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RWANDA

# **Assessment of Accommodation of Learners with Hearing Difficulties in Nyamasheke District**

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**College of Education**  
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## **DECLARATION**

I Dieudonne Dusabimana, declare that this dissertation is an original report of my research written by me and has not been submitted for any previous degree. The experimental work is almost entirely my work; the collaborative contributions are indicated clearly and acknowledged. Due references have been provided on all supporting literature and resources. It has been passed through the anti-plagiarism system and found to be compliant.

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## **DEDICATION**

This thesis is dedicated to all my beloved parents, brothers and sisters, friends and classmates who continued to assist and give me a lot of encouragement throughout my writing of this thesis. May God bless you All.

## **ACKNOWLEDGEMENT**

This study work would not have been successful without the heartfelt moral and material support from various people. I want to extend my deepest gratitude and appreciation to all of them.

First and foremost, I would like to thank my God, the Almighty, for the gift of life, and wisdom, as well as the opportunity to study and to complete this work. Glory is to God.

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## TABLE OF CONTENTS

DECLARATION .....	i
DEDICATION .....	ii
ACKNOWLEDGEMENT .....	iii
TABLE OF CONTENTS.....	iv
ABBREVIATIONS .....	vii
LIST OF FIGURES.....	viii
LIST OF TABLES.....	ix
ABSTRACT.....	x
CHAPTER ONE .....	1
GENERAL INTRODUCTION.....	1
1.1 Introduction .....	1
1.2 Background of the Study.....	1
1.3 The purpose of this study .....	7
1.4 Statement of the Problem .....	7
1.5 Objectives of the study .....	9
1.6 Research Questions .....	9
1.7 Significance of the Study.....	10
1.8 Assumptions of the Study .....	11
1.9 Limitations of the Study .....	12
1.10 Delimitations of the Study .....	15
1.11 The Theoretical Framework.....	17
1.12 The Conceptual Framework.....	20
.....	20
1.13 Operational definitions of key terms.....	21
CHAPTER TWO .....	24
LITERATURE REVIEW .....	24
2.1 Introduction .....	24
2.2 Literature Related to the Main Concepts .....	24
2.3 Tools/Resources Used for Accommodating Learners.....	26
2.4 Teaching Approaches in Accommodating Learners.....	28
2.5 Role of Technology and Assistive Devices in Facilitating Effective Communication and Learning... 30	

2.6 Summary and Gap Identification .....	32
CHAPTER THREE .....	35
RESEARCH METHODOLOGY .....	35
3.0 Introduction .....	35
3.1 Study Setting .....	35
3.2 Research Design .....	36
3.3 Target Population.....	38
3.4 Sampling Techniques .....	39
3.5 Research Instrument.....	41
3.6 Pilot Study .....	45
3.9 Ethical Issues .....	51
CHAPTER FOUR .....	53
PRESENTATION, ANALYSIS, .....	53
AND INTERPRETATION OF RESULTS.....	53
4.0 Introduction .....	53
4.1 Response Rate.....	53
4.2 Demographic Data of Teachers.....	54
4.3 Demographic Data of Learners with Hearing Difficulties .....	55
4.4. Presentation, analysis, and interpretation of results .....	57
CHAPTER FIVE .....	84
SUMMARY, CONCLUSION, RECOMMENDATIONS .....	84
5.1 Introduction .....	84
5.2 Summary .....	84
5.3 Conclusion.....	85
5.4 Recommendations .....	86
5.5 Future Research .....	88
BIBLIOGRAPHY .....	89
APPENDICES .....	i
PERMISSION LETTER FOR THE HEADTEACHER.....	i
Questionnaire for Learners with Hearing Impairments.....	iii
Interview Guide for Learners with Hearing Impairments .....	xii
Teacher Interview Guide.....	xiv

