

**HEARING AIDS USE IN INCLUSIVE SECONDARY SCHOOLS: THEIR EFFECTIVENESS
ON LEARNING OF STUDENT WITH HEARING IMPAIRMENT**

A CASE OF ONE SELECTED DISRICT IN TANZANIA

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DECLARATION

I, **Philpo Basukwa**, solemnly declare to the Directorate of research and graduate Training, Kyambogo University, that this research thesis is my original work and that no part of it has been presented for another degree in this university or any other institution of higher learning for the same award.

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DEDICATION

This work is dedicated to my beloved family, especially my husband Benedictor Thomas Mboya and my sons, Mao T. Mboya and Max T. Mboya, for their prayers, tremendous support, tolerance, and words of encouragement.

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LIST OF ACRONYMS

BTE:	Behind the Ear
CIC:	Completely in the Canal
IDEA:	Individuals with Disabilities Education Act
ITE:	In the Ear
NIDCD:	National Institute on Deafness and Other Communication Disorders
MoEST:	Ministry of Education Science and Technology
UN:	United Nation
UNCRPD:	United Nations Convention on the Rights of Persons with Disabilities
USA:	United State of America
WHO:	World Health Organization

ABSTRACT

This study examined the hearing aids use in secondary schools; their effectiveness on learning to the student with hearing impairment in one of the selected districts in Tanzania. In developing countries like Tanzania, hearing aids are the key to rehabilitation for the majority of persons as well as students with hearing impairment. The study was guided by three objectives as follows; to examine the status of the use of hearing aids among the students with impairment in inclusive secondary schools; to analyse the effectiveness of the use of hearing aids towards the learning of students with hearing impairment in secondary schools; and to explore the hindrances faced by students with hearing impairment while using hearing aids in their learning. The study was guided by Bronfenbrenner's theory to find out how the environment can create the effectiveness use of hearing aids during learning. The study was qualitative in nature with a case study design used. The target population for this study were 247 and a sample size 12 participants were selected purposively from the secondary school to participate in the study. Semi-structured interviews were used during data collection and results were analysed thematically. The finding revealed that the status of the use of hearing aids is good and bad because some students do use hearing aids at school to communicate in their learning whereas others do not use as they claim that hearing aids make noise leading to pain in the ear and headache. The findings further revealed that hearing aids help students to participate in both academic and non-academic school activities. The study findings also indicated that although hearing aids had positive impacts in learning, there were hindrances encountered when students use hearing aids during learning. Some of these are poor infrastructures, inappropriate and unwillingness to wear hearing aids. Following the above findings, the study recommended that Ministry of Education, Science and Technology (MoEST) as a stakeholder in inclusive secondary schools needs to monitor the use of hearing aids in schools. The monitoring would ensure that hearing aids are effectively used by students with hearing impairment. Inclusive secondary school administrators should initiate partnerships with corporate organizations and non-governmental organizations for lobbying of assistance to modify and establish friendly classroom that favoured students with hearing impairment. The school administrations ensures that there are regular medical check-ups for students with hearing problems in their respective inclusive schools. Teachers in collaboration with the school administration should guide and counselling students who are unwilling to put on their hearing aids. This may encourage students with hearing impairment to wear their hearing aids hence ease their communication in learning.

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This study intended to explore the use of hearing aids in inclusive secondary schools: their effectiveness on the learning of student with hearing impairment. The chapter describes the background of the study, statement of the problem, purpose of the study, research objectives, research questions, significance of the study, scope of the study and theoretical frame work.

1.2 Back ground of the study

The ability to hear and communicate with speech is a crucial aspect of human life where persons with hearing impairment live within a larger hearing and speaking community. Hearing is indispensable sense for normal mental development which could hindered by hearing impairment.

Hearing impairment is frequently defined as a wide range of hearing losses, including deafness. Specifically, hearing impairment is termed as an impairment in hearing, whether permanent or temporary, and badly impacts a child's educational performance (IDEA, 2004 in Ferrell et al., (2014). Although IDEA rules define hearing impairment and deafness separately, in this study, hearing impairment has been used to refer to as a loss of hearing that qualifies an individual for special education and related services. Such services include the usage of hearing aids in the whole process of learning in and outside of the classroom thus in the outside school environment.

Before hearing aids were invented, persons with hearing impairment were there. They helped themselves by finding their own way of hearing. For example, persons with hearing impairments could cap their ears when they are being talked to increase the size of the pinna so that they could catch the sound waves coming from the speaker. This action was also called hearing aids.

In some cases, the speaker could take both hands and put them around his or her mouth to amplify the sound waves to help a person with hearing impairment to hear. The act of putting the palms of the hands in the mouth by the speaker aided amplification whereas the listener puts his palm in his ear to increase the size of the pinna in order to catch sound waves coming from the speaker.

Learning is a complex activity that includes the interaction of students' motivation, physical facilities, instructional materials, and skills that teaching and learning curriculum stresses (Lyons & Berge, 2015). Learning is defined as the process of getting new understanding, knowledge, behaviors, skills, values, attitudes, and preferences (Gross, 2012). For that reason, learning should help all students to acquire all the above components through what is taught in the school. For children with hearing impairment especially those who are hard of hearing, a hearing aid often helps them to learn better.

Learning can be meaningful if an individual has his/her sense organs active including the ear, eye, nose and so on (Lantang, 2016). A hearing ear is a vital organ that enables an individual to access information. A student whose hearing organ is not functional as required is most likely to face challenges in communication which subsequently affects his/her learning progress.

1.2.1 Origin of hearing aids

The genesis and the designs of early hearing aids, had been lost over time ago and persons cannot clearly remember. However, as Europe arose from the darkness of the middle Ages into the light of the Renaissance and industrial revolution, there was also an awareness in helping persons with hard of hearing to hear well. It was at this point that persons started to create latest hearing aids (Mills, 2011).

The early trumpet was created in the 17th century is thought to be the first device utilized by persons with hearing impairment to aid their hearing ability. These trumpets derived different forms and sizes and were built totally from the animal horns. The next advancement emerged in 18th century with the discovery of the portable ear trumpet (Mylonakis & Martini, 2017).

The firstly electric hearing aids was invented by Alexander Graham Bell in 1876. It comprised the technology that could operate the loudness, frequency and distortion of sounds (Denham & Battro, 2012). However, the world initiated the earliest commercially manufactured hearing aids in 1913. The devices were heavy for transportable. In the 1920s vacuum-tube hearing aids were made; these tubes were able to convert speech into electric signals and then the signal itself was amplified (Hoppe & Hesse, 2017).

Technological advancement after the World War II, it was seen as a key to the evolution of hearing aids. The transistor created in 1948. This device replaced the former models (vacuum tubes) of hearing aids. They were smaller, used smaller battery power and had less distortion. In 1970s, the microprocessor and the multichannel amplitude compression were invented. (Mills, 2011). From there, hearing aids invention started to grow faster. The 1980s saw the construction of high-speed processors and microcomputers. The 1990s saw the presence of the first all-digital hearing aid whereas the 2000s the idea of Bluetooth aided devices have been invented (Sooraj & Nair, 2020).

Additionally, there are almost 466 million people with hearing impairment worldwide, of which about 34 million are children (WHO, 2020). However, 430 million people worldwide require rehabilitation such as the use of hearing aids for their impaired hearing loss. Around 13 percent of adult age18 and order experience difficult hearing even when they use hearing aids.

Moreover, an approximately the ninety percent of people with hearing impairment stay in underdeveloped and middle-income countries particularly Tanzania, where frequently lacking the resources and services to address their hearing impairment (WHO 2018).

1.2.2 Historical perspective of hearing aids uses in Tanzania

The history of the use of hearing aids in Tanzanian schools is linked to the Millan Conference of 1880 which was held in Venus, Germany, in which they adopted the idea that all deaf children around the world, including African countries where Tanzania is part, should adopt oralism as a method of teaching and learning. During the conference it was agreed that spoken language but not sign language should be used as a method of teaching. After the agreement of the Millan Conference this method came into use and was known as Germany method of teaching the deaf, and/or Heinicke method. From then, all children with hearing impairment all over the world were taught by using Germany methods as well as oralism method (Gallaudet, 1881). This encouraged the scientists to invent an equipment that could help persons with hearing impairment to hear better hence the invention of advanced hearing aids. This therefore, led to the use of hearing aids by students with hearing impairment in schools.

However, the hearing aids use in Tanzanian schools started in 1963 in special school for the deaf. This school built in Tabora region immediately after independence. It was under the supervision of a Dutch Father called Peter Bergman from the White Fathers Missionary group. His philosophy during teaching was based on spoken words/language which he called pure oralism (Schutter, 2017). The aural setting enhanced the utilisation of hearing aids and improved speech amongst students who are hard of hearing (Alothman, 2014; Sirimanna, 2020). Oralism was based on three main elements to enable students to understand what is being said or spoken. The first element was that oralism needed proper articulation. Secondly, proper rhythm and

thirdly, residual hearing. In order for these elements to be accessed by student, it required a special device which was hearing aids. From there, the use of hearing aids by students with hearing impairment started in Tanzania. The school was well-equipped with hearing aids that came from Netherlands and Germany (Schutter, 2017).

Today, Tanzania has 24 secondary that enrol student with hearing impairment. Their total number in the country are 1,778 while boys are 900 and girls 878 (URT, 2020). In a selected district, these students are taught in two inclusive secondary schools where the total number are 95, depending on their hearing level, some students use hearing aids.

On the other hand, the hearing aids distributed by donors to help student with hearing impairment to develop speech. It came like a service to help them to participate in daily activities and learning in the class. Despite of this contributions, a study done by Kisanga (2019) found out that, the available hearing aids used by students who are hard of hearing were of poor quality. The report indicates that hearing aids offered either by their parents or charitable organizations were substandard and did not solve the problem rather the problems increased.

A hearing aid is a small electronic device that persons with hard of hearing wear in or behind their ear. It amplifies sounds so that an individual who is hard of hearing can listen, communicate, and engage in daily activities (Brodie et al., 2018). A hearing aids can support the hearing of persons who are hard of hearing to hear so that they can learn including students with hearing impairment.

However, the deaf students do not hear any speech, while student who are hard of hearing can utilize hearing aids to get speech. Therefore, hearing aids function better in accommodating

classrooms with acoustical modifications. While this may be true, little is known about the effectiveness of the use in inclusive secondary schools.

The UN Convention on the Rights of Persons with Disabilities (UNCRPD) of 2006 recommends that students with disabilities, including those with hearing impairment ought to use assistive devices like hearing aids (*United Nations [UN]*, 2019). Article 4, of UNCRPD state that all member States should offer and enable the affordability of access to assistive technology. Article 4 of the convention, on general obligations, recommends that member States should raise the obtainability and the use of latest technologies, particularly the devices, that are appropriate for persons with disabilities, at a reasonable price. These are premised on allowing and empowering students with hearing impairment to use hearing aids in learning by ensuring that they totally enjoy human rights as well as the right to education. The power of technology such as hearing aids for student with hearing impairment represents a unique opportunity to enhance their inclusion to learning in the school environment (UN, 2019).

1.2.3 Inclusion of students with hearing impairment

In Tanzania, students with disabilities, particularly those with hearing impairment have been included in the Education. Article 28 of education Act 1969, stipulate that nobody should deny admission for any child on the ground of any differences including disability. The Tanzanian Persons with Disabilities Acts (2010) similarly stipulates for non-discrimination and inclusive environment for children with disabilities including those with hearing impairment. In Tanzania there was a national strategy for inclusive education, 2018-2021 that aimed at provision of learning opportunity and education system that suit all students including those with hearing impairment (MOEST, 2017). These students need material supports such as hearing aids to facilitate their learning. Education Training Policy (ETP) 2014, recommends the use of

technology to ensure equally to quality education, including the use of hearing aids to students with hearing impairment in their learning (Institute of Development Studies, 2020).

Lastly, Tanzania National Policy on Disability (2004) recognizes the provision of assistive devices such hearing aids, that improves the capabilities of children with disabilities as well as students with hearing impairment (URT, 2004). The Government has established educational priorities to student with hearing impairment who are included who should be offered the same educational rights as those who are able.

Despite of all efforts, there are shortages and questionable qualities of hearing aids as well as unaccommodating classrooms as obstacles that are restricting the active learning of student with hearing impairment (Kisanga, 2019). In a similar view, the study done by Badru, (2018) found out that poor quality of hearing aids were supplied to student with hearing impairment. In some instances, these devices were noticed to be extra-large to most students. Furthermore, they were broken and were making a lot of noise which interrupted the attentions during learning. However, the effective participation in classroom learning for student with hearing impairment depended on hearing aids because they facilitate communication.

Additionally, Badru (2018) reveals that most student with hearing impairment were given hearing aids randomly without measuring their levels of hearing loss. A study by Stone-Macdonald & Fettig (2019) reveals that there are no country-wide standardised assessments applied to identify the type or severity of the disability including hearing impairment among students with hearing impairment. The study noted that this may lead being offered and utilize unsuitable hearing aids which would not support them to learn effectively and efficiently. Neglect of the provision of assistive devices such as hearing aids to students with hearing

impairment caused difficulties in their learning process (Migehe, 2014). However, the lack of hearing aids in schools where students with hearing impairment enrolled have an positive implication on social rather than academic inclusion (Heward, 2013). This assertion is in line with study done in Tanzania whereby students with hearing impairment were socially competent and interacted despite their poor academic performance (Migehe, 2014).

Available studies on students with hearing impairment in Tanzania have centred on teachers competence on the use of assistive devices in teaching pupils with hearing impairment (Badru, 2018). There were limited studies on the hearing aids use in learning by the students with hearing impairment in inclusive secondary schools. So, this motivated the researcher to carry out the study on the use of hearings aids and its impacts on learning.

1.3 Statement of the problem

Hearing aids play a crucial role towards learning to students with hearing impairment (Lantang, 2016). The students who have problems in perceiving or getting information through their hearing organ may need hearing aids to acquire information within their environment including for learning purposes. Lack of information during learning process may hinder or slow their pace of learning (Lantang, 2016).

The United Republic of Tanzania focus on the use of hearing aids in inclusive secondary school is visible. A number of efforts have been done in inclusive secondary schools particularly in selected schools, such as the distribution of audiometers, hearing aids, otoscope, ear light, conducting seminars. Despite the mechanisms put in place by the government, to ensure access and effectively use of hearing aids by students with hearing impairment, there were still challenges associated with use of hearing aids for learning purposes. Whereas there have been government efforts to distribute hearing aids to students with hearing impairment in inclusive

secondary schools, some of them do not use them instead, they put them in their pockets or school bags. This study therefore was premised on examining the effectiveness of hearing aids use by these students.

