

**THE EFFECT OF HEARING IMPAIRMENT ON THE ACADEMIC
PERFORMANCE OF LEARNERS WITH SPECIFIC LEARNING
DIFFICULTIES IN MATHEMATICS
IN LURAMBI DIVISION**

BY

OTWOMBE LENNY KEVEGA

BES/20001/82/DF

A RESEARCH REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF DEGREE OF BACHELORS
OF EDUCATION IN SPECIAL NEEDS KAMPALA
INTERNATIONAL UNIVERSITY

DECEMBER 2011


DECLARATION

I Otwombe lenny Kevega hereby declare that the research report entitled Effects of hearing impairment on the academic performance of learners with specific learning difficulties on mathematics in Kakamega District, is entirely my own original work except where acknowledged, and that it has not been submitted before to any another University or Institution of higher learning for the award of a degree.

Signature  Date 20/12/2011 pee

APPROVAL

This project has been submitted with my approval as a University Superior.



.....

Tindi Seje .

DATE

DEDICATION

This dissertation paper is sincerely dedicated to my beloved Erick Otwombe for the love and support.

ACKNOWLEDGEMENTS

I would like to take this opportunity to sincerely mention those who deserve my thanks and how they played an important role in this study.

I am partially grateful to my supervisor Tindi Seje for his valuable and timeless guidance and encouragement which made this work a reality. His constructive comments and keen interest in the development of the dissertation which became a great source of inspiration.

To all the head teachers, learners and parents of the four students primary schools in Lurambi Division who responded to my questionnaires and made my tasks most considerably bearable, easy and enjoyable. Thanks a lot goes to them all.

To my parents who gave me the initial education. I am deeply indebted. Finally I wish to express my appreciation to Awuor for type setting and binding my report.

God bless you all.

Finally much gratitude goes to the lecturers of Kampala International University for their assistance, guidance and encouragement all through my research study period.

God bless all. Thank you.

ABSTRACT

The researcher report is about the Effect of hearing impairment on the academic performance of learners with specific learning difficulties in mathematics in Lurambi Division of Kakamega District. The statement of the problem was identifying major problems facing learners with hearing impairment and the solutions to these problems.

CHAPTER ONE

THE PROBLEM AND ITS SCOPE

1.0 Introduction

1.1 Background Information

Hearing impairment is an umbrella concept that indicates a hearing disability which may range from mild to profound. Over many years the education of learners with hearing impairments has been faced with many problems.

In some countries, it has noted that, learners with hearing impairments identified with other specific problems have diverse needs. If these educational needs are not met or identified early, then educating such learners means nothing at all to the entire community.

It has also been noted that, most of these learners with hearing impairments have specific leaning difficulties in mathematics. They may have problems in acquiring some mathematical concepts which includes place value and mastery of multiplication table. Some of these learners have been identified in Lurambi Division of Kakamega district.

After teaching in one of the schools for many years, the researcher found it necessary to undertake a study on the problems facing such learners with hearing impairments having specific learning difficulties in mathematics in an inclusive setting.

The researcher will mainly base his argument way back in November 1975, whereby the United States Congress enlisted a public law (94 – 142) which in part advocated the compulsory education for the handicapped which included those with hearing impairments having specific learning difficulties in mathematics. At first there is need to point

out the origin of the problem and finally the solutions to the problems in the affected areas or subjects.

Thus for the purpose of the research, the researcher will sample out four schools in Lurambi Division in Kakamega District to undertake the exercise.

1.2 Statement of the Problem

Like any other learner, a child with hearing impairment should go to school to get quality education. This may not be achieved if there is no conducive environment under which appropriate learning takes place.

Learners with hearing impairments at times have specific learning difficulties in some subjects like mathematics. The problems have been identified in Lurambi Division of Kakamega district.

The researcher aims at finding our major problems facing such learners with hearing impairments having specific learning difficulties in mathematics.

The researcher also will attempt to find out the effects of hearing impairments on their performances and also the attitudes of all the stake holders interacting with these learners.

The researcher has a notion that if these problems are identified and given attention earlier then the performance of learners with hearing impairment having specific learning difficulties in mathematics will be greatly improved in Lurambi Division of Kakamega district.

1.3 The Purpose of the Study

The purpose of the study is to investigate the effect of hearing impairment on the perform poorly in mathematics.

1.4 Objectives of the Study

After teaching in one of the schools in Lurambi Division where he identified the problem. The researcher found it necessary to carryout a research on the problems facing learners with hearing impairment having specific learning difficulties in mathematics. The researcher had the following objectives.

General objectives

To find out the effects of hearing impairment on the academic performance of learners with specific learning difficulties in mathematics.

1.5 Specific Objectives

- (i) To investigate the causes of hearing impairment and specific learning difficulties in various areas.
- (ii) To find out indicators of hearing impairment on learners with specific learning difficulties in mathematics.
- (iii) To identify problems and solutions of learners with hearing impairments having specific learning difficulties in mathematics.
- (iv) To identify various categories of hearing impairments.
- (v) To find out teachers attitudes towards learners with hearing impairments.

1.6 Research Questions

After identifying the major problems facing learners with hearing impairments, having specific learning difficulties in mathematics. The researcher will use the following questions to guide him / her during the study.