Observation Checklist .....xviii

## **ABBREVIATIONS**

HI: Hearing Impairment

UDL: Universal Design for Learning

ZPD: zone of proximal development

IEP: Individual Education Plan

CRPD: Convention on the Rights of Persons with Disabilities

UN: United Nation

CWDs: Children with Disabilities

EDPRS: The Economic Development and Poverty Reduction Strategy

ESSP: Education Sector Strategic Plan

ICT: Information and Communications Technology

IDEA: Individual with Disabilities Education Act

MINEDUC: Ministry of Education

NCPD: National Council of Persons with Disabilities

PWDs: Persons with Disabilities

REB: Rwanda Education Board

SEN: Special Educational Needs

SNE: Special Needs Education

UNESCO: United Nations Educational, Scientific and Cultural Organization

WHO: World Health Organization

## LIST OF FIGURES

Figure 1 Learners' Responses on the Availability of Tools and Resources .....	58
Figure 2 Frequency of Using Different Teaching Approaches .....	68
Figure 3 Effectiveness of Teaching Methods .....	70
Figure 4 Figure 3: Teachers' Responses on the Use of Assistive Technologies in Teaching .....	79
Figure 5 Learners' Responses on the Use of Assistive Devices and Technology for Learning .....	80

## LIST OF TABLES

Table 1 Total number of students with hearing impairments .....	38
Table 2 Total number of teachers. ....	39
Table 3 Distribution of students with hearing impairments across primary school classes.....	56
Table 4 Total number of teachers. ....	56
Table 5 Learners' Responses on the Availability of Tools and Resources .....	57
Table 6 Teachers' Responses on Teaching Approaches for Learners with Hearing Difficulties .....	68
Table 7 Learners' Responses on the Effectiveness of Teaching Methods .....	69
Table 8 Responses from Teachers (n=22) on the Use of Assistive Technologies .....	79
Table 9 Responses from Learners with Hearing Difficulties (n=30) on the Use of Assistive Devices .....	79

## **ABSTRACT**

This mixed-methods study aimed to assess the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda. Despite efforts towards inclusive education, learners with hearing impairments continue to face barriers in accessing quality education. The study objectives were to examine the tools/resources used, teaching approaches employed, and the role of technology and assistive devices in facilitating effective communication and learning for these learners.

The research utilized questionnaires, interviews, and observation checklists to collect data from teachers, learners, and head teachers. Quantitative findings revealed the widespread use of visual aids, but highlighted the absence of essential tools such as smartboards, cochlear implants, and lesson transcripts. Teaching approaches included the use of sign language, visual instruction, written communication, and interactive learning, but the incorporation of assistive technologies was limited. Qualitative insights indicated varying proficiency levels in sign language among teachers, concerns regarding the availability and functionality of assistive devices, and the need for ongoing teacher training.

The study identified significant gaps, including the lack of access to key tools and resources, inconsistent availability and use of assistive technologies across classrooms, and the need for professional development opportunities for teachers. Recommendations encompass the acquisition of essential tools, provision of ongoing teacher training, development of individualized education plans, collaboration with specialists and families, and advocacy for inclusive education policies and practices.

To effectively accommodate learners with hearing difficulties, a comprehensive approach involving all stakeholders is necessary. By addressing the identified gaps and implementing the recommended strategies, educational institutions in Nyamasheke District can create a more inclusive and equitable learning environment that supports the academic success and overall well-being of these learners. Future research should explore the long-term impact of accommodations, examine the perspectives of parents and caregivers, investigate effective professional development

models, and conduct comparative studies to identify best practices in inclusive education for learners with hearing difficulties.

# **CHAPTER ONE**

## **GENERAL INTRODUCTION**

### **1.1 Introduction**

This chapter presents the background of the study, statement of the research problem, purpose of the study, objectives, research questions, significance of the study, limitations, delimitations, assumptions, theoretical and conceptual frameworks, and defines key operational terms.

### **1.2 Background of the Study**

Hearing difficulties, also known as hearing impairment or hearing loss, refer to the partial or total inability to hear sounds in one or both ears (WHO, 2021). Hearing difficulties can affect the development of language, communication, cognition, and social skills of individuals, especially children, who may face challenges in accessing education and participating in society (UNESCO, 2019). According to the World Health Organization (WHO), over 5% of the world's population, or about 430 million people, require rehabilitation services for their disabling hearing loss, and this number is projected to increase to over 700 million by 2050 (WHO, 2021). Nearly 80% of people with disabling hearing loss live in low- and middle-income countries, where they often lack access to adequate ear and hearing care services and assistive devices (WHO, 2021).