1.4 Purpose of the study

The intention of this study was to examine the use of hearing aids in inclusive secondary schools and their effectiveness on the learning of students with hearing impairment in one selected district in Tanzania.

1.5 Objectives of the study

The objectives that guided this study were to;

- i. Examine the status of the use of hearing aids among the students with hearing impairment in inclusive secondary school in one selected district in Tanzania.
- ii. Analyse the effectiveness of the use of hearing aids during learning of students with hearing impairment in inclusive secondary school in one selected district in Tanzania.
- iii. Explore the hindrances faced by students with hearing impairment while using hearing aids for their learning in inclusive secondary school of one selected district in Tanzania.

1.6 Research questions

The study was guided by the following research questions;

- i. What is the status of the use of hearing aids among students with hearing impairment in inclusive secondary school of one selected district in Tanzania?
- ii. What is the effectiveness of using hearing aids during learning of students with hearing impairment in inclusive secondary school of one selected district in Tanzania?
- iii. What hindrances do students with hearing impairment face while using hearing aids for their learning in inclusive secondary school of one selected district in Tanzania?

1.7 Scope of the study

The scope of the study is the limits where the study would be operating (Simon and Goes, 2013).

This part comprises the content scope, geographical scope as well as the time scope as follows:

The study concentrated on the use of hearing aids in inclusive secondary schools and their effectiveness on the learning of students with hearing impairment by examining the status of the use of hearing aids, the effectiveness on learning and hinderances on the utilization of hearing aids by students with hearing impairment in inclusive secondary schools.

The study was carried out in inclusive secondary schools in one of the selected district in Mwanza City, Tanzania. The schools were chosen because are only schools in the region that admit students with hearing impairment who likely to be beneficiaries on hearing aids use in their learning. This study was conducted between March 2021 and September 2023.

1.8 Significance of the study

Since the research aimed at examining the effectiveness of hearing aids on learning, it is expected that the findings may;

Assist the educationalists and parents to know why students with hearing impairment refuse to use or wearing hearing aids, whereby sometimes it limits their educational benefits by attending lessons without hearing aids.

Help the government by enlisting the challenges towards the use of hearing aids and therefore through this study the government may prepare appropriately when providing hearing aids according to student's needs.

Give clarification to teachers who teach in inclusive schools to understand and create a conducive learning environment in the classroom for student of hearing impairment who used hearing aids as their source means in learning session.

The study may identify gaps for other researchers to conduct further studies related to the effectiveness of hearing aids in teaching and learning of students with hearing impairment for better inclusive education practices.

Provide other researchers information in form of literature review which will be a contribution of knowledge.

1.9 Theoretical framework

This study was guided by a Bronfenbrenner's ecological theory (Urie, 1992). Bronfenbrenner's ecological theory lists five stages that shape children's development. These are microsystem, mesosystem, exosystem, macrosystem and the chronosystem. In five components of development, Bronfenbrenner observes that an individual's learning and development is impacted by everything in their surrounding environment. Bronfenbrenner describes the five persons' developmental environment influence on learning as part of human development as follows;

Microsystem: This is the immediate situation to the child where he/she maintains direct contact. This level may have structures such as the home, peers and school. Interactions within this level include an individual person's relationship with family members, classmates, teachers and caregivers. The way these groups interact with the child may affect how they learn and develop.

Mesosystem: Incorporates the multiple microsystems and includes the interactions between those microsystems. It covers the linkage between home and school, age mate, family and the link between family and community. Circumstances in each affect the other.

Exosystem: comprises the environment with other persons that the child may not interact often but still have a large impact on her/him. Like parents' occupation, and the neighborhood. For instance, if a child's parent was suspended from work, it may negatively affect the child simply because parents may fail to pay rent or purchase foodstuffs. Therefore, if the parent becomes promoted at work, this may positively affect the child since the parent may be better and/or able to afford child's physical needs.

Macrosystem: Is the biggest distant collection of persons and places that have impact on the child. It includes cultural patterns and values as well as the political systems such as the policies and economic systems within which the child lives. He or she may not have control over.

Chronosystem: Is the influence of environmental events and transformation throughout path of life as well as social and historical circumstances. For example, the ignoring of treating hearing impairment that could be minimized in childhood may be a major life transition that may affect not only an individual person but also his/her family. As the time goes, the family may be negatively affected economically and socially.

1.9.1 Critique of the Bronfenbrenner's ecological theory

Although I chose to use this theory, I am also aware of its weakness. One of them is that this theory lacks the aspects of understanding the intra-level ability of an individual where it needs to be completed on an intra-level. The ecological theory does not see the individual as an independent actor particularly a student with hearing impairment in the use of hearing aids on

learning (Elliott & Davis, 2018). For example, the student may not wear hearing aids because of personal reasons and not the environment factor. Though the theory emphasizes on the individual's drive and capacity is influenced in the relation of his/her environment and not on the individual's sphere of influence.

Bronfenbrenner's describes human development as a joint function of the individual in the system and stresses the mutual interaction affects the characteristics of the person that may lead to development. The environmental situation around the person is enclosed and interactive, start from direct to indirect influences. The theory does not regard the individual person as predictable development rather than depending on others (Rudasill et al., 2018)

1.9.2 The relevance of this theory to the study

This theory relates well to this study considering that the three constructs; microsystem, mesosystem and macrosystem out of the five link directly to the environmental influence in the use of hearing aids towards learning by students with hearing impairment in inclusive schools. The three constructs are explained below;

First, is microsystem; this denotes having teachers, normal students and students with hearing impairment who use hearing aids in their learning. Therefore, the students with hearing impairment using a hearing aid in the classroom lead to increased interactions directly with the teachers and classmates during the teaching and learning process. Successful use of hearing aids depends on the combined perception of all these members of the immediate environment (in and outside classroom). Thus, the level of positive or negative perception of teachers and ordinary students may create or not create the conducive environment for hearing aids use during learning. On the other hand, home is another example of a microsystem where students with

hearing impairment are supposed to use hearing aids to communicate and interact with family members, participate in daily living activities that may be carried out on day-to-day activities by the family members or parents at home. Therefore, all these are possible if the family members, members at school; inside and outside classroom provide positive support on the use of hearing aids to students with hearing impairment.

Second is the mesosystem; this relates to this study in the way that the successful or unsuccessful use of hearing aids in learning depends on the provided support as the result of the linkage between their home environment and school environment. Therefore, the mutual reinforcement in the use of hearing aids among students with hearing impairment arise from the positive support created from the cooperation of parents (home) and/or the teachers and peer students (school). In connection to this, if students with hearing impairment is supported positively, it leads to use hearing aids thereby facilitating them to acquire support from either teachers or hearing peers because it would be easy to interact in the hearing world. On the other side, it may be different when the students are negatively supported due to the absence of conducive linkage between the home environment and/or the school environment, thus causing challenges of hearing aids use in their learning.

The last construct is a macrosystem; in this, the cultural system or practice and the policies are taken as important factors that may impact the use of hearing aids by students with hearing impairments in their learning. Cultural perception such as being described a disabled person and labelled with disgusting names may cause fear and refusal of wearing the hearing aids. This may affect their learning. Similarly, the provision and encouragement of effective use of hearing aids depends on the policy available. Clear policies related to the use of hearing aids in the learning may motivate their use. Contrary to this, if policies are not clear, the use of hearing aids in

learning by students with hearing impairment may not be promoted. Therefore, awareness of the school and community may create friendly environment for the use of hearing aids to the student of hearing impairment in their learning progress.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature that is associated to the study thus seeking hearing aid use in inclusive secondary schools their effectiveness on the learning of students with hearing impairment. The review of literature in this section was based on three main objectives of the study which are: To examine the status of the use of hearing aids among the students with impairment in inclusive secondary schools, analyse the effectiveness of the use of hearing aids during learning of students with hearing impairment in inclusive secondary schools; and to explore the hindrances faced by students with hearing impairment while using hearing aids in their learning.

2.2 The status of the use of hearing aids in learning by students with hearing impairment

Hearing aids have been worn by student with hearing impairment for sound amplification whereby it helps to hear in their learning. On the other hand, hearing aids should be utilised in quiet environments. Thus, to prevent unnecessary voices to be amplified that may disturb student from following up the lesson (Gudyanga, 2014). However, hearing aids can assist the recognition of sound and speech understanding, thus enhance the ability of an individual to participate in daily life activities particularly in learning by students with hearing impairment. Evidence from developed countries indicate that provision and use of hearing aids has helped in improving health-related quality of life, and possibly on cognition (Spreckley et al., 2020). Likewise, Dillon (2012) asserts that the provision of proper education and counselling services raises the probability of hearing aids being fully utilised and the residual communication problems may be reduced. The study done by (Mokhtarzadeh et al., 2020) observes that hearing aids are innovative electronic gadgets that directly affect the communication and correlation of person

with hearing impairment with others. Specialists always suggest persons with hearing loss particularly students with hearing impairment to put on the gadgets during the day. However, hearing aids are merely capable for compensation of hearing loss utmost cases.

While the above argument may be true, Frymark (2010) argues that students with hearing impairment meet with challenges in self-expression which lead difficult to interact in classroom learning. Students need to contribute in learning during lessons through asking and answering questions. Marti and Recupero (2019) points out that persons with hearing loss, particularly students with hearing impairment can take advantage of hearing aids to communicate in most situations including education offered as well as in learning.

However, the access of hearing aids by some students who are hard of hearing is done still their beneficial was non in their learning process. The devices offered to help these students to get the speakers voice could not recognize what was being spoken. The hearing aids provided to them were outdated and missed special feature that could aid in differentiate speech and sound from the environment (Kisanga, 2019). Likewise discoveries on both the scarcity, and poor quality of hearing aids were also observed in Pakistan (Shahminan, 2012), Saudi Arabia (Alothman, 2014), Zimbabwe (Mpofu & Chimhenga, 2013) and Tanzania (Migeha, 2014). Students with hearing impairment were also described to be placed in unaccommodating classroom which hindrance hearing aids use. The study done by Spreckley et al., (2018) reveals that the participation restrictions that are caused by hearing impairment is associated to problems in communication. The environmental factors facilitating this association are related to the physical setting, specifically background noise and the use of hearing aids.

Other researches affirm that, assistive technologies like hearing aids are helpful to students with hearing impairment in many ways. The study carried in Nigeria by Soetan et al., (2021) proposed the purpose of assistive devices such as hearing aids, as assisting to boost hearing level of student with hearing impairment in learning. Another study observes that assistive technology such as hearing aid is a compensation means for students of hearing impairment meant to enhance their learning (Maor et al., 2011). This implies that availability of assistive technology such as hearing aids, are enhancing classroom communication and participation in learning process. Furthermore, assistive technology particularly hearing aids can be an influential tool for educational fairness, but only if the skills are well erudite and properly used to meet the needs of students with hearing impairment in classroom (Dalton & Hoyt-Hallett, 2013).

The study carried out by Farooq and Iftikhar (2015) suggest that training in assistive equipment must be provided to teachers. Teachers in classroom may help to check students' devices in case of any problem during learning session. Migeha (2014) reveals the majority of students with hearing impairment perform poorly in academic for numerous causes, such as shortage of specialized equipment especially hearing aids and specialist teachers that may support student with hearing impairment who depend on hearing aid. All these lead to communication barriers that end up affecting students with hearing impairment in their learning progress. In addition, Mokhtarzadeh et al., (2020) revealed that, the proper usage and effective maintenance of hearing aids need careful consideration because the device is sensitive and complex. Consequently, the appropriate usage and conservation skill of hearing aids needed to be trained to impaired students by specialists.

These studies are in line with the current study because it has revealed the status use of hearing aids in learning to the students with hearing impairment. But the study was centred only on

identifying the status use of hearing aids in learning on students with hearing impairment in general, it has not shown the status use in inclusive secondary schools. For this case the current study is expected to fill the gap by revealing the status use in inclusive secondary schools.

Generally, the literature reviewed above points out that hearing aids have been worn by students with hearing impairment mainly to amplify sound, compensate expressive abilities and boosting their hearing level. Furthermore, it has been shown that students use hearing aids while in classroom attending lessons and even when involving in different in and outside classroom activities. Some of the studies have pointed out that the use of hearing aids by students is supported by conducive conditions such as quiet environment (classroom), yet most of the environmental conditions in most schools could not support their utilization. Lastly, studies disclosed that though hearing aids are being provided and made available, they could not accommodate the needs of students as some of them did not consider the varying requirements of students with hearing impairment. Furthermore, most of the studies including those conducted in Tanzania were too general and some did not specifically explain the status use of hearing aids in inclusive secondary schools. Therefore, this study pursued has filled this gap.

2.3 The effectiveness of using hearing aids during learning

Hearing aids are assistive technologies that provide general assistance for student with hearing impairment and there is no replacement to these devices that could support them in such a quite different manner (Farooq & Iftikhar, 2015). WHO (2013) observes that persons with hearing impairment particularly student with hearing impairment can get an advantage from devices such as hearing aids. The effect of hearing aids use is shown as a reduction in the severity of hearing impairment, hence a lower disability weight. In line with that, Beechey and Keidser, (2020) state that the effort needed to maintain communication in unfavorable environments decreased

through the use of hearing aid amplification. This decrease in effort offers advantage to students with hearing impairment to communicate between themselves and hearing peers or teachers. By counting the impact of amplification, it supports the increasement of understanding daily communication including in learning process.

Similar, assistive technology such as hearing aids helps student with hearing impairment to perform at the best level by participating in daily educational activities including instruction (Murchland & Parkyn, 2011). Various researches have been carried out in relation to the influence of assistive devices and technologies particularly hearing aids as strategies in student with hearing impairment to learn effectively like other students without disabilities. The study by Holman et al., (2019) shows that, hearing aids were mainly defined as enhancing audibility. Hence, improved social participation and conversational ability including the interaction in classroom learning by students with hearing impairment. Another study proposes that, the use of hearing aids is related to better performance towards academics of students with hearing impairment. Individuals students with supportive devices might perform well like those without hearing impairment (Borda et al., 2019).

