supplied the teacher with the necessary materials for learning?
Yes No
3. Does your teacher use KSL as a mode of instruction
Yes No
4. Which mode of communication do they prefer?
 - (a) Oral
 - (b) Manual
 - (c) KSL
 - (d) Total Communication
5. How has the use of KSL influenced the performance in your school?
Poor Average Good
6. Why would a teacher prefer a certain mode of communication?

7. Does the mode the teacher prefers affect the learner's performance?
Yes No

If yes how does it affect the learner's performers?

8. What is your teachers views on the inclusion of KSL as an examinable subject

9. How does this affect the performance in the school?

10. How many of your teachers are KSL trained? _____

To what level

Certificate _____

Diploma _____

Degree _____-

Others specify: _____

10. What do the other teachers say on the inclusion of KSL as an examinable subject

11. Are you KSL Trained? Yes [] No []

If yes to what level_____

12. Has your training influenced the performance of the learners?

Yes [] No []

If yes in what way:_____

Appendix III: Observation Checklist

The research study is the effect of KSL on academic performance of hearing impaired learners. The researcher will make a direct classroom observation that might last for one week. The researcher will not participate in the actual teaching process but will only be observing the events in the classroom and taking notes. The events or behaviors observed will be pertinent to the research objective and questions.

1. Name of the teacher
2. Training
3. Class
4. Subject.....

OBSERVATION CHECKLIST

1. Class Arrangement/Management
2. Use of T/L aids
3. Mode of communication
4. Teacher's competency in KSL
5. Learners' participation and communication
6. Availability of T/L resources
7. Adequacy of T/L resources
8. Teacher/pupil relationship
9. Innovation and creativity.

Appendix IV: Questionnaire for the Teachers

The research study is the effect of KSL on academic performance of hearing impaired learners. Kindly answer the following questions as truthful as possible. The information you give will be used for academic purpose only and will be treated with utmost confidentiality.

1. Kindly indicate your gender

Male () Female ()

2. What is your age bracket?

Less than 30 years (), 30 – 50 years (), More than 50 ()

3. Are you a trained as a teacher?

Yes () No ()

4. Do you have any training on Special Need Education

Yes () No ()

5. How long have you been teaching?

Less than 1 year (), between 1 – 5 years (), More than 5 years ()

6. Do you use of Kenya sign language while teaching

Yes () No ()

7. Are you motivated to and willing to teach Kenya sign language?

Yes () No ()

8. Do you think your skills in Kenya sign language is adequate

Yes () No ()

9. Do you have a good understanding of Kenya sign language structure?

Yes () No ()

10. Do you have teaching and learning resources to teach Kenya sign language?

Available () Not available ()

11. If the resources are available, are they adequate?

Adequate () Not Adequate ()

12. How has your pupil been performing since you started using Kenya sign language

Improving () Not improving ()

13. How the performance of other subject changed since you started using Kenya sign language?

Improving () Not improving ()

Appendix V: Questionnaire for the pupils

The research study is the effect of KSL on academic performance of hearing impaired learners. Kindly answer the following questions as truthful as possible. The information you give will be used for academic purpose only and will be treated with utmost confidentiality.

1. Kindly indicate your gender

Boy () Girl ()

2. What is your age bracket?

Less than 12 years (), 12 – 15 years (), More than 15 ()

3. Do your teachers use of Kenya sign language while teaching in class

Yes () No ()

4. Are you happy with the teaching methods used in Kenya sign language?

Yes () No ()

5. Do you have Kenya sign language books and teaching aids?

Available () Not available ()

6. If the resources are available, are they adequate?

Adequate () Not Adequate ()

7. How is the relation between you and the teachers affecting your performance?

Positively () Negatively () No effect ()

8. Kindly tick on the option which best explain how you relate with others where 1 is strongly disagree, 2 is disagree, 3 is undecided, 4 is agree and 5 is strongly agree

Social Factors	1	2	3	4	5
Teachers use Kenya Sign language to interact freely with deaf learners.					
Teachers are friendly to deaf learners					
Deaf learners are treated with respect by the teachers as well as their peers					
Parents come often to school to check on the progress of their children					

Appendix VI: Data Extraction Tool

The performance in KCPE since 2012 to 2018

Subject	2012	2013	2014	2015	2016	2017	2018
English							
KSL							
Math							
Science							
S/S							
MSS							

Appendix VII: Authorization Letter from Kenyatta University Graduate School



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School

DATE: 20th March, 2017

TO: Joseph Kiprotich Kalya
C/o Special Needs Education Dept.