- (i) What are the causes of hearing impairments?
- (ii) What are the causes of specific learning difficulties?
- (iii) What are the indicators of hearing impairments and specific learning difficulties?

- (iv) What are the problems and solutions of learners with hearing impairments?
- (v) Why do learners with hearing impairment perform poorly in mathematics in Lurambi Division?
- (vi) Why do teachers have negative attitudes towards learners with learning difficulties in mathematics?

1.7 Significance of the Study

In an inclusive setting, there are learners with diverse needs. These learners include those learners with hearing impairments having specific learning difficulties in mathematics.

The outcome of the study will assist learners to develop rapport among themselves, teachers and the community at large.

The end results will help teachers to identify such learners early enough and take intervention measures immediately.

The outcomes will also help the teacher to identify correct placement or for further referrals.

The results of the study will enable parents to assist their children at home. And give them necessary attention.

The outcome will help learners to realize the importance of practicing peer tutoring.

The results will help teachers to modify the learning environment to cater for the needs of such learners.

The results will be used to sensitize the community on the service provision towards learners with hearing impairment.

The results will enlighten teachers on the need of doing remedial work to such learners with hearing impairments with specific learning difficulties.

1.8. The Scope

The study will cover Lurambi Division of Kakamega district. The area to be covered is about forty square kilometers. There are six schools in the zone. The research will narrow her study to four schools due to time.

The environment of learners varies from school to school. The four schools will include A, B, C, and D, respectively. The climate of the area is hot and dry. The topography of the land is hilly. The roads are impassable during rainy season.

During the study, the researcher will focus on learners with hearing impairments having specific learning difficulties in mathematics in Lurambi Division.

1.9 Definition of Terms

Deafness : Not hearing at all or the perception of sound is so distorted that communication through speech is very hard.

Hard of hearing : It is a person who is generally with the use of hearing aid had a residual hearing.

Hearing impairment: It is an umbrella concept which includes all the degrees of hearing loss

Impairment : It is to analyzed abnormality of psychological, physical (motor and sensory) neurological or equatorial function or structure.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

2.1 Definitions

Hearing impairment is a term which has been given various definitions. S.K JOten (1997) describes hearing impairment as an umbrella concept which includes all degrees of hearing loss ranging from mild to profound.

Specific learning difficulties are a condition that affects the learner's ability to acquire specific skills in various academic areas. The problem mentioned above may affect the learner in only one or two of the aspects of the curriculum.

2.2 Identification of Early Intervention

It is important to note that, learners with hearing impairments portray various characteristics, which include tilting of the head, a short attention span and always communicate in signs. Their level of functioning is below average especially in mathematics which involves a lot of thinking and reasoning.

Michael N. (1982) explained that if hearing impairment is not detected early, then it may result in massive language deficits which are an indicator in learners with specific learning difficulties in mathematics. Michael further added that those learners with hearing impairment cannot express themselves well. This may affect their classroom performance especially when working on questions in mathematics which involves computation.

A child confirmed deaf at birth, and a child identified after six years of age have different development stages both in language and intelligence.

UNESCO (1987) stressed that it is important to identify the health of a child early if meaningful education is to be realized.

Early detection will allow the medical status of the child to be elevated in case of curable conditions and educational placement.

While early intervention measures have gained firm foundations in advanced countries, some developing countries of Africa are yet to start such programmes for learners with hearing impairments having specific learning difficulties in mathematics. This was cited by Ojile (1981).

Ojile (1981), added that the non available early intervention programmes and the relatively few available schools for the deaf the relatively few available schools for the deaf to enroll limits their communication patterns hence learners with specific learning difficulties in mathematics lag behind in all areas because they have not been catered for to meet their full potentials.

2.3 Causes of Hearing Impairment and Special Learning Difficulties

Ndurumo MM (1984) noted that hearing impairments can occur during the pregnancy period. This period includes, pre-natal, peri-natal and post-natal. Ndurumo MM further added that during pre-natal period, hearing impairment can be caused by diseases which affect the mother. He also added that hereditary can play a major cause. The use of drugs like quinine and neomylin can also cause hearing impairment to some extent. Other causes which Ndururumo cited are traumas to the mother, tumours, maternal diseases like Rubella and Rhesus blood incompatibility.

He further wrote that during peri-natal period hearing impairment can be caused by trauma to the baby during delivery time, the use of forceps

pressed into the birth canal can cause damage to the child's' head. Such problems can affect the auditory nerves, therefore causing hearing loss.

Hearing impairments can be caused by diseases like meningitis, otitis media, fevers, childhood measles and presbycusis. Meyen (1978) gave two groups of factors known to cause hearing impairment; namely endogenous and exogenous. He added that those learners with hearing impairment born with the condition due to problems originating from genetic characteristics are said to be due to endogenous causes, while those learns with hearing impairments which they acquired it due to external factors other than genetic problems are said to be due to exogenous factors.

It is important to identify the cause as this will help the teachers to relate with the learners effectively. It has been identified further that hearing loss may affect the outer ear, conductive loss or inner ear or both depending on the cause.

2.4 History of Education of the Hearing Impaired in Europe and USA.

The education of the hearing impaired dates back to about four hundred years ago. When they were generally grouped together with others regardless of their severity or type of handicap.