In a study done in Pakistan by Farooq and Iftikhar (2015), the findings indicate that students are more independent and great achievers, regardless the type and form of assistive devices they use including hearing aids. Hearing aids are mostly chosen and reasonable devices to students with hearing impairment in the context of Pakistani. Contrary to Dawes and Munro (2016), the utilisation of hearing aids is related to better cognition, free from social isolation and depression. The study argues that the devices may improve cognitive performance through the improvement in audibility and increases self-ability particularly in learning. However, Sang et al., (2019) observes that untreated hearing impairment particularly to students with hearing impairment

leads communication difficulties and societal isolation hence rising psychological problems like depression. Other outcomes involved the weakening function of cognitive. Normally these problems have implications for society as well as in school learning, so individuals with hearing impairment require active rehabilitation of hearing and easily accessible of hearing aids.

Other studies show that even hearing impairment in one ear can bring a major effect on school performance. The use of hearing aids improves the learning outcomes of students. The study found out that the students with hearing impairment who wore hearing aids experienced better academic development than students whose hearing loss went untreated. The longer the student had worn hearing aids, the better their development which may impact on academic achievement and social interaction (Tracker, 2020). The sense of hearing enables communication and raises social interaction. Effective communication is the transmission of information, between two or more persons and includes both activity and participation particularly towards classroom learning by students with hearing impairment. To communicate, an individual such as student with hearing impairment who uses hearing aids, may help him/her to get acoustic information as well as hearing, listening, and interpretation of the sound. Thus, facilitating learning to take place (Spreckley et al., 2018).

The study carried out in Nigeria which sought to find out the effectiveness of assistive technology including hearing aids on student performance in academic. The report shows that assistive technology including hearing aids helps students with hearing impairment to perform better in academics. Academic performance is achieved when assistive technology is used to help students with hearing impairment to understand lessons and make learning comfortable. The presence of assistive technology such as hearing aid increases students' interest in learning (Lantang, 2016). Despite the advancements in hearing aids device, utilization is still low and/or

underused. However, hearing aids usage has been found to enhance the quality of life particularly in learning. Furthermore, it improves communication in relationships, intimacy; emotional stability; sense; awareness of psychological functioning (Kochkin, 2012).

The discussion in the literature above indicates that using hearing aids in learning reduces the disability weight. Students with hearing impairment easily communicate in any situation including in unfavourable environment (classrooms). Furthermore, the studies shows that the effectiveness of hearing aids use positively impact students' ability to interact and participate in learning, something which facilitates their academic performance. Some of the studies maintain that students who use hearing aids become independent in their learning, free from social isolation, better in cognition and hence achieve better in their academics. Throughout the review, little information on the negative impacts of hearing aids use is seen. Therefore, this study was interested to add on this very important information which could in one way or another tell the truth as to why hearing aids are not in much use by the students with hearing impairments in inclusive secondary schools.

2.4 Hindrances faced by students with hearing impairment while using hearing aids

In spite of the effectiveness of hearing aids, presently there are gaps in coverage and availability. In developing countries 80% of persons with hearing impairment are not able to attain hearing services because of audiologists shortage (Spreckley et al., 2020). However, the international manufacturing and supply of the devices encounters fewer than ten percent of global requirement. In developing countries, the access is less than three percent. Such little coverage might bring a big societal effect particularly to students with hearing impairment. Also, the price of getting and maintaining the devices remains unaffordable for utmost users (WHO, (2013). A report from the National Academies of Sciences, Engineering, and Medicine of America,

observed that, many persons particularly to students with hearing impairment do not search for, or get hearing healthcare mostly due to their low awareness of hearing impairment, restricted obtainability of the care, costly for the hearing technologies including hearing aids (Maharani et al., 2018).

On the other side, the screening coverage on hearing impairment is nearly related with the lack of relevant policies, human resources, equipment and financial resources (Tordrup et al., 2022). Furthermore, these challenges are increased by a little awareness about hearing loss hence affect students with hearing impairment who are supposed to use hearing aids. The study done in Sudan by Kheri (2018) argue that deafness as well as hearing impairment has a large impact in third world countries due to the lack of services, awareness, trained persons and equipment such as hearing aids. However, hearing impairment is linked with lower levels of development therefore may lead to slow the progress in school among the students with hearing impairment. Hence difficulty to obtain, and perform academic activities in classroom learning.

The study done in USA by Hearing Health Care for Adult state that, currently hearing aids are the main devices expended for the treatment of hearing impairment. In the US like in various nations, the utilization of hearing aids is down compared to the rate of the hearing impairment. The approximations of hearing aids users are sixty-seven to eighty six percent who may gain from the devices do not use them. However, the different causes provided by persons including students with hearing impairment for not employing hearing aids are the expensiveness, absence of efficient, discomfort, fitting challenges, negative impacts like rashes or itching, stigma, challenges with care and maintenance (Blazer et al., 2016). Consequently, all these circumstances lead difficulties towards the utilization of hearing aids. Sang et al., (2019) add that the numerous causes for the low levels of use of acceptance for hearing aids are high cost, social

stigma, poor performance, fitting and adjustment are the main reasons hindered hearing utilization. All these lead to challenges in usage of hearing aids particularly to students with hearing impairment.

Deafness pose a major educational handicap since it affects the ordinary language and intellectual development (Gudyanga, 2014). With the put on of hearing aids the whole-time student with hearing impairment may be judged as an incapable hence leading to inferior of self-perception, social immaturity, and negative attitude. Furthermore, Holman et al., (2019) assert that persons with hearing impairment including students with hearing impairment may be helped with hearing aids. Unfortunately, there is a strong stigma linked with hearing impairment and hearing aid use. This is because hearing impairment is so strongly related to old age, and aging. For instance, aging is not a positive characteristic, so they believe that hearing aids appear to make them look old or handicapped. This stigma has been termed the “Hearing Aid Effect” and it is existing both to the society and patients especially to school environment and to students with hearing impairment. So, the stigma is totally a powerful reason hindering the use of hearing aids. All these discourage its utilization to the impaired persons particularly to student with hearing impairment.

Becoming a hearing aid user is challenging due to different factors both psychological, social and practical difficulties. It causes changes in normal habits of thinking. This may comprise the assimilation of the stigma related with hearing impairment and hearing aid use. Additionally, poor recognition on the part of consumers of the range of the available services through their audiologist, or complication in recognizing information catered by their audiologist interferes with the use of hearing aid (Dawes & Munro, 2016). A study by Gallagher & Woodside, (2018) points out that Lack of information is another area that discourages the use of hearing aids by the

users. Some persons with hearing impairment including students with hearing impairment reported that they did not get adequate information, while others cannot follow the advices if they were given information. These can lead difficulties in use of hearing aids particularly to student with hearing impairment (Gallagher & Woodside, 2018). On the other hand, Ludago, (2020) state that the practice of implementing inclusive education is associated with many challenges such as inadequate infrastructures, acoustically non-treated classrooms. It is reported there was a higher number of dropout due to unfriendly learning environment for diversified learners including student with hearing impairment who use hearing aids in their learning.

Additionally, Kheri (2018) says that probable factors that hinder the utilization of hearing aids by persons with hearing impairment including students with hearing impairment are redness or drainage in the ear, mechanical failure of the device, difficulty with placement. Likewise, another study found out that the hearing aids cannot be operated in noise settings, when the quality of sound is poor, fiscal causes, , painful, and/or the users undergoing side effects such as rashes, or itching (McCormack & Fortnum, 2014). In the similar study done by (Gallagher & Woodside, 2018) mentions the reasons of not using hearing aids as self-importance, stigma, the difficultness of putting on hearing aid regarding as being complex to utilize. The study done by Holman et al., (2019) equally states that, hearing aids have negative impact to the persons with hearing impairment in their daily livings. The impact involves inaccurate and unfriendly sounds, physical discomfort when in used, amplification of environment noise and embarrassment to be seen wearing them. These create complication to the users hence hindering its use especially by students with hearing impairment.

The study carried out in Kenya points out that students with hearing impairment were not frequently using hearing aids for fear of stigmatization as being deaf and its disturbance in the

ears at the onset of using it (Onyango, 2015). Another study conducted in Ghana by Christian and Kweitsu, (2020) reveals that whenever persons with hearing impairment including students with hearing impairment wore the hearing aids, they felt embarrassed in the public. The study further explains that many persons with hearing impairment are not comfortable using hearing aids due to public perception and stigmatization. In spite of the assistances rendered by hearing aids towards communication proficiency the utilization is still low. Most frequently mentioned causes for lack of use were costs, inconveniences, poor experience of others, and willingness. Another study done in Hispania by Alicea and Doherty, (2017) inspected the self-said causes for the non-use of hearing aids to persons of hearing impairment, but not ever utilized hearing aids as a therapy to their hearing impairment. Study findings reveal that, the utilization of hearing aids is related with willingness among the persons with hearing loss including students with hearing impairment. The study conducted by Desjardins and Sotelo, (2021) revealed that, the cause for not use of hearing aids between hearing impaired persons is perception their hearing loss is not bad enough to need treatment with a hearing aids.

Furthermore, rehabilitation of hearing impairment involves many sided processes. One of the most important aspects is helping an individual with hearing impairment to be the hearing aids wearer. Nevertheless, the audiological evaluations and hearing aids orientation programmes are not well achieved. The consequence is that many persons with hearing impairment including students with hearing impairment either put on their device or not. Some of the proposed causes for denied hearing aid wearing include the absence of proper audiological follow-up, insufficient hearing aid orientation programmes and negative psychological effect (Hollgy et al., 2019). Deppermann, (2012) adds that in spite of the positive impacts stated on psychotherapy and rehabilitation, there is insufficiency access of counseling in many countries. Hence users

including student with hearing impairment drop out from utilizing hearing aids due to the absence guidance and counselling that would encourage the utilization. On the other hand, Kochkin (2012) says that persons, particularly students with hearing impairment, who confess their hearing loss and show interest in getting hearing aids, may not use them due to misdirected medical guidance. Wrong information even from professionals might confuse hence mislead an individual of hearing impairment. Therefore, all these create hindrances on the use of hearing aids among students with hearing impairment in their classroom learning.

The study carried out by Deppermann (2012), found out that technical issues might also be a cause for hearing aids users' abandon from using hearing aids. Such as the consequences of Oscillation that appears in hearing aids use as well as the re-amplification of sound produced by the speaker. Then hearing aids starts to squeal loudly. Even if it is not audible for the hearing aids user, this makes some disturbance for the users particularly to student with hearing impairment. Besides, Deppermann (2012) asserts that most of the candidates for hearing aids particularly student with hearing impairment expect that hearing aids would cure their hearing impairment and turn their hearing normal. This expectation is motivated by the hearing aids companies through promoting their products in attractive way. Insolvency of the hearing devices to meet buyer's anticipation particularly to student with hearing impairment may underpin the idea that hearing aids do not assist hence abandoning the use.

Generally, the discussion above shows that different factors including; allergy like itching and rashes, expensiveness, discomfort, difficulty with placement, mechanical failure, and stigma hamper the use of hearing aids by students with hearing impairment. Other studies, have explained that the reasons why students ignore to properly use of hearing aids is because those

who have tried, found them not meeting their expectations. Most of the studies were found to focus on hindrances or barriers towards the use of hearing aids in different premises forgetting the very important aspect of learning, more especially in inclusive secondary schools. This study, therefore has tried to fill this gap.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This study intends to find out the use of hearing aids in inclusive secondary schools: their effectiveness on learning of student with hearing impairment; a case of one selected district in Tanzania. The objectives that guided this study are; To examine the status of the use of hearing aids among the students with impairment in inclusive secondary schools.; To analyse the effectiveness of the use of hearing aids during learning to students with hearing impairment in inclusive secondary schools, and to explore the hindrances faced by students with hearing impairment while using hearing aids. This chapter describes the research approach, research design, area of the study, target population, sample size and sampling technique, research instruments, data collection procedures, data analysis and ethical procedures that may be taken into consideration, credibility and or authenticity, it also presents limitations and delimitations of the study.

3.2 Research approach

There are various approaches in conducting research comprising qualitative, quantitative and mixed research methods (Creswell, 2015). This study used qualitative research approach to investigate the use of hearing aids and its effectiveness on learning to students with hearing impairment. Qualitative research is defined as the repetitive iterative process in which improved understanding of the community resulting from getting closer to the phenomenon studied (Aspers & Corte, 2019). This approach was appropriate because it allows the researchers to form the research participants and it gives the best opportunity to understand their lived

experienced. Therefore, it permits the investigator to be a part in the individual world of the participants so that the researcher can know more about the phenomena (Alase, 2017).

3.3 Research design

Research design is the strategy and structure of research as well as a plan of the proposed research work. It aids the researcher to organize her/his ideas and will be possible to look for errors and shortages. (Birhanie, 2017). In this study, case study was used. Heale and Twycross (2018) define a case study design as an extensive study concerning an individual, group of persons, or society in which the investigator examines in-depth data linking to numerous variables. Case study investigates phenomena in the natural environment hence increase of understanding them. The researcher decided to use case study because it allowed the researcher to gain deeper understanding of the situation on the effectiveness of hearing aids use on learning to the student with hearing impairment. Therefore, the case in this study was an inclusive secondary school which possess students of hearing impairment in one selected district in Tanzania.

3.4 Area of the study

With reference to this research, the study was carried out in one selected district in Tanzania. The selected district was suitable because it is the only district in the region that has inclusive secondary schools. The data was therefore collected from two inclusive secondary schools in this area which accommodate students with special needs including students with hearing impairment who are using hearing aids during their learning.

3.5 Target population

The target population is the whole group of persons from which the sample could be dragged (McLeod & Wang, 2019). For the purpose of this study, the target populace was students with hearing impairment, and specialist teachers from the chosen inclusive secondary schools. The total target population was 247 out of which, 40 were students in school A and 55 in school B giving a total of 95 students; for the teachers, the target population was 82 from school A and 70 from school B. Students with hearing impairment were selected because they use hearing aids while attending lessons. So, they were deemed to have experience in the effectiveness or difficultness. The teachers were chosen because they are guardians of students at school. Hence, they had adequate information on students who were using hearing aids in and outside of the classroom.

3.6 Sample size

This is the number of persons whom you obtain the information from, for the study from (Kumar, 2011). Therefore, the sample is the number of participants that have been selected from the population to represent the whole population. The sample size of this study was 12 participants from two inclusive secondary schools. From each of the two selected schools, 3 students with hearing impairment, and 3 specialists' teachers in hearing impairment participate in the study.