One of the strategies to address the needs of people with hearing difficulties is to provide them with inclusive education, which is defined as “a process of strengthening the capacity of the education system to reach out to all learners” (UNESCO, 2009). Inclusive education aims to ensure that all learners have equal opportunities to learn and participate in quality education that respects their diversity and responds to their individual needs (UNESCO, 2019). Inclusive education also benefits learners without disabilities, as it fosters a culture of respect, collaboration, and inclusion among all members of the learning community (UNESCO, 2019).

However, implementing inclusive education for learners with hearing difficulties poses many challenges and requires various accommodations and adaptations in the teaching and learning processes. Some of the challenges include: lack of awareness and knowledge about hearing difficulties among educators and peers; lack of appropriate tools and resources for communication

and instruction; lack of accessible and adaptable curriculum and assessment; lack of supportive and conducive learning environment; lack of professional development and training opportunities for educators; and lack of collaboration and coordination among stakeholders (ASHA, 2020; Eriks-Brophy et al., 2012; Xie et al., 2014).

The East African Community (EAC) is a regional intergovernmental organization comprising six partner states: Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda. The EAC has a population of about 177 million people, of whom about 44% are under 15 years old (EAC, 2020). The EAC has a vision of “a prosperous, competitive, secure, stable and politically united East Africa” and a mission of “widening and deepening economic, political, social and cultural integration to improve the quality of life of the people of East Africa” (EAC, 2020). One of the objectives of the EAC is to promote the development and protection of human and peoples’ rights in accordance with the provisions of the African Charter on Human and Peoples’ Rights (EAC Treaty, Article 6).

However, people with disabilities, including those with hearing difficulties, face multiple barriers and discrimination in accessing their rights and opportunities in the EAC. According to a report by UNICEF (2017), only 9% of children with disabilities in East Africa attend primary school, compared to 72% of children without disabilities. The report also found that children with disabilities are more likely to experience violence, abuse and neglect than their peers without disabilities. Moreover, people with disabilities are often excluded from decision-making processes and participation in social and economic activities. The report highlighted the need for more data and evidence on the situation of people with disabilities in East Africa to inform policies and programmes that address their needs and rights.

One of the strategies to address the needs of people with disabilities is to provide them with inclusive education, which is defined as “a process of strengthening the capacity of the education system to reach out to all learners” (UNESCO, 2009). Inclusive education aims to ensure that all learners have equal opportunities to learn and participate in quality education that respects their diversity and responds to their individual needs (UNESCO, 2019). Inclusive education also benefits learners without disabilities, as it fosters a culture of respect, collaboration, and inclusion among all members of the learning community (UNESCO, 2019).

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Rwanda is a low-income country in East Africa with a population of about 12.6 million people, of whom about 41% are under 15 years old (World Bank, 2020).

Rwanda is committed to the right to education for people with disabilities, as shown by its ratification of the UN Convention on the Rights of Persons with Disabilities (CRPD) in 2008 and its establishment of the National Council for People with Disabilities (NCPD) (UNICEF, 2017). The CRPD recognizes the rights of persons with disabilities to freedom of expression, communication, and education, and calls for the provision of accessible information, services, and sign languages, as well as the training of teachers and professionals who can support learners with disabilities (UN, 2006).

Rwanda has achieved universal primary education, reduced child mortality, improved maternal health, and reduced poverty and inequality (World Bank, 2020). Rwanda has also committed to the Sustainable Development Goals (SDGs), which include ensuring inclusive and equitable quality education for all by 2030 (UNDP, n.d.).

However, people with disabilities, including those with hearing difficulties, still face many barriers and discrimination in accessing their rights and opportunities in Rwanda. According to the 2012 Population and Housing Census, about 5% of the population has some form of disability, and about 0.7% has a hearing disability (NISR, 2014). People with disabilities are more likely to be poor, illiterate, unemployed, and socially excluded than their peers without disabilities (NCPD & UNICEF, 2016). People with disabilities also face challenges in accessing health care, education, employment, social protection, justice, and participation in decision-making processes (NCPD & UNICEF, 2016).