In the 6th century, increasing reference was put on those who could not hear. Before then, they were still put at equals with others. In early years any deviation by a child from normal development was regarded as burden by the society. They were labeled idiots and other bad names.

In 19th century the education of the deaf was provided. The first permanent public school was established in Hertford Connecticut in the United States of America.

In Europe, a pre-Christian era philosopher by name Aristotle and others presumed that since the hearing impaired neither gave utterance to speech nor comprehend it, then they were therefore incapable of instruction (Sliverman and Daris cited). This motion created havoc to the hearing impaired with some of them being mistreated and molested at home.

They were not catered for in any issue at all. A Hallan physician Girolano de Padua proposed a set of principles that saw a hopeful educational future for the hearing impaired. They were assured of a better social life and a better outlook. Giralano stated in essence that hearing impaired could be taught to comprehend written symbols or combinational of symbols by associating them with objects or pictures thereby leading to the present day sign language system.

2.5 Development of Education of Hearing Impairment in Kenya

Historically, Kenya owes a lot of gratitude to religious organizations and non governmental organizations which saw the need for education of the deaf children as a priority. Other arms that saw the necessity include health organization individuals working in the field of medicine.

The need for education to the hearing impaired was cited by many organizations which included the then King George IV Hospital presently Kenyatta National Hospital.

In 1958, Dr. Peter Clifford the government Ear, Nose and throat specialists (ENT) in King George Hospital suggested the establishment of Kenya society for the deaf and dumb to look into the welfare of the deaf in Kenya. This society was established and registered and Mrs. Dorothy Hughes was made to foresee its registration.

After that a committee was formed which held several meetings in various parts of the country and also cited mass media to reach the public. The awareness made the organization like round tablets, rotary lions; Agha Khan Foundations developed interest in education of the hearing impaired.

Ndurumo MM (1993) pointed out that Aga Khan special school in Mombasa was the oldest school for the hearing which was established in 1959. The first unit for the deaf was at Dogoretti which was established in 1960 followed by Aga Khan unit in Nairobi in 1961.

Ndururumo further recalled that, Dagoretti unit for the deaf was transferred to Kambui School which was established in 1963 by the Presbyterian church of East Africa. Ndururumo acknowledged that between 1964 and 1980 there was a rapid expansion of the schools for the hearing impairment. The Ministry of Education according to Ndururumo designated Machakos School for the deaf which was started in 1986 by Swedish organization of the Handicapped intentional as the first to instruct children in a systematic sign language. According to Ndururumo the number of programmes rose to 27 primary schools, two secondary schools and four vocational schools.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Contain in this chapter is the information on the approach methods, ways and techniques which the researcher will use to collect data pertaining to the study. It is based on the following subtropics.

- Research design
- Research approach
- Subjects (population)
- Sample size
- Sampling procedure
- Instruments or tools used
- Procedure of the study / data analysis.

3.2 Research Design

The researcher opted for survey method to collect the data because it involves questions that can be asked personally in an interview or impersonally through a questionnaire, about many things which cannot be easily observed in survey.

Also the information will be collected from people to determine the status of the problem. the researcher will use the design because it is a common method used in educational research to establish the situation of a problem on the ground.

3.3 Population (Subjects)

The population from which the study will be undertaken consists of head teachers, teachers, learners and parents. All these come from Lurambi Division in Kakamega district.

The researcher will choose this population because they interact with the learners on daily basis. The group to be used is in a position to detect change on behavior or performance and identify specific problems related to learners with hearing impairment having specific learning difficulties in mathematics in the mentioned zones.

3.4 Sample Size

The researcher will use four schools out of the six schools in the zone. This exercise will involve two teachers, two parents and eight learners as respondents to represent the whole population of schools in Lurambi Division.

3.5 Sampling Procedures

During the study, the group to be targeted will be selected using purposive method. The researcher will use two teachers from each school, two learners and two parents who have learners with hearing impairments.

The procedure to be used will be preferred since all the four schools will have a chance to qualify in the study. The researcher will visit the four schools personally to meet the respondents for assistance.

3.6 Instruments to be Used

The researcher will use questionnaires in the study. He opted for this tool because he / she will wish the respondents to give their own views without fear. The questionnaires to be used are for the teachers, parents and learners. During this exercise the researcher will deliver the questionnaire by giving them to the respondents.

3.7 Procedures of the Study

First the research will view the literature related to performance among learners with hearing impairments having specific learning difficulties in

mathematics. Therefore, the researcher will develop the instruments / tools or questionnaires to use in the study.

The researcher will write letters requesting for permission to conduct the research from the four head teachers. The researcher will start the exercise after getting permission from the head teachers. He / she will collect data using a survey method.

3.8 Data Analysis

The information to be gathered from the respondents will be taken to represent across section of performance among learners with hearing impairments having specific learning difficulties in mathematics in Lurambi Division of Kakamega district. It will be tabulated on tables representing each cross section.

CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION

4.0 Data Analysis

This chapter entails detailed analysis of the questionnaires that were collected from the respondents. The information given is on the **“Effect of hearing impairments on the academic performance of learners with specific learning difficulties in mathematics in Lurambi Division of Kakamega District”**.