3.7 Sampling technique

To accomplish the investigation, the study used purposive sampling technique to obtain participants. Purposive sampling refers to a sampling technique based on the judgement of the investigator as to who will deliver the best information to succeed the objectives of the research (Etikan & Bala, 2017). The purposive sampling was ideal to this study due to the fact that the

research had opportunities to choose the members of the sample considering qualities of the participants and the kind of information expected to be obtained as much as research problem is concerned. Therefore, the sample was selected basing on the following criteria. First, the period of service in the school; how long they had taught in the school. The teachers with at least four years and above of experience in teaching students with hearing impairment were picked to become participants because they were deemed to know how students' progress on the use of hearing aids in school environment. Secondly, teachers who teach students with hearing impairment face-to-face in the classroom settings were assumed to have useful information for the study because they interact with student as they seek to assist them in the learning process. Thirdly, qualification for teaching students with hearing impairment in school as well as specialist teachers who specialized in hearing impairment were considered too. Since they are experts and they were deemed rich with information about the usefulness of hearing aids for students during the learning.

For students with hearing impairment; the criteria included how long they had used hearing aids. For example, from primary to secondary school. Secondly, their interest in using hearing aids as a basis for having experience on the strengths and/or the weaknesses of hearing aids all this helped a researcher to get useful information that met the purpose of the study.

The table below is a presentation of target population, sample size and sampling technique of the current study

Participant		Population	Sample size	Technique
Students	SCHOOL “A”	40	3	purposive
	SCHOOL “B”	55	3	
Teachers	SCHOOL “A”	82	3	purposive
	SCHOOL “B”	70	3	
Total population		247	12	

Table 1: Shows target population, sample size and sampling technique

3.8 Methods of data collection

Qualitative researchers use different methods to collect data such as, one-on-one interviews, focus group discussions, observation, document analysis, and modern strategies such as photographs, art, and online forums (Shields et al., 2022). In this study, interviews were used to collect data.

3.8.1 Interviews

An interview is a face-to-face conversation organized by the researcher so as to give an effectual way of gathering information that fulfils the research interests and goals. In interview, the researcher asks participants to clarify themselves and their world and participants have roles of expressing what they know to such a degree that can be understood by an outsider (Marecek, 2015). In qualitative research, conversations used as a way of understanding an experience are through semi structured, unstructured and structured interviews (Bhattacharya, 2017). In this study, semi-structured interviews were used in which interview guides were developed as an instrument for data collection from all participants. Semi-structured interview refers to an in-depth interview where participants answer prepared guiding questions set by the researcher

during data collection but with flexibility for probing further. Therefore, it helps the researcher to get in-depth information to attain more meaning.(Jamshed, 2014). Interview was chosen because it allowed the researcher to ask for further information from participants' responses (Creswell, 2013). The interview questions were semi structured to enable the researcher to probe for further explanation and also to adjust questions to meet the needs of the participants. This was done in order to facilitate understanding of the participants of the phenomena being investigated. The researcher also selected this type of interviews because it provided useful information, and the researcher was able to have control over the type of information that was received through interviewees. All these provided a wide chance for participants to express and give more information about hearing aids use for students with hearing impairment and its impacts on learning.

The interview guide was translated from English to Kiswahili Language by the researcher. Kiswahili language was used because the participants were more conversant in Swahili language rather than English language. Also, Kiswahili is a nation language of Tanzania. Therefore, the researcher created a rapport with participants by presenting the letter requesting for their consent to participate in the study and then appointments were made for the interviews to take place one by one.

3.9 Procedure of data collection

To access the area of study, different steps were taken. To start with, an introductory letter was obtained from Kyambogo University. The introductory letter helped the researcher to get clearance from the City Director of Mwanza. The clearance gave opportunity to the researcher to visit schools in order to introduce the purpose of the study, seek permission for participant identification, and make appointments with participants for the interviews. Thereafter, the

researcher visited each of the two schools and met the headteacher who granted permission. Thereafter, a head teacher of the school (s) helped the researcher to identify participants by providing a list of teachers trained in special needs education and students with hearing impairment using hearing aids who then sampled them purposively. The selected participants were requested to meet the researcher for rapport formation. The researcher made appointments with each of the participants for the interview with them.

Interview was done by starting with students. Arrangement was also made to interview the teachers after the students. This helped to verify if what students said was what teachers were experiencing. During the interview, the conversations were conducted in spoken Kiswahili for both teachers and students, so as to ease comprehension.

3.10 Data analysis and presentation

Analysis is a procedure that an investigator applies to minimize data to a story and its interpretation. This implies the reduction of larger amount of collected data to make sense of them. Cypress, (2018) specifies approaches for data analysis as well as: data is organized, reading, coding, organizing themes, representing and interpreting the data. In this study, data was thematically analysed and presented. Thematic analysis is a method of drawing out the meaning and ideas from qualitative data, it involves identifying, examining, and recording patterns or themes (Javadi & Zarea, 2016). De Farias et al., (2021) suggests that to identify theme, it involves formulating semantic relations among categories and grouping them into themes that defined more general aspects of the contents.

Data analysis of the current research started soon after data collection process. The researcher translated data from Kiswahili to English Language because she is conversant in both languages.

The data transcribed from the semi-structured interview was then sorted and categorized according to corresponding themes and subthemes emerging from the research questions as well as the collected data.

In reporting the collected information, tables were used to show the subthemes of the study. In qualitative research tables help to organize the analysed data correctly. Also, it enhances the transparency of data collected, analysis and findings (Cloutier & Ravasi, 2021). Furthermore, in reporting the collected information, direct Swahili quotation from participants which have been translated into English Language were used as recorded from the field. Using quotes shows the provision of evidence on the reported findings as true presentation of the participants' views and experiences (Eldh et al., 2020). (Younas et al., 2022) observe that, native and English language quotes indicate that the researcher adequately captured the socio-cultural dependent experience of participants. Finally, the researcher interpreted and explained the responses from participants' answers while attaching the literature reviewed in chapter two. On the other hand where direct quotations from the participants were written codes were used to protect the identity of the participants (Surmiak, 2018).

3.11 Ethical consideration

Research that involves human subjects or participants raises unique and complex ethical, legal, social and political issues (Yip et al., 2016). Research ethics are specifically interested in the analysis of ethical issues that are raised when persons are involved as participants in research. There are several intentions in research ethics: to protect participants; to make sure research is done in a way that serves interests of persons, society as a whole and to look at particular research tasks and plans for their ethical fitness; looking at issues like; the management of risk, guard confidentiality and the procedure of informed compliance (Hoonard, van den & Hoonard,

2015). Therefore, to ensure the research ethics in this study, first of all the researcher got clearance from Kyambogo University after meeting the university standards. Secondly, research permit from Kyambogo University, helped to introduce the researcher to Mwanza Regional office and to City Director of Mwanza who allowed the researcher to pilot the study to the selected inclusive schools. In addition, the researcher wrote the participants a consent form to seek their willingness to participate in the study and she got responses which confirmed their readiness to participate. So, all participants were voluntarily enrolled into the study and no form of enticement was used for this purpose. Also, the researcher clarified to the participants that the information acquired was going to be used for academic reasons only with assurance that; their responses were preserved with the highest level of confidentiality. Anonymity of schools, teachers, and students' names using pseudo names was observed.

3.12 Credibility and or Authenticity

Credibility and authenticity are set of criteria that are used by researchers to ensure a credible report of their research. In simplicity, credibility and authenticity is much concerned with trustworthiness that gives research readers confidence to believe in what the researcher has presented (Amin et al., 2020). To ensure the credibility and trustworthiness of the research findings, the following procedures were undertaken.

The instruments were designed, discussed and confirmed together with my supervisors; Data were obtained from participants of different characteristics including students with hearing impairment, and teachers specialized in teaching students with hearing impairment. This was done as way of maintaining data triangulation. Specialist teachers provided valuable information on the use of hearing aids and their effectiveness on learning to students with hearing impairment. This complemented the data generated from students with hearing impairment.

In addition, real narratives from participants have been presented in the data presentation to ensure the originality of the findings of the study.

3.13 Limitations and delimitations

In carrying out this study, there were delimitations and limitations as explained below:

The study was carried out in English language which could have left out some valuable information because participants were conversant in Swahili Language. However, the researcher was able to translate the tools from English language to Swahili as well as conducting interviews in Swahili language. This helped the researcher to obtain data from participants who were non-English users.

The target population of students for the study was 95 students with just a sample size of only 6 students with hearing impairment. This may not have reflected the views of over 1,778 students with hearing impairment in the country. To mitigate this, the researcher selected participants with the same characters to represent the total number of the country.

There are other factors that may impact the learning of students with hearing impairment such as sign language, lip reading, the use of other technologies like smart board, use of adapted teaching and learning materials but the study was only focused on the effectiveness of hearing aids use. This means that a lot was left out during the study which would influence learning. This was mitigated by recommending further studies be carried out on other factors that may the impact on learning of students with hearing impairment.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents, interprets and discusses the findings of the study. This has been done in accordance with the study objectives that include: to examine the status of the use of hearing aids among of the students with hearing impairment in inclusive secondary schools; to analyse their effectiveness on the learning to students with hearing impairment; and to find out the hindrance's students with hearing impairment face when using hearing aids.

In presenting data, direct statements from the participants are written in Swahili to maintain originality of the responses and translated to English Language so as to provide for accessibility to English readers. In an attempt to protect the participants, anonymous names/codes composed of letters and numbers have been used to identify the participants. For teachers they were identified as T=1 up T=6 and for students it was S=1 to =6.

4.2 Demographic characteristics of participants

This section presents the characteristics of participant's thus demographic information of the teachers and students.

4.2.1 Description of the participants

This section describes the characteristics of the sampled participants sampled for study. The study targeted students with hearing impairment who use hearing aids in their learning, and specialist teachers who teach these students. The total sample size that participated in the study was twelve. This comprised of six students, and six specialist teachers.

4.2.2: Teacher's demographic information

Below is the demographic information of the teachers who were involved in study:

The table below is a demographic information of specialist teachers in hearing impairment in a selected inclusive secondary school.

SCH	Teachers Planned			Teachers interviewed			Sampling Technique
	Male	Female	Total	Male	Female	Total	
A	2	1	3	3	0	3	Purposive
B	1	2	3	2	1	3	Purposive

Table 2: Shows teacher's demographic information

A total of six teachers were purposively sampled to be in study. Fortunately, all teachers were involved. However, most teachers who specialized in hearing impairment are males compared to female. Whereas in school A all three are male, in school B there was one female teacher and two male teachers

4.2.3 Profile of teachers

The table below is a profile teachers trained in Special Needs Education specializing hearing impairment in a selected inclusive secondary school.

S/N	Participants	Gender	Qualification	Experience	Subject teaches
1	Teacher 1	Male	Bachelor of Special Needs Education	9 years	Geography
2	Teacher 2	Male	Bachelor of Special Needs Education	9 years	Civics
3	Teacher 3	Female	Bachelor of Special Needs Education	7 years	Chemistry
4	Teacher 4	Male	Bachelor of Special Needs Education	6 years	Civics
5	Teacher 5	Male	Bachelor of Special Needs Education	7 years	English
6	Teacher 6	Male	Bachelor of Special Needs Education	9 years	Kiswahili

Table 3: Shows characteristics of teachers trained in Special Needs Education

Table 3 above indicates that out of six participants, there were five men, and one female. All participants had a bachelor's degree in Special Needs Education and they had between six to nine years' experience of teaching students with hearing impairment.

4.2.4 Student's demographic information

The table below shows demographic information of sample size of the students with hearing impairment in a selected inclusive secondary school.

SCH	Student Planned			Student interviewed			Sampling Technique
	Male	Female	Total	Male	Female	Total	
A	0	3	3	0	3	3	Purposive
B	0	3	3	0	3	3	Purposive

Table 4: Shows Students demographic information

Table 4 above shows that a total of six students were involved in the study and all students were female. It was impossible to take into consideration gender balance because both schools A and B admit and accommodated only female students with special needs especially those with

hearing impairment. However, the schools have day scholars comprising all sexes as well as students without disability.

4.3 The status of the use of the hearing aids

The study sought to establish the status of the use of hearing aids among students with hearing impairment in inclusive secondary schools in one selected district in Tanzania. The information provided by the participants were summarized under three thematic areas. Below are responses from different participants.

The table below is a presentation of the status of the use of the hearing aids by students with hearing impairment in secondary schools.

Positive Response	Negative Response
Hearing aids are used in classroom when teaching is taking pace	Lack of knowledge on operating hearing aids leading to improper use
Hearing aids are used in group discussion	Discomfort brought by hearing aids lead to ignore the use of hearing aids
	Failure to rectify the sound of hearing aids hence difficulty in using them

Table 5: Shows the status of the use of hearing aids

The response in table 5 above which shows the status of the use of hearing aids among students with hearing impairment indicates that hearing aids are used, not being used, and not properly used. When participants were asked about the status of the use of the hearing aids, 2 responses from participants show that hearing aids are being used, 7 responses indicate that hearing aids are not being used, whereas 3 responses show that hearing aids are not properly used.

There were participants who reported that they are using hearing aids. Participants (n=3) said that students with hearing impairment use hearing aids. They explained that some students do

use hearing aids at school to facilitate communication in their learning. This is affirmed by a participant from a selected school who said:

Baadhi yetu tunatumia shime sikio kwenye vyumba vyetu vya madarasa na hasa wakati walimu wanafundisha, hii inatusaidia kusikia walau kidogo kujua kinacho fundishwa, na hata kuwa na mawasiliano na wenzetu (S=4).

[We use hearing aids inside the classroom especially when teachers are teaching; at least this helps us to hear what is taught and we can communicate with fellow students].

The statement above gives an impression that hearing aids are used when students are in the classrooms during the teaching process. They further said they use hearing aids because it helps students to communicate with teachers, as well as their peers. This findings is in with the findings from a study done in Nigeria by Soetan et al., (2021) which states that the purpose of assistive devices such as hearing aids, is to boost hearing levels of students with hearing impairment in learning. Another study by Maor et al., (2011) observes that assistive technology such as hearing aids is a compensation means for students of hearing impairment to enhance them when learning in progress. This implies that availability of assistive technology such as hearing aids is relevant to enhancing classroom communication and participation in learning process.

Another participant expressed that:

Shime sikio zinasaidia wanafunzi katika shuguli za kimasomo hata kama umeacha kazi wanaweza kuwasiliana na wengine walau wakapata maarifa fulani, binafsi huwa najisikia vizuri pale ninapo ona wanafunzi wenye matatizo ya kusikia walau wanasikia ninachofundisha. (T=2)

[Hearing aids helps students in academic issues, even if the teachers provide work to student they can communicate with others and get some knowledge pertaining on certain issues, I feel well when I see students with hearing problem somehow, they hear what I'm teaching].