REF: E55/CE/20684/12

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the Graduate School Board of 22nd February, 2017 entitled "Kenyan Sign Language and the Academic Performance of Learners with Hearing Impairment A case of KEDOWA Special School Kericho County Kenya".

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.


ANNBELL MWANIKI
FOR: DEAN, GRADUATE SCHOOL

C.c. Chairman, Department of Special Needs Education

Supervisors:

1. Dr. Beatrice Bunyasi Awori
C/o Department of Special Needs Education
Kenyatta University

1. Dr. Geoffrey Karugu
C/o Department of Special Needs Education
Kenyatta University

AM/lun



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: E55/CE/20684/12

DATE: 20th March, 2017

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,


RE: RESEARCH AUTHORIZATION FOR JOSEPH KIPROTICH KALYA – REG. NO.
E55/CE/20684/12

I write to introduce Mr. Joseph Kiprotich Kalya who is a Postgraduate Student of this University. She is registered for MED degree programme in the Department of Special Needs Education.

Mr. Joseph intends to conduct research for MED Project Proposal entitled, “Kenyan Sign Language and the Academic Performance of Learners with Hearing Impairment A case of KEDOWA Special School Kericho County Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,


MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

AM/lmn

Appendix VIII: Ministry of Interior and Coordination and National Government

Research Authorization Letter

**THE PRESIDENCY
MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT**

Telegrams:
Telephone: Kericho 20132
When replying please quote
kerichooc@yahoo.com



COUNTY COMMISSIONER
KERICHO COUNTY
P.O. BOX 19
KERICHO

REF: MISC.19 VOL.II/ (255)

8th May, 2017

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – JOSEPH KIPROTICH KALYA

Authorization has been granted to Joseph Kiprotich Kalya by National Commission for Science, Technology and Innovation, as per a letter Ref: No. NACOSTI/P/17/3327916620 dated 12th April, 2017 to carry out research on ***"Kenyan sign language and the academic performance of learners with hearing impairment. A case of Kedowa Special School in Kericho County"*** for a period ending 12th April 2018.

Kindly accord him the necessary assistance.

COUNTY COMMISSIONER
KERICHO COUNTY

IBRAHIM BOKEYE
FOR: COUNTY COMMISSIONER
KERICHO COUNTY

Appendix IX: Ministry of Education Research Authorization Letter

MINISTRY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION

Email: cdekerichocounty@gmail.com
When Replying Please Quote:

County Education Office
P.O BOX 149
KERICHO

REF: KER/C/ED/GC/2/VOL.II/

8TH MAY, 2017.

TO WHOM IT MAY CONCERN.

RE: RESEARCH AUTHORIZATION – JOSEPH KIPROTICH KALYA

The above Student has been authorized by National Commission for Science, Technology and innovation to undertake research on "*Kenyan sign language and the academic performance of learners with hearing impairment. A case of Kedowa Special School, Kericho County*", for a period ending 12th April, 2018.

Accord him the necessary assistance.

PP. 

MR.FRED OSEWE
COUNTY DIRECTOR OF EDUCATION
KERICHO COUNTY.



Appendix X: NACOSTI Research Authorization Letter



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349,3310571,2219420
Fax: +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/17/33279/16620**

Date: **12th April, 2017**

Joseph Kiprotich Kalya
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Kenyan sign language and the academic performance of learners with hearing impairment. A case of Kedowa Special School Kericho County Kenya,*" I am pleased to inform you that you have been authorized to undertake research in **Kericho County** for the period ending **12th April, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Kericho County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kericho County.

The County Director of Education
Kericho County.


Appendix XI: Research Permit

THIS IS TO CERTIFY THAT:
MR. JOSEPH KIPROTICH KALYA
of KENYATTA UNIVERSITY, 116-20106
MOLO, has been permitted to conduct
research in Kericho County


on the topic: KENYAN SIGN LANGUAGE
AND THE ACADEMIC PERFORMANCE OF
LEARNERS WITH HEARING IMPAIRMENT.
A CASE OF KEDOWA SPECIAL SCHOOL
KERICHO COUNTY KENYA

for the period ending:
12th April, 2018

Permit No : NACOSTI/P/17/33279/16620
Date Of Issue : 12th April, 2017
Fee Received :Ksh 1000




.....
Applicant's Signature


.....

Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

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



REPUBLIC OF KENYA



**National Commission for Science,
 Technology and Innovation**

**RESEACH CLEARANCE
 PERMIT**

Serial No. **A3721**

CONDITIONS: see back page