The researcher has analyzed the questionnaires on frequency tables as follows:-

- Questionnaires for Teachers
- Questionnaires for Parents
- Questionnaires for learners

4.1 Section 'A' Table Analysis

		FREQUENCY	SEX	ACADEMIC LEVEL	WORKING EXPERIENC E
RESPONDENT S	AGE		MALE-FEMALE	'O'LEVEL-DIP	0-15-16-20
TEACHERS	30-40	4	4 4	6 2	3 5
LEARNERS	11-16	2	2 6	- -	
PARENTS	40- 50	2	1 7	- -	2 -
TOTALS		8	7 17	8	5 5

From the above findings, it is seen that most of the teachers are between thirty to forty years. This indicates that a good number of the teachers are at the midst of their working period, where by they are still strong and ready to deliver in an energetic manner. The targeted learners are between eleven to sixteen years. This was selected due to their abilities and their mode of understanding and answering techniques. This assisted the researcher since the learners understood and gave out their opinions well. As we can see from the table, parents who were available were forty to fifty years. These parents assisted the researcher to get vital information since they were open and gave true information regardless of their ages and their level of education.

Both female and male teachers were equal in number. This assisted the researcher to get balanced information though most of them were 'O' level holders and those who had diploma were few in the four schools. It also showed that a good number of teachers had worked for over ten years and above.

During the exercise, it was found that, girls were more than boys who were reached by the researcher. This shows that girl child education has rooted deeply within the zone. The results also show that, parents who responded were mostly women. This indicates that such mothers are left behind to care for the young, the sick and even those with disabilities. They had full background information about their children, although a few of them were either employed or had businesses within the location. Also some lacked prior knowledge and had difficulties when expressing their views clearly.

4.2 Analysis of questionnaires for Teachers

Section: B

Q1. Do you know the meaning of hearing impairment?

Response	Frequency	Percentage
Yes	8	100%
No	0	0%
Total	8	100%

From the above indication, it is seen clearly that hundred percent of the teachers from the four schools have knowledge on hearing impairments. This shows that, teachers have been sensitized on the meaning and importance of hearing impairments and how to assist these learners with hearing difficulties. Teachers are urged to provide such learners with vital necessities so that they may realize their full potentials in field of education while they grow or mature.

Q2. Do you learners with hearing impairments in your school?

Response	Frequency	Percentage
Yes	6	75%
No	2	25%
Total	8	100%

From the above table, it is clearly indicated that seventy five percent of the teachers have identified learners with hearing impairment in their classes or schools. While twenty five percent have not identified. This might be due to negative attitudes towards such learners. Also such teachers may be lacking knowledge or awareness about the indicators portrayed by these learners, in class or outside the classroom. Teachers are advised to attend fresher courses in order for them to get vital knowledge on how to identify and assist learners with hearing

impairments, so that they may meet their educational needs fully like any other learners since education is free and meant for all.

Q3. What are the causes of hearing impairments?

Response	Frequency	Percentage
Courses	0	0%
Diseases	4	50%
Inheritances	4	50%
Total	8	100%

The above results indicate that, most of the teachers from the targeted schools have discovered that diseases or inheritance are the major causes of hearing impairments. This is seen by the fifty percent which gave diseases and inheritance as the major causes. However, teachers should be sensitized on the causes and intervention measures of learners with hearing impairment after identifying before it worsens.

Q4. Do learners with hearing impairment relate well with their peers?

Response	Frequency	Percentage
Yes	8	100%
No	0	0%
Total	8	100%

The above findings shows that, hundred percent of the teachers have discovered that learners with hearing impairments relate well with their peers. This is due to peer socialization which has been enhanced in these schools. Such interaction should be seen also within the people who are handling such learners at home and also within the entire community where they interact mainly during communal work and

church services. Stigmatization should be eroded so that such learners can interact freely without fear of being mocked or labeled.

Q5. Which mode of communication do you use when communicating with learners with hearing impairment?

Response	Frequency	Percentage
Lip reading	2	25%
Facial expressing	4	50%
Gestures	2	25%
Total	8	100%

From the above table, it is seen that twenty five percent of the teachers use either lip reading or gestures when teaching those learners with hearing impairment. While fifty percent use facial expressions when teaching them. This has occurred due to the severerity of these learners which are either milled or partially impaired. So, using such mode of communication enhances their hearing fully, thus exploring their heights better.

4.3 Analysis of Questionnaire for Parents

Section B

Q1. How many children do you have?

Response	Frequency	Percentage
Boys	3	37.5%
Girls	5	62.5%
Total	8	100%

From the above table, it shows that thirty seven point five percent of the parents have more boys while sixty two point five have more girls than boys. This indicates that, parents have more girls than boys. It is seen that, these parents who give birth to more girls tend to give them less education than those who give birth to more boys. This statistics have been discovered by many researchers who have interests in girl child education. Educators and other stakeholders are advised to enlighten such parents on the need of educating both boys and girls equally since education is given free for all children in the country regardless of their gender, race or the nature of their disability incase they have.

Q.2. Do all your children go to school?