What emerged from this finding was that a classroom is a crucial factor when students use hearing aids. The findings reveal that the use of hearing aids helps students with hearing impairment to interact with their peers in academic issues as they can communicate leading to obtaining some knowledge. So, this implies that hearing aids are used whenever students would like to communicate with the teachers and ordinary students in their learning. This analysis coincides with Gudyanga (2014) who argues that hearing aids have been worn by students with hearing impairment so as to amplify sounds that help them to hear in their learning process. While this may be true, the hearing aids should be utilised in a quiet environment so as to avoid the amplification of unwanted voices that may disturb the student from following up the lesson. Equally, Tracker (2020) says that the longer the student had worn hearing aids, the better their development which may impact academic achievement and social interaction.

When participants were asked about the status of the use of the hearing aids for learning of students with hearing impairment, they said that they use it in small group discussions when they are in and out of the class. This was revealed by one of the participants as quoted: *“Kwetu sisi shime sikio tunatumia hasa tunapo kuwa na mijadara ya kitaaluma nje na ndani ya darasa, hii inatusaidia kukuza taaluma yetu”* (S=5).

[We use hearing aids when conducting discussions in classroom and outside the classroom, this helps us grow academically].

The findings reveal that students with hearing impairment normally use hearing aids in group discussion. This emerged in this study as students said that they use hearing aids in discussion while in and out of classroom. This finding concurs with other studies that affirm assistive technologies like hearing aids are helpful for students with hearing impairment in many ways.

For instance, the study by Murchland and Parkyn, (2011) notes that assistive technology such as hearing aids help students with hearing impairment to perform at their best level by participating in daily educational activities as well as learning activities.

On the other hand, there are findings that reveal improper use of hearing aids. The findings indicate that improper use of hearing aid affects the status of the use of hearing aids among students with hearing impairment. As quoted from participants, it affects their use of hearing aids. The following are responses given by two participants; *“Inaniwia vigumu kutumia shime sikio mda wote sababu ya changamoto zake ambazo walimu pia anashindwa kuzitatua”* (S=2).

[It is difficult for me to use hearing aids all the time because of its challenges which the teachers also fail to solve].

Another one said: *“Wanafunzi wengi hawajui matumizi sahihi ya shime sikio, hii imetokana na kutokuwa na elimu ya namna ya kutumia kwa usahihi”* (T=4).

[Many students do not know the proper use of hearing aids; this has happened because students are lacking training on how to use hearing aids].

The findings reveal that the improper use of hearing aids was due to lack of knowledge among students and teachers on operating hearing aids. While this may be true Dillon (2012) argues that persons with hearing impairment including students with hearing impairment may benefit from training on the use of hearing aids. This may enable them to get the information about developing skills required for operating and caring for their hearing aids. This implies that provision of proper training may raise the probability of hearing aids being fully utilised and the residual communication problems may be reduced. Mokhtarzadeh et al., (2020) point out that the appropriate usage and conservation skill of hearing aids needs to be imparted in order for

students to operate them properly especially students with hearing impairment. Farooq and Iftikhar (2015) assert that training in assistive equipment such as hearing aids must be provided to teachers. Teachers in classroom may help to check students' devices in case of any problem during learning session.

There are participants who indicated that hearing aids were not being used. Both teachers and students. Participants (n=6) indicated that hearing aids are not being used by students with hearing impairment as observed by one participant: "*Niliacha kutumia shime sikio sababu ilikua inaumiza masikio hadi nasikia maumivu ya kichwa na kizunguzungu*" (S=3).

[I stopped using the hearing aid because it was hurting my ears until I felt headaches and dizziness].

Similarly, another participant said: "*Wanafunzi wetu hawavai shime lakini wengine kabla ya kujiunga na elimu ya sekondari wanasema walikua nazo ila kwa hapa kwetu siwaoni wakizivaa*" (T=3).

[Our students don't wear hearing aids, but some before joining secondary education say they grew up with them, but here I don't see them wearing them].

Similarly, another participant said: "*Nikivaa shime sikio nasikia makelele tu na wala sisikii kinachozungumzwa kwa sasa sivai shime sikio ila nikiipata nzuri ntaivaa*" (S=4).

[When I wear hearing aids, I only hear noises and I don't hear what is being said. At the moment, I don't wear hearing aids, but if I find a good one, I will wear it].

Another participant said: "*Asilimia kubwa ya wanafunzi wetu hawavai shime sikio ukiwauliza kwanini hawavai wanasema zinawapigia makelele*" (T=6).

[A large percent of our students they don't wear hearing aids, if you ask them why they don't wear, they say hearing aids make noise].

Another participant had this to say:

“Wanafunzi wengi hawajui matumizi ya shime sikio, na pengine hawaoni umuhimu wa kuitumia pia shime sikio hizi wakati mwingine huwa na kelele na kupelekea wanafunzi kupata maumivu.” (T=2)

[Many students do not know the use of hearing aids and probably do not see the importance of using them because sometimes they are noisy and cause students to experience pain].

The findings above indicate that the reasons for not using hearing aids among students with hearing impairment is because of discomfort brought by hearing aids whereby they don't see its importance which subsequently may affect their learning negatively. This is in line with Kisanga (2019) who argues that there is access to hearing aids by some students who are hard of hearing yet they did not benefit from the devices in their learning process. The devices offered to help these students to get the speakers voice could not detect what was being communicated. The hearing aids provided to them missed special feature that may aid in differentiating speech and sound from the environment. Similar findings on either the scarcity of hearing aids or poor quality hearing aids were also found in Pakistan (Shahminan, 2012), Saudi Arabia (Allothman, 2014), Zimbabwe (Mpofu & Chimhenga, 2013) and Tanzania (Migehe, 2014).

However, one participant had a different response. The participant said:

Mara nyingi vifaa hivi (shime sikio) tunashindwa kuvirekebisha sauti kwa kuwa hatufundishwi namna ya kuvirekebisha, hii hupelekea wanafunzi wengi kutokuvitumia na hata tukivitumia, miongoni mwetu huacha kuendelea kuvitumia kwa kuwa tunapata shida katika masikio yetu. (S=1).

[We fail to rectify the sound of hearing aids because we are not taught on how to do so, this has led to some of us not using hearing aids, even if others do use it, they stop because they are getting pain when using it].

The findings indicate that students fail to rectify the sound of hearing aids which leads to difficulties in setting hearing aids for use. The findings also suggest the students are not taught on how to operate the hearing aids which makes it difficult to adjust the sound hence abandoning it. While this may be true Dalton and Hoyt-Hallett (2013) support the current study by state that, assistive technology such as hearing aids can be a powerful tool for educational equity, if the skills are well learned and appropriately applied to meet the needs of students with hearing impairment. Similarly, Deppermann (2012) notes that the technical problems in hearing aid use might be a reason for hearing aid users particularly students with hearing impairment to withdrawal from using them. Problems such as re-amplification of sound produced by the speaker through the hearing aid makes them to squeal very loudly. Therefore, this contributes to hearings aids not being used and instead of solving the problem, they increase the problem.

4.4 The effectiveness of using hearing aids during learning

The study thought to find out the effectiveness of using hearing aids among students with hearing impairment. This section presents the effectiveness on the use of hearing aids in learning. It is based on four subthemes thus communication, performance, participation, and labelling and segregation.

The table below is a presentation of the effectiveness of using hearing aids towards learning of students with hearing impairment in secondary schools.

Positive Response	Negative Response
Hearing aids facilitate communicating with other students	Communication is a challenge when hearing aids are not used
We are able to communicate with teachers who do not know sign language	Labelling and segregation when hearing aids are used
Hearing aids help to improve performance	
Hearing aids enhance participation in academic and non-academic activities	

Table 6: Shows the effectiveness of the use of hearing aids

Communication is important in academic achievement. For learners with hearing impairment, communication is partly determined by the quality of the use of hearing aids as well as the environment where communication takes place. The table above summarizes information provided by students on communication. As said by some participants from this study: *“Shime sikio ni ya muhimu katika kurahisisha mawasiliano kwa kuwa wanafunzi wengi hawajui lugha ya alama.”* (S=5).

[Hearing aids are very important to simplify communication as many students do not understand sign language].

On the other hand, one participant recounted: *“Walimu walio wengi hawajui lugha ya alama, wanafunzi kutumia shime sikio inawafanya kuwasiliana vizuri na walimu wao, pindi wanapokuwa darasani na nje ya darasa.”* (T=3).

[Majority of the teachers do not understand sign language. To use hearing aids makes students to communicate with teachers in classroom and outside the classroom].

The findings indicate that communication is eased when hearing aids are used. They reveal that hearing aids are important because majority of hearing students and teachers do not know sign language which could help them to communicate. Hearing aids simplify communication between hearing students and those with hearing impairment. Furthermore, hearing aids facilitate communication when instructions are given by teachers in learning processes. The findings are in line with Beechey et al., (2020) who said that the provision of hearing aids decreases the effort that is needed to maintain communication in unfavourable environments including the classroom. This decrease in effort offers advantage to the Persons with hearing impairment especially students with hearing impairment to communicate between themselves and hearing peers, or with teachers. By considering the impact of amplification, it contributes to increased understanding of daily communication including in learning process.

On the other hand, participants reported communication as one of the challenges of not using hearing aids. This is affirmed by a participant who said: *“Hiyo iko wazi, kwa wanafunzi kutotumia shime sikio kunaweka ugumu katika kuwasiliana na walimu wao katika shughuli za darasani na nje ya darasa” (T=2).*

[It is clear for students not to use hearing aids hampers communication with their teachers in classroom and outside classroom activities].

Similarly, another participant stated:

Kikawaida tunapata changamoto kubwa mno tunapowasiliana na wanafunzi wenzetu wenye usikivu, hasa pale tusipotumia shime sikio. Hii ni kwasababu idadi kubwa ya hawa wenzetu hawajui lugha ya alama hata kidogo (S= 6).

[We usually face a big challenge when communicating with our hearing fellow students, especially without using hearing aids. This is because a large number of them do not know sign language].

This response indicates that there are communication challenges when hearing aids are not used. The findings also revealed that students with hearing impairment face difficulties in communicating with their teachers during classroom and out of classroom activities. On the other hand, a challenge emanates when students with hearing impairment are communicating with their fellow hearing students who lack skills in using sign language.

This is in line with Spreckley et al., (2020) who say that hearing aids can assist to improve sound recognition and speech understanding, and thus improve an individual's ability to take part in daily life particularly in learning by students with hearing impairment. The provision of hearing aids in developed countries has helped in improving health-related quality of life, and possibly on cognition which comes as a result of learning. As indicated in the findings, students mentioned difficulties in communication with teachers and students without hearing impairment; this was quoted by one of the participants who noted that majority of the teachers do not understand sign language. Failure by the students to use hearing aids makes students find difficulties to communicate with teachers in and out of the classroom. This finding is in line with Mokhtarzadeh et al., (2020) who states that hearing aids are innovative electronic gadgets that affect the communication and relationship between persons with hearing impairment and others. It is for this reason that audiology advises persons with hearing impairment to put on their hearing aids during day. However, hearing aids are merely able to compensate for hearing loss in utmost cases.

Hearing aids are considered to help improving performance of the student in the classroom. The learning achievement in performance positively impacts the students with hearing impairment whereby she/he may acquire the skills which are beneficial in future. When participants were asked to identify the effectiveness of using hearing aids towards the academic performance, they

mentioned good performance in academic issues as one of the importance of using hearing aids. They explained that they enable them to get good results in their subjects. A response from one participant indicated: *“Kiukweli kutumia kwetu hizi shime sikio kumeongeza ufaulu wetu, tunapata matokeo mazuri katika masomo mengi” (S=1).*

[Frankly speaking, using these hearing aids has increased our success; we get good results in many subjects].

Another participant said: *“Vifaa vya usikivu vinatusaidia viziwi katika kujifunza tukiwa na wanafunzi wa kawaida darasani pasipo kutumia lugha ya alama” (S=4).*

[Hearing aids help the deaf student in learning to learn together with normal students in the classroom without using sign language].

The findings show that the use of hearing aids has much influence on the performance of students with hearing impairment. It was explained that attainment of good results in many of the subjects by the students was contributed by the use of hearing aids. At the same time, hearing aids help hearing and students with hearing impairment to learn together. While this may be true, (Migehe, 2014) notes that a large number of students with hearing impairment have poor academic performance for various reasons, including lack of specialized equipment such as hearing aid, specialist teachers who can assist student with hearing impairment who rely on hearing aid. All thus lead to communication barriers that end up affect student with hearing impairment in their learning progress.

Participation improves person’s self-confidence and may enhance social skills, team work and develop friendship. Participation in learning leads to academic and non-academic improvement. Hearing aids play a part in enhancing participation since they act as a bridge to students with

hearing impairment in the hearing world. Participants reported that the use of hearing aids among students with hearing impairment led to increased participation levels in academic and non-academic activities. This statement was confirmed by participants when one said: “*Mara nyingi ninapotumia shime sikio napata fursa ya kushiriki katika shughuli mbalimbali hapa shuleni*” (S=3).

[I often get opportunities to participate in various activities here in school when I use hearing aids].

Another participant said:

Nashiriki katika kujifunza mambo ya darasani sababu hali inakuwa nzuri pale ambapo ninakuwa nimevaa vifaa hivi vya usikivu vinavyonisaidia katika kusikia sauti na hivyo kuweza kuelewana vyema na mwalimu (S=2)

[I participate in the classroom learning activities because the situation is getting better when I’m wearing these hearing aids that help me hear voices and thus, be able to understand better with the teacher].

Additionally, a response from another participant stated: “*Naona wanapozitumia (shime sikio) wanapata fursa ya kuwa sehemu ya kila shughuli inayofanyika hapa shuleni. Ziwe za darasani na hata nje ya darasa*” (T=5).

[I see, when they use them (hearing aids), they get opportunities to be part of every activity that takes place here in the school, be it in the classroom or even outside the classroom].

The findings reveal that hearing aids offer opportunities for students with hearing impairment to participate in different school activities both academic and non-academic. Working together with teachers and their hearing peers was seen to be as a result of using the hearing aids. Spreckley (2018) support the current finding by saying that the sense of hearing enables communication and raises social interaction. Effective communication is the transmission of information between two or more persons and includes both activity and participation especially in classroom learning by students with hearing impairment. To communicate, an individual such as students

with hearing impairment who use hearing aids, may be enabled to get acoustic information as well as hearing, listening, and interpretation of the sound. These attributes may facilitate learning to take place. (Borda et al., 2019) equally adds that the use of hearing aids could be related to better performance especially to the academics of students with hearing impairment. Individuals with a support device could perform as well as those without hearing impairment.