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To overcome these challenges and provide effective accommodation for learners with hearing difficulties, some of the best practices include: using clear face masks or transparent shields to facilitate lip-reading and visual cues; using visual presentations and learning materials to supplement auditory information; using assistive devices such as hearing aids, cochlear implants, or FM systems to amplify sound; using sign language or other preferred means of communication; providing notes and transcripts of lectures and discussions; ensuring comfortable lighting and reduced background noise; arranging seating in a way that allows optimal visibility and audibility; using interactive and cooperative learning strategies; providing individualized feedback and support; addressing the learner directly and not through an interpreter; involving parents, peers, specialists, and other professionals in the learning process; and providing ongoing professional development and training for educators on how to accommodate learners with hearing difficulties (ASHA, 2020; Crouse, n.d.; Eriks-Brophy et al., 2012; Rev.com, n.d.).

In Rwanda, there are inclusive schools like Ntendezi Primary School. These schools were established to implement inclusive policies in education. Ntendezi Primary School, founded in 2010, stands as a beacon of inclusive education in Nyamasheke District, Rwanda. Rooted in the

fundamental belief of "Education for all," this institution was conceived to provide inclusive and high-quality education, with a specific focus on learners facing various learning difficulties, including those with hearing impairments. This educational institution is renowned for its inclusive approach, as it opens its doors to students with hearing impairments. Additionally, it houses a specialized centre known as Alivera.

The school's establishment marked a significant step towards dismantling barriers and creating an educational environment where every child, regardless of their unique challenges, could access the transformative power of education. Beyond the classroom, Ntendezi Primary School embarked on a mission to reshape perceptions and foster inclusive practices, thereby contributing to a more equitable and inclusive society. This mission, underpinned by the school's remarkable journey, serves as the central theme of the research conducted within its walls. The research endeavours to illuminate the tools and strategies employed to accommodate learners with hearing difficulties and the noteworthy milestones achieved on this transformative journey.

The historical narrative of this school is intrinsically connected to the core objectives of the research, illuminating its journey, challenges, achievements, and evolving approach to inclusive education.

**Foundation and Establishment:** The school's founding in 2010 marked the commencement of its mission to provide inclusive education. The founders' vision was to establish an educational system that caters to learners with various learning difficulties, thus laying a strong foundation for the research's primary objective of examining the tools and resources used for accommodating learners with hearing difficulties.

**Early Years:** The initial years were marked by significant challenges as the institution embarked on its journey towards inclusive education. It faced multifaceted hurdles, including deeply ingrained negative attitudes from peers, teachers, the community, and even parents. There were low expectations for students with hearing impairments, and teachers lacked the necessary training. This period resonates with the research's second objective, which delves into the teaching approaches used for accommodating learners with hearing difficulties.

The lack of sign language interpreters further compounded the challenges, hindering students' participation in class activities. Students themselves often lacked awareness of sign language, a situation exacerbated by their disadvantaged family backgrounds. In these early years, there was limited awareness and support from the government, with most assistance coming from a handful

of private stakeholders and development partners. Parents, in some instances, held expectations of financial support for their children due to their disabilities. However, the institution persevered, gradually overcoming these obstacles. Today, it is seeing success with a small number of teachers who have undergone sign language training and acquired other teaching strategies. These successes and ongoing challenges are closely linked to the research's objectives, particularly the examination of teaching approaches and professional development opportunities for educators.

**Milestones and Achievements:** Notably, the introduction of basic sign language training for teachers brought about a positive change in communication among students and the broader community. Today, some students are passing the National Primary Leaving Exams, showcasing their potential and capability for academic success. These milestones are directly connected to the research's objectives, emphasizing the role of technology, professional development, and teaching approaches in facilitating effective communication and learning for students with hearing difficulties.

**Architectural Development:** Recognizing the importance of accessibility, the institution made changes in its infrastructure. This included adjustments in classroom seating arrangements to ensure that learners with hearing disabilities can have clear views of teachers and interpreters. These architectural developments directly correlate with the research's third objective concerning the teaching and learning environment.

**Prominent Figures:** Key influencers in the education of learners with hearing impairments include the dedicated school staff, the Alvera Centre, Rwanda Action, supportive parents, classmates, and government stakeholders. These influential figures reflect the collaborative aspect of inclusive education and connect with the research's fourth objective, which explores the role of technology and assistive devices in facilitating effective communication and learning.