Response	Frequency	Percentage
Yes	8	100%
No	0	0%
Total	8	100%

From the above results, it is seen clearly that hundred percent of the parents have taken their children to various schools within the district. This is due to sensation and awareness about the provision of education for all, regardless of any disability. Parents need more knowledge on education concerning children with any kind of disability or defects. This will help all children to gain their potentials fully and become useful citizens in the future

Q3. Do you have a child with hearing impairments?

Response	Frequency	Percentage
Yes	2	25%
No	6	75%
Total	8	100%

From the above findings it indicates clearly that, twenty five percent of the parents have children with hearing impairments while seventy percent do not have children with hearing impairment.

This maybe due to the denial parent have over their children with hearing difficulties as any other type of disabilities. Some parents do not want to be seen with a child with any disability. This fear comes as a result of stigmatization or outcasts from the community. There is need for such parents to be sensitized on the need to accept the disability and take intervention measures early enough before it worsens.

Q4. Have you taken the child for medical assessment?

Response	Frequency	Percentage
Yes	5	62.5%
No	3	37.5%
Total	8	100%

From the above presentation, it is seen that sixty two point five percent have the parents have taken their children with hearing impairments for medical attention. While thirty seven point five percent of the parents have not taken their children with hearing impairments for medical check ups. This results shows that a few parent still lack sensitization on the importance of identification and early intervention. This calls for educators to advice such parents to take their children for assessment and for further referrals if need be, so that they may assist their children early enough.

Q.5. Do you assist learners with hearing impairment at home?

Response	Frequency	Percentage
Yes	4	50%
No	4	50%
Total	8	100%

From the above interpretation, it is seen that fifty percent of the parents assist their children with hearing impairments at home, while fifty percent do not assist them. This might be due to some fear or overprotection by such parents who lack awareness on the importance of assistance and free communication between them and those children with hearing impairments at home. Such parents need help so that they may assist their children at home with or without disabilities.

Q.6 Do the children with hearing impairments interact with the sibling at home?

Response	Frequency	Percentage
Yes	6	75%
No	2	25%
Total	8	100%

From the above results, it is indicated that seventy five percent of the parents have discovered that their children with hearing impairments interact with their sibling and peers freely. While twenty five percent do not interact. This might be due to the nature of their disabilities or over protection by some parents, which denies them time for play at home or at school. Such parents should be sensitized on the importance of play and free interaction, thus promotes security, socialization and physical growth.

4.4 Analysis of Questionnaires for Learners

Q1. How many pupils do you have in your class?

Response	Frequency	Percentage
Above 20	3	37.5%
Above 40	3	37.5%
Above 50	2	25%
Total	8	100%

From the above findings, it is indicated that thirty seven point five percent of the schools have an enrolment of above twenty and forty pupils per class respectively, while twenty five percent have an enrolment of above fifty pupils in a single stream. This results shows that , most of the school enroll few learners due to some environmental barriers which includes poverty, rapport between teachers and learners, poor educational facilities and lack of funds to boast their vital needs. Also if parents and entire community lack awareness about the importance of education and its outcome in the future. All these if not catered for can encourage a negative attitude towards education hence low admission rate in most of our school especially in Lurambi Division of Kakamega district.

Q2. Do you have learners who do not hear in your class?

Response	Frequency	Percentage
Yes	4	50%
No	4	50%
Total	8	100%

From the above presentation, it is indicated that fifty percent of the learners have identified pupil with hearing difficulties in their class. While fifty percent have not identified such learners. This result occurred due to the relationship between learners and peers with hearing impairments, which has made them to realize some defects and indicators. Also when they interact during classroom cores and co-curricular activities within the learning environment. Other learners cannot be identified easily because they can't respond to almost all the instructions given to them, so long as they are made clearly and loudly.

Q3. How did you identify them in your class?

Response	Frequency	Percentage
Use gestures	3	37.75%
Use of hearing Aids	0	0
They leap read	5	62.25%
Total	8	100%

From the above findings, it shows clearly that sixty two point two five percent use lip reading method when responding to instructions while thirty seven point seven five percent use gestures when communicating. This shows that most of these learners are mildly or partially impaired. This has made them to either lip read or use gestures most of the time. They can also finger spell hard words if they are able to do so, being assisted by their class teachers. Teachers are urged to talk loudly and pronounce words well to enhance lip reading. They should also accompany their words with signs to assist those who use gestures as their mode of communication.

Q4. Do you assist learners who do not hear in your class?

Response	Frequency	Percentage
Yes	6	75%
No	2	25%
Total	8	100%

From the above findings shows that, seventy five percent of the learners assist their peers who have hearing, while twenty five percent do not

assist them. This might have resulted due to peer awareness and sensitization. Teachers are called upon to encourage and promote peer socialization hence a rich educational environment can be created.

The school environment and the community should be advised to provide the needed facilities including play equipment which promote motivation of such learners who have educational barriers.

Q5. What is the performance of learners who do not hear in your school?

Response	Frequency	Percentage
Above	2	25%
Average	2	25%
Below average	4	50%
Totals	8	100%

This result shows that, twenty five percent of the learners are above average while twenty five percent are average. Fifty percent represents those who are below average. This finding shows that, learners who have hearing difficulties perform poorly compared to those who do not have. This might be due to poor teaching methods and approaches used. Also teachers lack teaching and learning resources which promotes motivation. They also lack fresher courses to enlighten them on the current changes in the curriculum. Learners would be provided with a barrier free environment which promotes a conducive teaching phase.