When participants were further asked at the visited schools the effectiveness of hearing aids use on students with hearing impairment, participants reported labelling is still a problem.

This was said by one of the participants as shown in the quote below:

Wanafunzi viziwi wengi wao hawataki na hawapendi kutumia hivi vifaa (shime sikio), ukiwauliza wanasema wanabaguliwa kwa kupewa majina ya kejeli na wanafunzi wenzao, hususani wale wasio na matatizo ya usikivu(T=4).

[Most of Deaf students do not want to use these devices and if you ask the reason, they say that they are intimidated against by disgusting nick names from fellow classmates, especially those without hearing impairment].

Another participant said:

Kuna changamoto ya wanafunzi wasio sikia kubaguliwa kwa sababu ya kuvaa shime sikio na wanafunzi wengine, hii inatupa shida sana katika mazingira yetu ya kusoma na kujifunza, vilevile inatupelekea kufanya vibaya katika masomo yetu. (S=3)

[There is a challenge of discrimination for students using hearing aids, this brings a problem in our environment of learning as it leads us to perform poor in our subjects].

Similarly, another participant said: “*Wanapovaa shime sikio wanabaguliwa kwa kuwa wanaonekana kama mlemavu ambae hausikii na huwezi kujifunza chochote*” (T=6).

[When they wear hearing aids they are discriminated against because they are seen as disabled who cannot hear and cannot learn anything].

The findings show that labelling results from the use of hearing aids. The findings also mean that instead of contributing positively to the learning process, the hearings negatively impact on the social and emotional development among students with hearing impairment in the school. The participants had explained that many students do not use hearing aids because they are being given disgusting names (Labeling) by their fellow hearing students that may consequently lead to fear and hence neglect using them. Furthermore, the study reveals that there is discrimination of students when they wear hearing aids as they are seen as those who cannot do much since they cannot hear and learn anything.

The findings are in line with Onyango, (2015) who says that students with hearing impairment are not frequently using hearing aids for fear of stigmatization as being deaf. Equally, Dawes & Munro (2016) observe that becoming a hearing aids' user is challenging as a result of different factors, ranging from psychological, social and practical difficulties. They elaborate that it causes changes in normal habits of thinking. Likewise, Taylor and Gebre, (2016) asserts that persons with hearing impairment including students with hearing impairment may be helped with hearing aids. Unfortunately, there is a strong stigma as well as labelling linked to hearing impairment and hearing aid use. This is because hearing impairment is so strongly related to old age and so, they believe that hearing aids appear to make them look old or handicapped. This stigma is existing both to society as well as school environment where students with hearing impairment are found. Gudyanga (2014) observation is in line with the current findings by saying that putting on of hearing aids all the time by students with hearing impairment may be judged as being incapable hence leading to inferior of self-perception, social immaturity, and negative attitude. Additionally, the theory of the study by Erie (1992) on macrosystem component which includes cultural patterns explains that culture has serious impact on the use of hearing aids. The

issue of culture including the attitudes comes into play when person using hearing aids refuses to wear them due to the beliefs and attitudes of persons within the culture, he/she lives.

4.5 Hindrances faced by students with hearing impairment while using hearing aids

This objective sought to explore the challenges faced by students with hearing impairment while using hearing aids in inclusive secondary schools. The more we understand the problems, the more likely we understand the causes and we may create measures to solve them. This aspect was very crucial because it addresses the problems associated with the use of hearing aids by students with hearing impairment. The issues that emerged were poverty, difficult in setting of hearing aids, inappropriate of hearing aids, poor infrastructures, and lack of willingness to wear hearing aids, were the major hindrances. They have been analysed and presented below through table.

The table below is a presentation of the hindrances faced by students with hearing impairment in inclusive secondary schools while using hearing aids in their learning.

Hindrances faced students with hearing impairment
Lack of fund for buying hearing aids
Teachers and students fail to set hearing
Hearing aids provided to students are unfit for use according to the magnitude of the problem
Lack of willingness of wearing hearing aids
Classes are not acoustically treated
Overcrowded in the classrooms accompanied with background noise

Table 7: Shows the hindrance faced students with hearing impairment

Findings indicated lack of funds as a challenge. Poverty is the natural enemy which is linked with negative conditions. Students from poorer backgrounds face barriers to accessing quality education particularly in their learning. Living in poverty usually affects access to basic services which may inhibit achievement of full potential. For instance, lack of access to hearing aids by

students with hearing impairment makes it difficult to access quality education through learning. The participants explained that some students with hearing impairment were faced with financial difficulties which make it hard for them to buy hearing aids or maintenance of the same. One of the participants said: “*Wanafunzi baadhi tunakosa fedha za kununua shime sikio, pamoja na fedha za kufanya matengenezo pindi mashine inapokua na matatizo*” (S=6)

[Some students lack money to buy hearing aids as well as money to make repairs when the device has some problem.]

Similarly, other participants affirmed that:

Ni vigumu sana kwa baadhi ya wanafunzi wetu, wanachangamoto nyingi hii inatokana kuwa wengi wao wanatoka kwenye familia masikini, wengine wanashindwa ata kuwa na shime sikio, hii inapelekea hata zoezi la kujifunza kuwa gumu kwao. (T=2)

[It is difficult for some of our students. They have got a lot of challenges and this is because some of them are coming from poor families and therefore fail even to have hearing aids. This brings difficult in the all process of learning].

The findings reveal that funding emanating from poverty is an obstacle limiting students with hearing impairment from using hearing aids. This is because most of the students came from poor family backgrounds and therefore, they cannot afford to buy hearing aids for use during learning process.

The above findings are supported by Blazer et al.,(2016) who observe that there are numerous reasons given by individuals particularly students with hearing impairment for not using hearing aids. These include among others the expensiveness, and maintenance costs. This is the main reason for lack of hearing aids utilization. Equally WHO (2013) notes that the price of getting and maintaining the devices remains unaffordable for utmost users including students with hearing impairment. This brings problem to students with special needs especially those with

hearing impairment. It is obvious that funds for maintenance and buying is important for making repair, or getting hearing aids yet many students with hearing impairment are facing financial constraints. Equally, Sang et al., (2019) add that among of the numerous causes for the low hearing aids acceptance rate are high costs. All these lead to failure to the use of hearing aids by many students with hearing impairment.

Participants from selected district said that students fail to set hearing aids. They explained that sometimes teachers do help them to set hearing aids but others said that sometimes teachers do fail to rectify the sound of the device. One participant said:

Wanafunzi wengi tunapata shida ya shime sikio kuwa na sauti ya juu pale tunaposhindwa kurekebisha, hata hivyo baadhi ya walimu wanajitahidi kutusaidia kuzirekebisha lakini bado wengine wanashindwa kuturekebisha sauti (S=5).

[Many of us students have the problem of hearing aids having a high volume. because we fail to fix them. However much some teachers are trying to help us to fix them, still others fail to fix them].

Another participant said: “*Wakati mwingine napunguza sauti lakini bado nahisi sauti ni kali*”

(S=4).

[Sometimes lower the volume but I still hear the sounds is very loud].

Another participant had this to say: “*Shime sikio huwa na makelele mengi ata wakati wa*

kupunguza sauti hayapunguziki” (S=2).

[Hearing aids often has a lot of noise even when reducing the volume, it does not decrease].

The findings reveal that most students fail in setting hearing aids according to their degree of hearing level. From the data it implies that students with hearing impairment are faced with technical challenges on operating their hearing aids. The finding is similar to Kheri, (2018) who

reveals that a hearing aid has much higher problems including mechanical failure. This is also supported by Gallagher et al., (2018) in their study in which they found out that there are numerous reasons of not using hearing aids including difficulties in wearing/putting on of hearing aids as it is complex to utilize them due to setting challenges. This hinders the use of hearing aids among the students with hearing impairment.

From the expressions of the participants, it was stated that some of the hearing aids provided to students are unfit for the use. They also mentioned that some of these hearing aids are provided without knowing the extent of the problem. Participants confirmed this with the statements below:

Ninachoweza kusema, baadhi ya hizi shime sikio wakati mwingine zinatolewa bila ata kufanyiwa uchunguzi kama zinafaa kwa matumizi, anapewa mwanafunzi bila hata ya kutokujua ukubwa wa tatizo lake, hii imeleta tatizo kwani vifaa hivi vinakuwa pengine havifai kwa matumizi ya muhusika. (T=4).

[What I can say is that sometimes some of these hearing aids are provided without being examined as to whether they are suitable for use. They are provided to students without even knowing the magnitude of the problem of the students this has brought problem because these devices are probably not suitable for the user].

One of the participants responses: *“Nikiwa nimevaa vifaa vya usikivu nahisi kama ngoma ya sikio kupasuka mfano nikisikia sauti au mlio mkali kama wa kengele.”* (S=2).

[When I wear hearing devices, I feel like my ear drum is bursting, for example, when I hear sound or a loud ringing like a bell].

Another participant said: *“Hali ya shime sikio ni mbaya sababu mimi wakivaa vifaa masikio yanawauma kutokana na kelele.”* (T=1)

[The situation is bad because when I wear hearing aids, my ears hurt because of noise]

Another one expressed that: “*Nikivaa shime sikio nahisi masikio ya moto na mazito, maumivu ya kichwa na macho.*” (S=4).

[When I wear hearing aids, I feel burning ears and heavy ears, headache and eyes pain].

The above findings indicate that some of the hearing aids provided to students are unfit for use by students with hearing impairment. Some of these hearing aids are provided without examining whether they are suitable for users. Hearing aids are given to students with minimum knowledge of the magnitude of the problem. This has brought problems whereby some of them make noise, causes pain in the ear, and headache. This means the hearing aids are not suitable for the users. This implies that there was no medical assessment to assess the degree of hearing loss. The findings are similar to Badru (2018) who points out that students with hearing impairment were given hearing aids randomly without measuring their levels of hearing loss. Badru adds that poor quality hearing aids were supplied by donors including broken ones and others making a lot of noise which interrupted the attentiveness during learning. On the other hand, Holman et al., (2019) state that hearing aids have negative impact to persons with hearing impairment in their daily livings. This impact involves distorted and unpleasant sounds, physical pain when worn and amplification of environment noise. Stone-Macdonald and Fettig (2019), also supports the findings by adding that there are no standardised assessments used to determine the type or severity of the disability among students with hearing impairment. Therefore, this may lead students with hearing impairment to be given hearing aids which are not suitable, subsequently affect their learning progress.

On the other hand, participant T= 1 said that willingness is a hindrance facing students with hearing impairment in selected district.

For example, one of the participants said: *“Baadhi ya wanafunzi wetu wanakosa utashi wa kuvaa shime sikio, sisi kama walimu tunapata shida katika kuwafundisha wanafunzi wetu.”*

[Some students lack willingness of wearing hearing aids as teachers we get problem in teaching our students].

The above findings reveal that lack of a will from the side of students with hearing aids is a hinderance towards their use. This makes teachers to get problems in teaching them because of communication challenge.

This finding is in line with Alicea et al., (2017) who say that the utilization of hearing aids is associated with willingness among the persons with hearing loss including students with hearing impairment. Additionally, Kweitsu (2020) says that in spite of the assistances offered by hearing aids towards communication ability and quality of life, utilization is still low. The most frequently mentioned causes for lack of use are, poor experience of others, perceived lack of need and willingness. However, most persons with hearing impairment- including students with hearing impairment are not comfortable when using hearing aids due to public perception and stigmatization which discourages their willingness to use hearing aids. Additionally, (Desjardins & Sotelo, 2021) says that the most frequently mentioned causes for the non-use of hearing aids among hearing impaired persons was the perception that their hearing loss was not bad enough to require intervention with a hearing aid. All these causes the hindrance to hearing aids use among students with hearing impairment

The researcher wanted to know the relationship between the use of hearing aids by students with hearing impairment and school learning infrastructure in the visited inclusive schools. Normally, school infrastructures are a key base for learning in schools. It includes classrooms,

laboratories, the halls and open fields for games, among others. The participants explained that the classes are not acoustically treated and most of them are overcrowded with background noise. They also said that whereas the school is inclusive, the environment is not yet friendly to students with hearing impairment especially those who depend on hearing aids, something which may create discomfort to students with hearing impairment who rely on hearing aids. One participant responded that:

Miundombinu ya madarasa yetu sio rafiki kwa wanafunzi viziwi hasa kwa wanaotumia shime sikio kwa sababu madarasa hayana silingi bodi na madirisha yake yanaruhusu mwingiliano wa sauti kiurahisi na watu wa nje. (T=3).

[Our classrooms infrastructures are not friendly to deaf students especially those who use hearing aids because the classrooms do not have a sound ceiling board and its windows allow for easy voice interference with outsiders].

Another participant said: *“Shuleni kwetu kuna shida ya vyumba vya madarasa havitoshi inatupa shida kwa kuwa wanafunzi wote inabidi wasome Pamoja”* (S=1).

[At our school, there is scarcity of classrooms. This brings a problem as students are studying together on the same class].

Similarly, another participant said:

Majengo kama madarasa sio rafiki sababu wanafunzi ni wengi sana darasani na kama unvyojua palipo na wanafunzi wengi kelele hazikosekani, hivyo kelele itakuwa ni changamoto kwa wanaotumia shime sikio (T=).

[Buildings like classes are not friendly because there are so many students in the classroom and whenever there are so many students' noises is there. So, noise is a challenge for those who use hearing aids].

Findings suggest that poor infrastructure in form of classrooms where students with hearing impairment especially those who use hearing aids are accommodated poses a challenge towards hearing aids' use.

The above finding is supported by Kisanga (2019) who divulges unaccommodating classrooms as a source of obstacle that restricts active learning of students with hearing impairment. Similarly, Ludago (2020) says that the practice of implementing inclusive education is associated with many challenges such as inadequate infrastructures, acoustically non-treated classrooms, and the higher number of dropout due to unfriendly learning environment for diversified learners including students with hearing impairment. On the other hand, McCormack & Fortnum (2014) notes that hearing aids cannot be operated in noise settings. Spreckley (2018) states that the participation restrictions associated with hearing impairment relate to environmental factors specifically background noise and the use of hearing aids.