**Academic Evolution:** The institution has been transitioning to a more inclusive approach to education. While challenges persist, efforts are underway to use sign language, visual aids, and technology like the XO laptop to facilitate learning. This academic evolution aligns with the research's primary objective of examining the tools and resources used for accommodating learners with hearing difficulties.

**Alumni Achievements:** Notable alumni have found success in various fields, including customer care, shoemaking, hairdressing, and tailoring. However, there is a shared aspiration for these students to pursue higher education, contingent upon the official recognition of sign language in

schools and services. This aspiration directly relates to the research's fifth objective related to professional development and training opportunities.

**Cultural Significance:** The institution's journey has begun to impact the local community by fostering a change in mindset among parents and the broader community regarding people with hearing disabilities and other special needs. The cultural significance underscores the global perspective of the research, which aims to establish the significance of the study beyond local boundaries.

**Recent Developments:** Initiatives such as the Special Needs Education (SNE) Policy and the Education Sector Strategic Plan (ESSP) 2017/8-2024/5 demonstrate an evolving commitment to inclusive education in response to changing needs. These recent developments closely align with the research's primary objective, highlighting the need to examine the tools and resources used for accommodating learners with hearing difficulties.

This contextual background, rooted in the history and journey of Ntendezi Primary School, serves as a comprehensive foundation for understanding the institution's efforts in addressing the educational needs of students with hearing impairments in Nyamasheke District, Rwanda. It directly sets the stage for the study's primary objectives, allowing for a deeper exploration of the tools, approaches, and challenges in accommodating these learners.

### **1.3 The purpose of this study**

The purpose of this study was to assess the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda, by examining the tools/resources, teaching approaches, and role of technology/assistive devices used to support their educational needs. The study aimed to identify current practices, gaps, and opportunities for enhancing inclusive education for these learners, thereby contributing to the development of evidence-based strategies and policies that promote their academic success and overall well-being.

### **1.4 Statement of the Problem**

The quality of education for all learners should be high and inclusive, regardless of their abilities or disabilities (UNESCO, 2019). However, learners with hearing difficulties face many barriers

and challenges in accessing and participating in quality education in Nyamasheke District, Rwanda. According to the 2012 Population and Housing Census, about 0.7% of the population in Nyamasheke District has a hearing disability (NISR, 2014). These learners often encounter difficulties in communication, instruction, curriculum, assessment, environment, and professional development (ASHA, 2020; Eriks-Brophy et al., 2012; Xie et al., 2014). This problem leads to poor learning outcomes, low self-esteem, social isolation, and limited opportunities for learners with hearing difficulties, as well as a loss of human potential and social justice for the society (UNICEF, 2017). Therefore, this study aims to assess the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda.

The ideal situation is one where learners with hearing difficulties in Nyamasheke District have equal access to quality education and can fully participate in the learning process. This would involve the provision of appropriate tools, resources, and accommodations to support their unique learning needs, ensuring they have the opportunity to reach their full academic potential.

Currently, learners with hearing difficulties in Nyamasheke District face numerous barriers and challenges that hinder their access to quality education and their ability to fully engage in the learning process. These challenges include a lack of appropriate tools and resources for communication and instruction, limited accessibility and adaptability of the curriculum and assessment methods, unsupportive learning environments, and inadequate professional development opportunities for educators to effectively accommodate these learners.

The consequences of not adequately accommodating learners with hearing difficulties are significant. These learners may experience poor learning outcomes, leading to lower academic achievement and limited future opportunities. Additionally, they may face social isolation, low self-esteem, and a reduced sense of belonging within the school community. On a societal level, failing to accommodate these learners results in a loss of human potential and perpetuates social injustice.

This research aimed to address the challenges faced by learners with hearing difficulties in Nyamasheke District by assessing the current state of accommodation and identifying areas for

improvement. By examining the tools, resources, teaching approaches, and the role of technology and assistive devices, this study seeks to provide evidence-based recommendations for enhancing inclusive education practices. The ultimate goal is to contribute to the development of strategies and policies that promote the academic success and overall well-being of learners with hearing difficulties in Nyamasheke District and beyond.