Q6. Do learners who do not hear engage in social activities during break and games time?

Response	Frequency	Percentage
Yes	5	62.25%
No	3	37.5%
Total	8	100%

The results above shows that, sixty two point two five percent of the learners have interacted with pupil who have hearing difficulties either during break, lunch or games time. While thirty seven point five do not socialize with them. This might be due to their disabilities or their antisocial behaviors which might have resulted to this. It is also shows that, learners with hearing impairments are provided with a conducive environment which is barrier free hence socialization is promoted. Teachers also use stimulating resources and methods which create rapport between them and the learners with hearing impairments. This has made these learners with hearing difficulties to feel accommodated and accepted, thus promoting socialization.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.2 Summary of the Study

The research topic was on Effects of hearing impairment on the academic performance of learners with specific learning difficulties in mathematics in Lurambi Division of Kakamega district.

In chapter one, the researcher came up with the statement of the problem whereby she stated that for quality education to be achieved the learning environment must be conducive and barrier free. The researcher also sought to find out the main problems facing learners with hearing impairments and their performance in mathematics whereby some of these learners had specific difficulties in some specific areas.

The researcher also had some objectives of the study which she sought to find out the Effects of hearing impairments on the academic performance of learners with specific learning difficulties in mathematics. She investigated deeply the causes of problems of hearing impairments, their indicators and other major problems facing such learners. The researcher tried to find out teachers attitudes towards learners with hearing impairments.

In chapter two, the researcher made a brief discussion on the literature review which stated that it is an umbrella concept which when had various definitions some of these terms include all the degrees of hearing loss ranging from mild to profound. The researcher noted some characteristics, causes and types of hearing impairments.

In chapter three, the researcher chose an appropriated method to use. She used qualitative method which she found it to be suitable and convenient. She targeted four schools to perform the study. She sampled out eight teachers eight parents and sixteen learners respectively.

5.3 Discussion

The backbone of the study was in chapter four whereby the researcher's topic was based on the *Effects of hearing impairment on the academic performance of learners with specific learning difficulties in mathematic*. The researcher prepared questionnaires for teachers, learners and parents. She then analyzed them on frequency tables which were tabulated clearly.

After analyzing the results, the researcher discovered that, there existed some problems which needed to be addressed. As per the responses given by the respondents learners with hearing impairment in our regular classes face a lot of difficulties which needs intervention early enough to minimize the burden.

According to the researcher, questionnaire 'A' was for the teacher Questionnaire 'B' for parents and Questionnaire 'C' was meant for the learners respectively. In Questionnaire 'A' table one A hundred percent of the teachers from the zone had knowledge about the 'meaning' and 'definition' of hearing impairments. This shows that teachers have been sensitized fully on the specific needs of learners with hearing impairments. Table two of Questionnaire 'A' shows that seventy five percent of the teachers have discovered or identified learners with hearing impairments in their school while twenty five percent still lack awareness on the existence of such learners in their schools.

In table three of questionnaire 'A' it is indicated that seventy five percent of the teachers have discovered that early childhood diseases

are the major causes of hearing impairments, while twenty five percent still belief on curses and witchcraft as the major causes. The forth table of questionnaire shows that hundred percent of the teachers have discovered that learners with hearing impairments relates well with their peers and siblings.

According to the results from the fifth table of questionnaire 'A' fifty percent of the teachers use facial expression when communicating with learners with hearing impairments. While twenty five percent use both lip reading and gesture methods respectively. This findings indicates that, teachers have been refreshed on how to assist these learners when instructing them in class.

The findings from questionnaire 'B' states that in table one sixty two point five percent of the parents have more girls than boys . while thirty seven point five have more boys than girls. These results shows that, parents have been sensitized on the importance of education both boys and girls equally since education are for all.

However, in the second table of questionnaire 'B' all parents who were met by the researcher send their children to school regardless of any disabilities. This shows that they have been sensitized on the benefits of educating children and providing them with their basic needs.

From the third table of question 'B' seventy five percent of the parents do not have children with hearing impairments while twenty five percent have children with hearing impairments. This interpretation shows that such parents might have a fear of exposing their children due to the stigma they might receive from the communicating and the close family members. It also reveals that some parents still need to be equipped with knowledge and skills of handling and teaching these children who have hearing impairments.

The findings from the fourth table in questionnaire 'B' shows that seventy five percent of the parents have taken their children with hearing impairment for medical assessment. While twenty five percent still lack the awareness and the importance of assessment. This proves that, a lot has been done to educate such parents and the entire community on dangers of early childhood diseases and disabilities.

The fifth table of questionnaire 'B' indicates that, fifty percent of the parents assist their children with hearing impairments while fifty percent do not assist them. This result shows that, those parents who assist have knowledge and skills of handling such learners. Whereas those parents who do not, lack vital knowledge and skills and also they might be still floating on the sea of denial and fear.