4.5.1 Potential interventions

When the participants were asked how the hindrances identified above can be eliminated, different ideas came up including providing in-service teacher training in hearing aids use, construction of infrastructure, provision of education, provision of good hearing aids. They have been analysed and presented below:

In-service training facilitates teacher's effectiveness. It updates teachers' skills and knowledge for enhancing teaching and learning so as to improve job performance. In-service training is essential for teachers to meet with new challenges and changes in the education world. The participants stated that teachers in secondary schools need in-service training in hearing aids use so as to support students with hearing impairment. One participant expressed:

Walimu wengi hawajui jinsi gani ya kusaidia wanafunzi hawa wenye mahitaji maalumu hasa wanaotumia shime sikio, ni vema serikali na wadau mbalimbali wajitahidi kutoa mafunzo kwa walimu ili waweze kuwasidia wanafunzi hawa (T=2)

[Many teachers do not understand on how to assist students with special needs especially those who are utilizing hearing aids, it's better for the government in collaboration with non-governmental organization to collaborate in providing training to teachers].

The findings indicate that in-service training for teachers is very important because many teachers do not understand how to assist students with special needs especially those who utilize hearing aids. This implies that teachers lack knowledge on hearing aids use.

This is also suggested by Litovchenko (2020) that argues that it is essential to make conditions for communication between scientists and specialist teachers, to organize training and discussion that offers chance to associate their problems and find ways to tackle them. Thus, improving the professional level of specialist teachers taking into account changes in modern education.

Some participants said that there is need for good infrastructure especially the resource room. This was suggested by these participants who specified the significance of having resource room.

One of the participants stated:

Miundo mbinu ni muhimu sana katika mazingira ya kusoma na kujifunza, shule zetu ni lazima zihakikishe zina chumba maalum cha kuwasaidia hawa wanafunzi wanaotumia shime sikio, pia muundo wa darasa unatakiwa uwe rafiki kwao; ni wito wangu kwa wadau mbalimbali kwa kushirikiana na serikali kuhakikisha miundo mbinu inaboreshwa (T=2).

[School infrastructure is important in learning process, our schools must ensure that there is special room (resource room) where students who using hearing aids are assisted, there is a need for the government in collaboration with other stakeholders to ensure school infrastructure are improved].

The finding shows that there is a need for provision of good infrastructure for students with hearing impairment in the schools. The government in collaboration with other stakeholders should ensure the school infrastructure is improved and/or constructed.

In line with the above, Watson, (2019) says that the resource room is a distinct setting and designated room, where a special education programme may take place for students with disabilities including students with hearing impairment. The resource room is utilized in different ways especially when in mainstream is noisy and full of interruptions, students with hearing impairment may shift to resource room in order to master their learning. Likewise, Barret, (2019) observes that good school infrastructure such as resource room, with rehabilitated spaces, leads to accessibility of students with hearing impairment to study. Furthermore, it results into improving the attendance and curiosity of students and teachers in learning. Therefore, the school infrastructure is a crucial part of the school system as it improves learners' performance including students with hearing impairment,

Furthermore, participants suggested that provision of training to both teachers and ordinary students on how to help students with hearing impairment including those who are using hearing aids is paramount towards hearing aids' use. This was affirmed by one participant who said:

Elimu izidi kutolewa katika shule zetu ili wanafunzi wasio sikia na wanaovaa shime sikio waweze kusaidiwa na walimu na wanafunzi wengine ambao hawana tatizo la usikivu katika mazingira ya shule kwa ujumla (S=4)

[More education should be provided in our schools so that students with hearing impairment and those who wear hearing aids can be helped by teachers and other students whom they don't have hearing impairment in the general school environment]

Another participant said: *"Elimu itasadia katika mazingira ya shule kuondoa kubaguliwa kwa wanafunzi wenye ulemavu wa kusikia na baadhi ya wanafunzi wengine ambao hawana matatizo ya kusikia."* (T=3)

[Education in our environment will help to eliminate the discrimination of student with hearing impairment and some other students who do not have hearing problems].

The findings reveal that provision of training to both teachers and ordinary students on how to help students with hearing impairment is required. For example, participants explained that training needs to be provided to teachers and ordinary students on how to help students with hearing impairment in general school environment. This was noted from the data that such a measure may help to eliminate the discrimination in schools against students with hearing impairment against ordinary students. Hollgy et al., (2019) observe that rehabilitation of hearing impairment is involved many sided processes including the provision of education on assisting persons with hearing impairment including students with hearing impairment.

Participants mentioned that good devices may help in reducing the problem facing students with hearing impairment. Hearing aids assist students when they are in classroom or outside, to communicate with teachers and their fellow students. One participant said:

Tunajua umuhimu wa kuwa na shime sikio, inasaidia sana kurahisisha mawasiliano kati ya mwalimu na mwanafunzi au kati ya mwanafunzi kiziwi na wanafunzi wa kawaida, hivyo ni vema kuwa na shime sikio nzuri (T=6).

[We understand the significance of having hearing aids. It simplifies communication between teachers and students with hearing impairment. Also, between ordinary students and students with hearing impairment. It is better to have good hearing aids].

Furthermore, another participant said:

Shime sikio, kwetu sisi inatusaidia kufanya mawasiliano darasani na nje ya darasa tukiwa na wengine pamoja na walimu wetu, juhudi za pamoja zinaitajika kuwasaidia wanafunzi wenye mahitaji maalum kupata shime sikio bora (S=1).

[Hearing aids; for us it helps in communication while in class and outside the classroom with others and our teachers, efforts are needed to help students with special needs to get better hearing aids].

The finding suggest that good devices may help in reducing the problem facing students with hearing impairment. Hearing aids assist students when they are in classroom or outside, to communicate with teachers and their fellow students.

This finding is similar to Farhan & Razmak (2022) suggestion of integration of proper hearing assistive technology such as hearing aids and its related applications. This they say are crucial resources to develop the educational outcomes for students with hearing impairment. The hearing aids application such as an app of hearing aid care provider can adjust hearing aids, or and fit the hearing aid user. From the discussion, it is clear that it is better to have good hearing aids for students with impairment. Therefore, more effort is needed to help students to get the better one.

CHAPTR FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This presents the summary, the conclusion and recommendations. Additionally, suggestions for further research areas are also presented. These presentations are in respect to the research objectives.

5.2 Summary of findings

The study revealed that the status of the use of the hearing aids was both good and bad. It was evident that some students do use hearing aids to communicate in their learning and for group discussions in classroom. On the other hand, it was revealed that hearing aids were not used because they bring discomfort through making some noise. The study also revealed that the improper use of hearing aids was due to lack of knowledge and skills among students and teachers on operating hearing aids, which in turn affected the status of their use among the students with hearing impairment in their learning.

The study findings also showed the effectiveness of hearing aids use during learning. The study revealed that communication is eased when hearing aids are used. Hearing aids are important because majority of hearing students and teachers do not know sign language so the hearing aids act as a bridge between them in learning process. Also, the findings indicated that the use of hearing aids had much influence on the performance of students with hearing impairment. At the same time, hearing aids enable students with hearing impairment to participate in school activities both academic and non-academic. Working together with teachers and their hearing peers was seen to be as a result of using the hearing aids. On the other hand, the findings revealed that labelling is a challenging issue resulting from the use of hearing aids by students

with hearing impairment in the schools. This labeling made them to fear and neglect the use of hearing aids which consequently brings a problem in their learning environment.

The finding revealed poverty is one of the hindrances facing students with hearing impairment while using hearing aids since most of the students come from poor family backgrounds. Therefore, they cannot afford to buy hearing aids due to financial difficulties. The findings also indicated that some hearing aids provided to students were unfit for use by the students with hearing impairment. Hearing aids were given to students with minimum knowledge of the magnitude of the problem hence bringing more problems of noise, earache and headache which makes the users uncomfortable to use it. The findings also revealed that there is poor infrastructure of classrooms which are not acoustically treated and most of them were overcrowded with background noise. This makes them unfavorable for students with hearing impairment to use hearing aids. Last but not the least, the study revealed that lack of willingness to use hearing aids is a hindrance facing students with hearing

5.3 Conclusion

This study has confirmed that hearing aids are important in facilitating communication and learning of students with hearing impairment. In light of the findings, it is therefore concluded that:

Hearing aids were used by students with hearing impairment in different ways, though on the other hand it was limited. Students used the hearing aids to communication during their learning and group discussion in the classrooms. Hearing aids are not preferably used due to poor knowledge on how to use them and due to noise, they produced. In spite of all the challenges, hearing aids still have a positive impact on academic performance such as facilitating

communication as well as improving the performance of students with hearing impairment. The use of hearing aids was still a challenge while others do not use or possess it due to various hinderances including poverty or lack of funds to procure them.

5.4 Recommendations

The following recommendations have been made based on the finding and conclusion arising from this study.

The ministry of Education Science and Technology (MoEST) as a stakeholder in secondary schools needs to monitor the use of hearing aids in schools. The monitoring will ensure that hearing aids are effectively used by students with hearing impairment.

Secondary school administrators should initiate partnerships with corporate organizations and non-governmental organizations for lobbying of assistance to modify and establish friendly classroom that favoured students with hearing impairment.

Teachers in collaboration with the school administrators should control classroom noise since hearing aids work properly in a quiet environment. This will help the students with hearing impairment who use hearing aids to be familiar with their gadgets.

The government through the Ministry of Education Science and Technology needs to ensure there are adequate funds for training teachers on how to fit and maintain hearing aids.

The school administration should ensure that there is regular medical check-up of students with hearing problems in their respective inclusive schools. This will make teachers assist students with hearing impairment specifically on management of hearing aids

Teachers in collaboration with the school administration should organise meetings for the school community about the presence of students with hearing impairment specifically those using hearing aids. This can minimize the negative attitude or cultural beliefs and have positive attitudes towards students with hearing impairment.

Teachers in collaboration with the school administration should guide and counselling students who are unwilling to put on their hearing aids. This may encourage students to wear hearing aids in learning hence ease their communication.

5.5 Suggestion for further research

In line with the limitations of this study, the following research areas are suggested for further research.

Similar study concerning hearing aid use in inclusive secondary schools need to be carried out in more districts, regions, government schools and higher learning institutions or colleges in Tanzania.

More studies can be carried out focusing on student's participation on the use and maintenance of hearing aids in Tanzania.

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APPENDICES

Appendix i: Semi structured interview guide for teachers

I am Philpo Basukwa, a student at Kyambogo University pursuing a Master's degree in Special Needs Education. I am conducting a research study entitled "Hearing aid use in inclusive secondary schools: Their effectiveness on learning of students with hearing impairment."

SECTION ONE

Background information comprising name of the school, gender, level of education, subjects and classes taught and teaching experience of students with hearing impairment who using hearing aids in their learning.

SECTION TWO

- 1. The status of the use of hearing aids among the students with hearing impairment.**
 - i. Comment on the use of hearing aids by students with hearing impairment
 - ii. What are the students' views for the use?
 - iii. Under what situation do they use hearing aids?
- 2. The effectiveness of the use of hearing aids towards the learning of students with HI.**
 - i. How are hearing aids helpful students with hearing impairment during learning in the classroom?
 - ii. What views do student with hearing impairment give on lack of hearing aids in learning classroom?
- 3. The hindrances faced by students with hearing impairment on using hearing aids.**
 - i. What resource are there for maintenance and repair of the hearing aids? If yes what are those resources of income available? If not give your views on resource
 - ii. Have you been trained how to manage on use the hearing aids? If yes give view on training if no give your suggestion.
 - iii. How favourable is the classroom environment in relation to the use of hearing aids by students with hearing impairment?
 - iv. Based on your experience give opinion on the challenges faced in an attempt to help students who meet difficulties in the use of hearing aids during learning?

- v. Suggest the possible recommendation to be taken in removing hinderances when using hearing aids by students with hearing impairment in school?

THANK YOU FOR YOUR COOPERATION

Appendix ii: Semi structured interview guide for students

I am Philpo Basukwa, a student at Kyambogo University pursuing a Master's degree in Special Needs Education. I am conducting a research study entitled "Hearing aid use in inclusive secondary schools: Their effectiveness on learning of students with hearing impairment."

SECTION ONE

Background information comprising name of the school, gender, and experience of wearing hearing aids in learning.

SECTION TWO

- 1. The status of the use of hearing aids among the students with hearing impairment.**
 - i. What is your comment on the use of hearing aids by students with hearing impairment?
 - ii. Under what situation do you use hearing aids;
- i. The effectiveness of the use of hearing aids towards the learning of students with HI.**
 - iii. How are hearing aids helpful during your learning in the classroom?
 - iv. What is your view on lack of using hearing aids by student in learning?
- ii. The hindrances faced by students with hearing impairment on using hearing aids.**
 - vi. What resource do you have for maintenance and repair of the hearing aids? If yes what are those sources available? If no give your views
 - vii. Have you been trained how to manage and to use hearing aids? If yes give view on training if no give your suggestion.
 - viii. How favourable is the classroom environment in relation to the use of hearing aids?
 - ix. Based on your experience give opinion to overcome challenges to the use of hearing aids during learning?
 - x. Suggest the possible recommendation to be taken in removing hinderances when using hearing aids in school

THANK YOU FOR YOUR COOPERATION

VIAMBATISHO

KIAMBATISHO i: MWONGOZO WA MAHOJIANO USIO NA MUUNDO RASMI KWA WALIMU

Mimi Philpo Basukwa mwanafunzi wa shahada ya uzamili ya Elimu Maalum katika chuo Kikuu cha Kyambogo. Nafanya utafiti katika mada ya Matumizi ya shime sikio katika shule jumuishi za sekondari: Na ufanisi wake katika ujifunzi kwa wanafunzi viziwi

Sehemu ya kwanza

Taarifa za awali ni zinahusisha; jina la shule, jinsia, kiwango cha elimu, masomo ya kufundisha na darasa na uzoefu katika ufundishaji kwa wanafunzi viziwi wanaotumia shime sikio katika kujifunza.

Sehemu ya pili

1. Hali ya matumizi ya shime sikio miongoni mwa wanafunzi viziwi

- i. Toa maoni yako katika matumizi ya shime kwa wanafunzi viziwi
- ii. Wanafunzi wanamaoni gani katika matumizi ya shime sikio?
- iii. Ni katika muktadha/mazingira gani wanafunzi wanatumia shime sikio?

2. Ufanisi wa matumizi ya shime sikio katika ujifunzaji kwa wanafunzi viziwi

- v. Ni kwa namna gani shime sikio zinawasaidia wanafunzi viziwi katika ujifunzaji darasani?
- vi. Nini maoni yako juu ya kutotumia shime sikio kwa wanafunzi viziwi katika ujifunzaji?