### **1.5 Objectives of the study**

This study is guided by the following specific objectives:

1. To examine the tools/resources used to accommodate learners with hearing difficulties in the Nyamasheke district.
2. To find out the teaching approaches used in accommodating learners with hearing difficulties to achieve learning outcomes.
3. To analyze the role of technology and assistive devices in facilitating effective communication and learning for students with hearing difficulties in the Nyamasheke district.

### **1.6 Research Questions**

1. What are the tools/resources used to accommodate learners with hearing difficulties in Nyamasheke District, Rwanda?
2. What are the teaching approaches used to accommodate learners with hearing difficulties and achieve learning outcomes in Nyamasheke District, Rwanda?
3. What is the role of technology and assistive devices in facilitating effective communication and learning for students with hearing difficulties in Nyamasheke District, Rwanda?

## 1.7 Significance of the Study

The study titled "ASSESSMENT OF ACCOMMODATION OF LEARNERS WITH HEARING DIFFICULTIES IN NYAMASHEKE DISTRICT" bears substantial significance not only to the targeted geographical locale but also extends its relevance to a variety of stakeholders globally.

- This study will offer profound insights into the nuances of inclusive education, especially concerning learners with hearing difficulties. By meticulously examining the existing provisions and facilities, it can provide a roadmap to fortify the educational framework that caters to the needs of such learners, fostering a more inclusive and accessible learning landscape globally.

- At a policy level, the Ministry of Education stands to gain comprehensive data and findings that can fuel data-driven policy formulations. This study will offer a grounded understanding of the on-ground realities, allowing for the creativity of targeted interventions that can significantly enhance the learning experience for learners with hearing difficulties, potentially reshaping educational trajectories globally.

- Armed with the knowledge derived from this study, curriculum developers across the world can foster curricula that are consciously designed to be inclusive. Through this, a seamless learning pathway that considers the distinct needs and preferences of learners with hearing difficulties can be facilitated, marking a monumental step in global education.

- Teachers, the cornerstone of the educational ecosystem, will find this study to be a rich resource in understanding the pivotal role of accommodations in teaching. The study can function as a blueprint in crafting teaching methodologies that are universally designed, thus enabling teachers globally to create classrooms that are nurturing and inclusive.

- Students globally can refer to this study as a testament to the possibilities that accommodations can unlock. It serves as a beacon of hope, encouraging learners with hearing difficulties to aspire for and attain their educational goals, fostering a generation of resilient learners who are equipped to carve out their paths in the academic sphere.

- Lastly, the global research community will find in this study a robust foundation for further exploration. It opens up avenues for a rich array of scholarly endeavors aimed at enhancing the learning experiences for students with hearing difficulties globally.

### **1.8 Assumptions of the Study**

To construct a meaningful framework for the "ASSESSMENT OF ACCOMMODATION OF LEARNERS WITH HEARING DIFFICULTIES IN NYAMASHEKE DISTRICT" study, it is imperative to establish a set of assumptions that underlie the research process. These assumptions create a foundation that supports the objectives and methodology of the study:

- Availability of Relevant Data: The study assumes that there is existing data and resources about the educational accommodations for learners with hearing difficulties in the Nyamasheke district. This implies the existence of records, statistical data, educational materials, and other pertinent documents which would be integral in painting a comprehensive picture of the current state of educational accommodations.

- Homogeneous Hearing Difficulties: It is assumed that students with hearing difficulties have a relatively homogeneous set of needs and challenges. This assumption is critical to developing strategies and policies that can cater to a wider demographic, although it might potentially overlook the individual nuances of different learners.

- Willingness to Participate: The study presupposes that the educators, students, and other stakeholders in the Nyamasheke district would be willing to actively and honestly participate in the study. Their feedback and inputs would be vital in achieving the objectives outlined in the study.

- Transferability of Global Insights: Another assumption of the study is the applicability and transferability of global insights and strategies to the context of Nyamasheke district. This assumption is built on the premise that learnings and best practices from a global perspective can

be adapted and implemented effectively in the local context to enhance the learning environment for students with hearing difficulties.