Finally the finding in table six of questionnaire 'B' explains that seventy five percent of the parents have discovered that, children with hearing difficulties interact freely with their peers and siblings. While twenty five percent have not discovered any socialization among children with and without hearing difficulties. This indicates that, parents who interact with their children with hearing impairments encourages them to interact with others freely, while those who have not discovered reveals that they too encourage such, since they let them live in their own world of fear and overprotection 'C' shows hence a sense of socialization is not promoted.

In Table one of question. 'C' shows that seventy five percent of the schools have an enrolment of twenty and above. While twenty five percent have an enrolment above fifty pupils. These findings suggest that the catchment area is not overpopulated or the environment where most learners come cannot provide a conducive atmosphere for learning, hence low enrolment is perceived.

However in the second table of questionnaire 'C' shows that fifty percent of the learners within the schools have discovered pupils who have hearing impairments, while fifty percent have not discovered any. These results show that, learners need to be taught some of the indicators of pupils who have hearing difficulties and how to assist them when they are identified.

The third table of questionnaire 'e' shows that sixty two point two five of the learners who have hearing difficulties lip read their teachers while thirty seven point five use gestures. This indicates that, learners with hearing impairments have been taught how to use signs or lip read since these are some of the major modes of communicating with learners who have hearing difficulties.

Moreover the fourth table of questionnaire 'C' suggests that seventy five percent of the learners in the targeted schools assist those learners who have hearing difficulties while twenty five percent do not assist them. This might be due to fear of the disability passed to them or they lack awareness and sensitization of hearing impairments and its indicators.

From the fifth table of questionnaire 'C' It is seen that fifty percent of the learners who have hearing impairment are below average in class performance while twenty five percent are either average or above averages. This shows that learners who have hearing difficulties still have academic barriers which have led to the poor performance amongst them.

Finally the last table from questionnaire 'C' shows that sixty two point two five percent of the learners have discovered that pupils with hearing impairments engage in social activities during break and games time, while thirty seven point seven five percent have not

discovered any socialization portrayed by learners with hearing impairments. This might be due to the nature of the disabilities which makes them to be side lined from the other peers at school. It also shows that peer tutoring and socialization has been promoted in most of the schools within Lurambi Division and throughout Kakamega district.

5.4 Conclusion

The researcher explored the general performance in Lurambi Division, but with special reference to learners with hearing impairment who have specific learning difficulties in mathematics in the mainstream classrooms. The researcher noted that the education of learners with hearing impairments is faced with a lot of challenges which needs to be addressed closely such challenges if not met early, then the education of such learners is with hearing impairment s is faced with a lot of challenges with needs to be addressed closely such challenges if not met early then the education of such learners is hampered totally

However, educating learners with hearing impairment needs a lot of devotion, patience and tolerances. As noted earlier, teachers are called upon to change their attitudes towards these learners who have hearing impairments. There is need for them to modify their teaching methods and approaches. This in turn will change the mode of presentation; hence effective teaching and learning will be realized.

The analysis of the data shows that, teachers have undergone refresher courses to equip them with knowledge and skills. In view of these the researcher foresees effective teachings in years yet to come. since these teachers will be equipped with new skills and approaches thus making them to be competent in handling learners with hearing impairments in their regular classrooms.

However, the researcher pointed out that if parents are sensitized on the provision of hearing aids for learners with hearing impairments then the problems of communication will be addressed. Also the researcher saw the need of other stakeholders to chip in and provide needed assistance so that education for such learners is realized without any difficulties.

Finally the researcher concluded that in Lurambi Division, if the education of learners with hearing impairment is to be effective then seminars and workshops must be organized to sensitized teachers and the entire community on the provision of support services towards education in their schools. Thus education will have a meaning thereafter.

5.5 Recommendations

In view of the results got from the study paper, the researcher recommends the following to help alleviate problems facing the education of learners with hearing impairments having specific learning difficulties in mathematics in Lurambi Division.

Since there are many learners with various types of disabilities within the zone should be allowed to attend seminars and workshops in order for them to acquire knowledge and skills to assist them when teaching learners with hearing impairments.

Teachers who have positive attitudes towards learners with hearing impairments are argued to sensitized parents and the community to change their attitudes towards learners with hearing impairments.

All schools should provide a conducive environment which is barrier free hence accommodating effective teaching for learners with heading impairments.

The stakeholders in the field in the field of education should recommend for more training of teachers in the area of special needs education.

The staffing of teachers in the schools and units of children with hearing impairments should be reviewed regularly.

Parents should join hands in providing necessary equipment in school like hearing aids, books , seats and permanent classrooms to harbor room for learners with hearing impairments to receive effective teaching

The curriculum should be modified to suit learners with hearing impairments.

Learners with hearing impairments should be given scholarships so that they may pursue their studies without any difficulties.

Teachers should have teamwork in schools so that effective teaching will be realized.

Teachers/pupil relationship should be promoted so that learners can interact with theory teachers without any fear of harassment.

Peer tutoring and socialization should be developed so that a free atmosphere of interaction will be created.

Funds should be provided to meet the educations of all learners who have various needs which need to be addressed.

BIBLIOGRAPHY

Ballantyne J. (1977). *Deafness*, 2nd edition, Church Hill London.

Brenna (1985), *Curriculum for Special Education*. Open University Press.

Farrant J. (1980). *Principles and practices of Education* (New Edition)
Essex.