3. Vikwazo vinavyowakabili wanafunzi viziwi wanapotumia shime sikio

- i. Je, mnazo rasilimali kwa ajili ya matengenezo na ukarabati wa shime sikio? Kama ndio ni zipi? Kama hapa toa maoni yako.
- ii. Je, ulipata mafunzo jinsi ya kumudu na kutumia shime shime sikio? Kama ndio toa maoni ya mafunzo hayo kama siyo toa mapendekezo yako
- iii. Je, mazingira ya darasani ni mazuri kiasi gani kuhusiana na matumizi ya shime sikio kwa wanafunzi viziwi?

iv. Kulingana na uzoefu wako toa maoni yako kuhusu changamoto zinazokukabili katika kujaribu kuwasaidia wanafunzi viziwi wanaokabiliana na matatizo katika matumizi ya shime sikio wakati wa kujifunza?

v. Pendekeza pendekezo linalowezezana kuchukuliwa katika kuondoa vikwazo wakati wa kutumia shime sikio kwa wanafunzi viziwi

ASANTE KWA USHIRIKIANO WAKO

KIAMBATISHO II: MWONGOZO WA MAHOJIANO USIO NA MUUNDO RASMI KWA WANAFUNZI

Mimi Philpo Basukwa mwanafunzi wa shahada ya uzamili ya Elimu Maalum katika chuo Kikuu cha Kyambogo. Nafanya utafiti katika mada ya Matumizi ya shime sikio katika shule jumuishi za sekondari: Na ufanisi wake katika ujifunzi kwa wanafunzi viziwi

Sehemu ya kwanza

Taarifa za awali zinahusisha; jina la shule, jinsia na uzoefu wa kutumia shime sikio katika kujifunza.

Sehemu ya pili

1. Hali ya matumizi ya shime sikio miongoni mwa wanafunzi viziwi

- i. Je, unayo shime sikio?
- ii. Kama ndiyo. Ni nzuri kiasi gani? Kama siyo, toa maoni yako
- iii. Ni katika muktadha/mazingira gani unatumia shime sikio?

2. Ufanisi za matumizi ya shime sikio katika ujifunzaji kwa wanafunzi viziwi

- i. Ni kwa namna gani shime sikio zinawasaidia katika ujifunzaji darasani?
- ii. Nini maoni yako katika ukosekanaji wa shime sikio katika ujifunzaji darasani?

3. Vikwazo wanavyowapata wanafunzi viziwi wanapotumia shime sikio

- i. Je, unazo rasilimali kwa ajili ya matengenezo na ukarabati wa shime sikio? Kama ndio ni zipi? Kama hapana toa maoni yako.
- ii. Je, ulipata mafunzo jinsi ya kuimudu na kuitumia shime shime sikio? Kama ndio toa maoni ya mafunzo hayo kama siyo toa mapendekezo yako
- iii. Je, mazingira ya darasani ni mazuri kiasi gani kuhusiana na matumizi ya shime sikio?
- iv. Kulingana na uzoefu wako, toa maoni ya kutatua changamoto za utumiaji shime sikio wakati wa kujifunza
- v. Pendekeza pendekezo linalowezezana kuchukuliwa katika kuondoa vikwazo wakati wa kutumia shime sikio shuleni. (**ASANTE KWA USHIRIKIANO WAKO**)

Appendix iii: Introductory letter



P. O. BOX 1, KAMPALA
FACULTY OF SPECIAL NEEDS & REHABILITATION
Tel. 0414 286237/285001/2 Fax 0414 220464
DEPARTMENT OF SPECIAL NEEDS STUDIES

21st February, 2022

The City Director
Mwanza City

Dear Sir/Madam,

RE: INTRODUCTION OF RESEARCH STUDENT ON DATA COLLECTION

This is to introduce the bearer Ms. Philpo Basukwa Reg.No: 19/X/GMSN/18725/PD who is a bonafide student of Kyambogo University in the Faculty of Special Needs and Rehabilitation, Department of Special Needs Studies. As partial fulfillment of the requirement for the award of the Masters Degree, she is required to undertake a research on the approved area of study

The purpose of this letter is to request you to allow her have access to information from your office, school or area of operation necessary for the study.

Kyambogo University will be grateful for any assistance rendered to the student

Yours faithfully,


Dr. Okwaput Stackus
HEAD OF DEPARTMENT



Appendix iv: Introductory letter from Mwanza region office

**JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA**

MKOA WA MWANZA
Simu: 028-2501037/2500366
Fax: 028 – 2541242-2501057
Email: ras.mwanza@tamisemi.go.tz
Unapojibu tafadhali taja:



Ofisi ya Mkuu wa Mkoa
Barabara ya "Regional Drive",
S.L.P. 119,
33101 Mwanza.

Kumb. Na. FB. 222/264/01/101

31 Machi, 2022

Mkurugenzi wa Jiji,
Halmashauri ya Jiji la Mwanza,
S. L. P. 1333,
MWANZA.

YAH: KIBALI CHA KUFANYA UTAFITI

Tafadhali husika na mada iliyotajwa hapo juu.

2. Kibali kimetolewa kwa Bi. Basukwa Philpo mwanafunzi wa Shahada ya Uzamili katika Chuo Kikuu cha Kyambogo nchini Uganda ili aweze kufanya utafiti kwenye mada ya *"Hearing aids use in Secondary Schools; their impacts on learning of student with hearing impairment"*. Utafiti huu ataufanya katika Sekondari zenye Elimu Jumuisi zilizopo katika Halmashauri yako.
3. Utafiti huo utafanyika kwa muda wa wiki mbili kuanzia tarehe 21 Machi, 2022 hadi 5 Aprili, 2022. Ofisi hii inaomba apatiwe ushirikiano utakao hitajika.

Nashukuru kwa ushirikiano wako.

Nyangi Msemakweli

**Kny: KATIBU TAWALA MKOA
MWANZA**

Nakala: Mkuu wa Idara,
Chuo cha Kyambogo,
S. L. P. 1,
Kampala

“ Basukwa Philpo,
Mwanachuo.

Appendix v: Introductory letter from Mwanza City director



**JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA
HALMASHAURI YA JIJI LA MWANZA**



Unapojibu tafadhali taja

Kumb. Na. T.40/7/VOLII/220

5 MACHI, 2022

Mtendaji wa Kata,
Kata ya Buhongwa/Mkolani
S.L.P 1333,
MWANZA.

Yah: **KIBALI CHA KUFANYA UTAFITI KWA NDUGU BASUKWA
PHILIPO**

Tafadhali husika na mada tajwa hapo juu.

- 2 Kibali kimetolewa kwa Bi.Basukwa Philipo ambaye ni mwanafunzi wa chuo nchini Uganda kwa ajili ya utafiti kwenye mada ya 'Hearing Aids use in Secondary Schools their impacts on learning of students with hearing impairment'
- 3 Utafiti huo utafanyika katika sekondari zenye elimu jumuishi kuanzia tarehe 21/03/2022 hadi tarehe 05/04/2022
- 4 Mpatie ushirikiano ili afanikishe utafiti huo.


Witness Malero

K.n.y: MKURUGENZI WA JIJI

**K.n.y. MKURUGENZI WA JIJI
JIJI LA MWANZA**

**NAKALA: Mkuu wa Chuo
Chuo cha kyambogo,
S.L.P 1
KAMPALA**

NAKALA: Mwl. Basukwa Philipo.

Appendix vi: Consent letter for participants

BARUA KWA WASHIRIKI [A LETTER TO THE PARTICIPANTS]

SANDUKU LA POSTA 149

MWANZA.

6/3/2022.


Ndugu mshiriki,

YAH: KUOMBA USHIRIKIANO WAKO KATIKA UTAFITI WA ELIMU

Husika na kichwa cha habari hapo juu. Mimi ni mwanafunzi wa chuo Kikuu cha Kyambogo kilichopo nchini Uganda ninasoma shahada ya uzamili ya Elimu Maalum. Ili kukamilisha shahada hii ninapaswa kufanya utafiti unaohusiana na "**Matumizi ya vifaa vya usiku na athari zake katika ujifunzaji kwa wanafunzi wa shule za sekondari.**" Hivyo ninaomba ushirikiano wako katika utafiti huu. Taarifa utakazonipatia zitatumika kwa matumizi ya kitaalum tu na si vinginevyo pia kwa usiri utazingatiwa kwa kumficha mtoa taarifa.

Natanguliza shukrani zangu za dhiti.

Wako katika ujenzi wa taifa


Philpo Basukwa

Appendix vii: Consent form for participants

FOMU YA IDHINI YA USHIRIKI [CONSENT FORM]


Ndugu mshiriki,

Mimi ni mwanafunzi wa chuo Kikuu cha Kyambogo kilichopo nchini Uganda ninasoma shahada ya uzamili ya Elimu Maalum. Ninafanya utafiti unaohusiana na **“Matumizi ya vifaa vya usiku na athari zake katika ujifunzaji kwa wanafunzi viziwi katika shule za sekondari.”** Ni matumaini yangu kwamba, matokeo ya utafiti huu yatakua chachu kwa wataalamu wa elimu kwa kuelewa nafasi ya matumizi ya vifaa vya usikivu katika ujifunzaji kwa wanafunzi viziwi. Pia utafiti huu utaiwezesha Wizara ya Elimu na wadau mbalimbali kupata taarifa ambayo itasaidia katika mipango na sera ya elimu ikiwa ni pamoja na swala zima la matumizi ya vifaa vya usikivu kwa wanafunzi shuleni.

Hivyo basi, umechaguliwa kuwa miongoni mwa washiriki wa kutoa taarifa kwa njia ya mahojiano ya ana kwa ana. Mahojiano haya yatalenga kuongelea maswali ya hali ya vifaa vya usikivu shuleni katika ujifunzaji, athari za matumizi yake katika ujifunzaji na vikwazo wanavyopata wanafunzi katika utumiaji wake wakati wa ujifunzaji darasani. Mahojiano yatakua kati ya dakika 25 hadi 30. Lengo la waraka huu ni kukuomba kushiriki katika utafiti huu. Taarifa yoyote utayoitoa itatumika kwa matumizi ya kitaalum tu na si vinginevyo pia usiri utazingatiwa kwa kumficha mtoa taarifa. Aidha, unahiari ya kujitoa katika ushiriki kama unamashaka yoyote juu ya utafiti huu.

Natanguliza shukrani zangu za dhata kwa kushiriki kwako

Wako

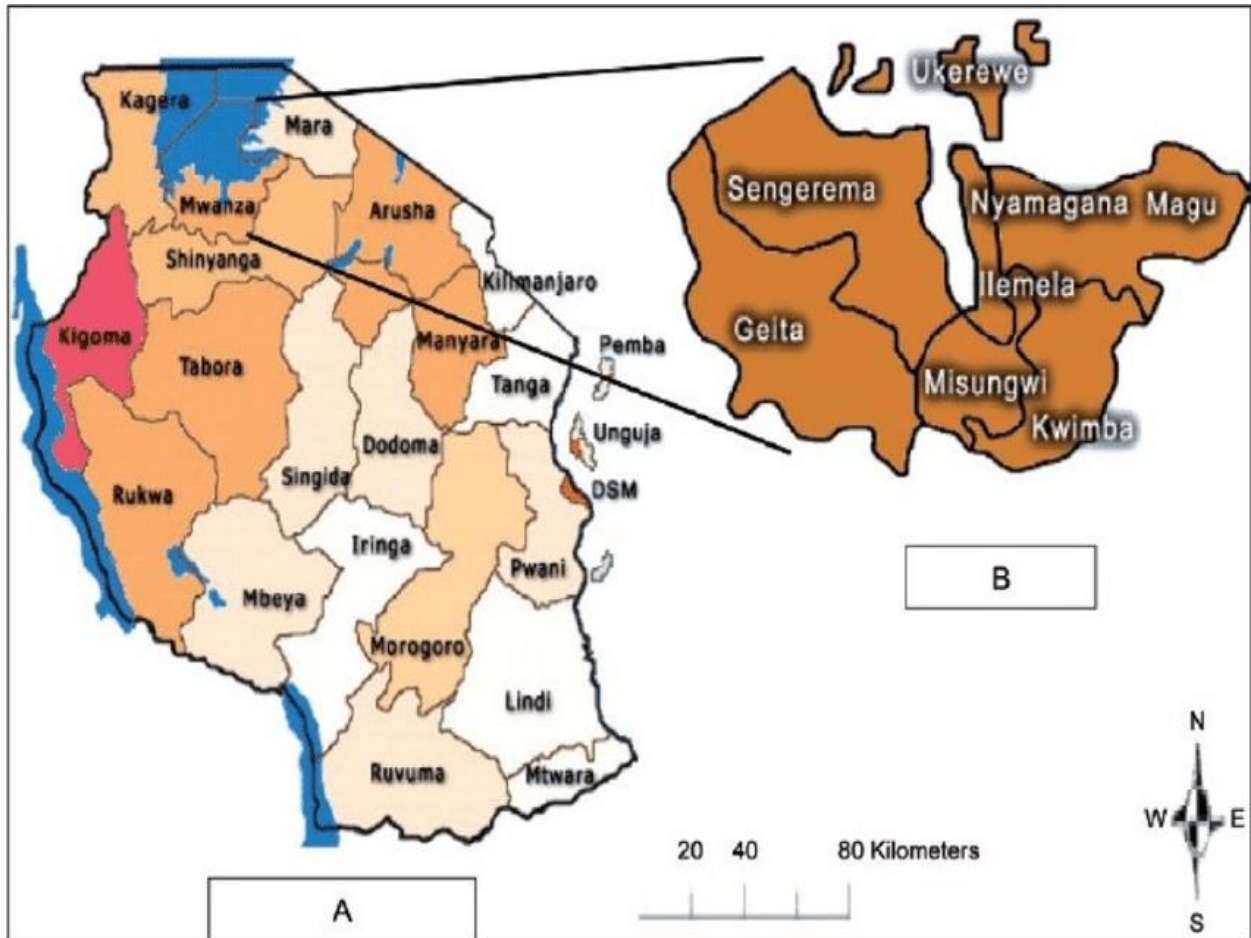

Philpo Basukwa

Uthibitisho wa kukubali kushiriki

Nimesoma na kuelewa malengo ya utafiti huu hivyo naridhia kushiriki kwa hiari

Saini..... Tarehe.....

Appendix viii: A map of Tanzania to show a selected district of the study



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