Herson, L and Berger, M (1980). *Language* Oxford pergamon Press.

Meyen (1978), *Exceptional Children and Youth*. An Introduction love
publishing company (USA).

Michael M. Ndururumo, (1984). *Exceptional Children Developmental
Consequences and Interventions*. (Longman) Publishers, Kenya.

Radinki F. (2002). *Historical Development of special Needs Education*.
NAIROBI (KISE).

Taylor I.G. (1985). *Education of the deaf*. Groom Helm Limited London.

UNESCO, (1987). *Education of the deaf children and young people
centre for total communication*. Copenhagen Denmark.

Webster A, II 986). *Children with speech and language difficulties*.
London, Cassell

APPENDICES

APPENDIX A: TIME FRAME

PERIOD	EVENT
1 st January – 15 th January	Writing a research proposal
16 th - 30 th February	Developing research tools / instruments
1 st – 15 th March	Pre-testing the tools
16 th – 30 th March	Administering the test tools
1 st – 15 th April	Collection of data
10 th – 30 th April	Presentation and organization of data
1 st – 15 th May	Analyzing of data
16 th May – 16 th June	Reporting writing
10 th – 30 th July	Submission of the research report

APPENDIX B: RESEARCH BUDGET

NO	ITEM	DESCRIPTION	ESTIMATED AMOUNTN
1	Stationary	- 2 reams of photocopy papers @ 600	1,200/=
		- Writing material @ 400	400/=
		- Binding @ 300	300/=
2	Personal	- Field assistant @ 400 for 2 days	400/=
		- Transport	200/=
3	Services	- Typing	1000/=
		- Photocopy	400/=
		- Binding	300/=
	TOTAL		5,200/=

QUESTIONNAIRE FOR TEACHERS

I Otvombe Lenny Kevega, a student at Kampala International University, wish to carry a research on learners with hearing impairments having specific learning difficulties in mathematics. I have chosen you as one of my respondents and the information you are going to give me will be treated confidentially.

Please answer by ticking only one in each question.

AGE

25 – 30 years

30 – 40 years

40 – 50 years

Above 50 years

Sex

Male

Female

Academic level

O Level

A level

Diploma

Graduate

WORK EXPERIENCE

1 year – 5 years

5 years – 10 years

10 years – 15 years

Above 18 years

Please answer all the questions by either ticking yes or no or by giving a brief explanation.

1. Do you know the meaning of hearing impairment?

Yes

No

(ii) If yes, give a brief explanation

.....
2. Do you have learners with hearing impairment you your school?

Yes

No

(ii) If yes how many
.....

3. What are the causes of hearing impairment?

Curses

Accidents

Witchcraft

Diseases

4. Do learners with hearing impairment relate well with their peers?

Yes

NO

(ii) If yes / no, give two reasons
.....

5. Which mode of communication do you use when communicating with learners with hearing impairments?

Lip reading

Facial expressions

Gestures (sign language)

6. What is the general performance or learners with hearing impairment in your school?

Above average

Average

Below average

QUESTIONNAIRE FOR PARENTS

I Otwombe Lenny Kevega, a student at Kampala International University, wish to carry a research on learners with hearing impairments having specific learning difficulties in mathematics. I have chosen you as one of my respondents and the information you are going to give me will be treated confidentially.

SECTION A

Please answer by ticking only one in each question.

AGE

25 – 30 years

30 – 40 years

40 – 50 years

Above 50 years

Sex

Male

Female

Academic level

O Level

A level

Diploma

Graduate

WORK EXPERIENCE

1 year – 5 years

5 years – 10 year

10 years – 16 years

Above 18 years

SECTION B

Please answer all the questions by either ticking yes or no or by giving a brief explanation

1. How many children do you have?

Boys

Girls

2. Do all your children go to school?

Yes

No

(ii) If no give two reasons

.....

3. DO you have a child with hearing impairments?

Yes

No

4. How you taken the child for medical assessment?

Yes

No

(ii) If no give reasons

.....

5. Do you assist the child with hearing impairment at home?

Yes

No

(ii) If yes, what type of activities do you give

.....

6. Do children with hearing impairment interact with the sibling at home?

Yes

No

(ii) If no why? Give two reasons.

.....

QUESTIONNAIRE FOR LEARNERS

I Otwombe Lenny Kevega, a student at Kampala International University, wish to carry a research on learners with hearing impairments having specific learning difficulties in mathematics. I have chosen you as one of my respondents and the information you are going to give me will be treated confidentially.

Please answer by ticking only one in each question.

AGE

7 – 10 years

11 – 16 years

16 – 18 years

Above 18 years

Sex

Male

Female

3. Class

4. School

SECTION B

Please answer all the questions by either ticking yes or no or by giving brief explanations.

1. How many pupils do you have in your class?

.....

2. Do you have learners who do not hear in your class?

Yes

No

(i) How many?.....

3. How did you identify them in your class?

Use gestures when talking

Use hearing aid

They lip read

4. Do you assist learners who do not hear in your class?

Yes

No

(ii) If yes, give reasons

.....

5. What is the performance of learners who do not hear in your class?

Above average

Average

Below average

6. Do learners who do not hear engage in social activities during break time?

Yes

NO

If no, give reasons

.....

.....