- **Technology Accessibility:** The study presumes that there is a substantial level of accessibility to technology and assistive devices for learners with hearing difficulties in the Nyamasheke district, or at least a viable pathway to facilitate this accessibility. This is pivotal to examining the role of technology and assistive devices in fostering an effective learning environment.

- **Existence of Professional Development Programs:** It is assumed that there are existing professional development and training opportunities for educators in the Nyamasheke district. This is central to assessing and potentially enhancing the current provisions for the professional development of educators in accommodating learners with hearing difficulties.

- **Positive Impact of Accommodation Strategies:** The study operates on the assumption that accommodation strategies have a generally positive impact on the learning outcomes of students with hearing difficulties. This foundational belief drives the study's focus on assessing and enhancing accommodation measures in the educational landscape of Nyamasheke district.

Understanding these assumptions is key in shaping the direction of the research and interpreting its findings appropriately. They provide a baseline that guides the investigative process while acknowledging the potential limitations that may arise during the study. These assumptions must be kept in mind while designing the research methodology and analyzing the derived data to construct a study that is both grounded in reality and optimistically forward-looking in its approach to fostering inclusive education.

## **1.9 Limitations of the Study**

The study on the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda, may encounter several limitations, as described below:

### **1. Sample Representation**

- Description: The study might potentially involve a limited number of participants, which may not fully represent the diverse experiences and needs of all learners with hearing difficulties in the district.

- Impact: The findings may not be generalizable to a larger population, thus restricting the broader applicability of the results.

## 2. Resource Constraints

- Description: Due to budgetary and time constraints, the study might not be able to cover all schools in the Nyamasheke District or procure all necessary assistive devices for comprehensive assessment.

- Impact: The scope of the study might be limited, potentially overlooking critical perspectives or not assessing all pertinent assistive devices.

## 3. Data Collection

- Description: The study may rely heavily on self-reported data from teachers, parents, and students, which can sometimes be subjective and potentially biased.

- Impact: The data collected might not precisely reflect the actual state of affairs, influencing the reliability and validity of the findings.

## 4. Technological Limitations

- Description: In a region where technological infrastructure might be underdeveloped, evaluating the role of technology and assistive devices adequately could be challenging.

- Impact: This could limit the depth of analysis regarding the role of modern technological aids in enhancing learning for students with hearing difficulties.

## 5. Cultural Sensitivities

- Description: The study may encounter reservations from participants due to cultural sensitivities surrounding disability and inclusivity.

- Impact: This could potentially lead to a reluctance to participate or the provision of inaccurate information, thereby affecting the quality of data.

## 6. Policy and Legal Framework

- Description: The changing policy and legal framework in Rwanda might pose a challenge in establishing stable benchmarks for the study.

- Impact: Fluctuating policies can affect the consistency and longevity of the study's implications.

## 7. COVID-19 Pandemic

- Description: The ongoing COVID-19 pandemic may impose restrictions on physical visits and interactions, hindering data collection.

- Impact: The research process might be slowed down, and primary data collection might be limited, affecting the comprehensiveness of the study.

Considering these limitations is essential to conducting a realistic and grounded study, preparing the researchers to navigate potential challenges effectively and acknowledging the scope within which the findings would be applicable. It will be pivotal to design strategies that can mitigate these limitations to the greatest extent possible, ensuring the production of a robust and insightful research output.

## **1.10 Delimitations of the Study**

In striving to maintain a focused and manageable scope for the research on the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda, the following delimitations have been established:

### **1. Geographical Boundaries**

- Description: The study will specifically be conducted in Nyamasheke District, and will not extend to other districts of Rwanda.

- Impact: Focusing on one district will allow for a detailed and deep analysis of the educational provision in that specific geographical context, albeit at the expense of wider generalizability.

### **2. Target Population**

- Description: The research will predominantly target learners with hearing difficulties, alongside teachers and educational stakeholders within the district, exclusively focusing on their experiences and perspectives.

- Impact: This focus facilitates a deep understanding of the experiences and needs of this particular group, while not considering the broader community's perspectives, including those without hearing difficulties.

### **3. Time Frame**

- Description: The study will be time-bound to a specific period (to be determined), during which the data collection and analysis will occur.

- Impact: The set time frame may restrict the study from capturing changes and developments that occur outside this period, potentially affecting the longitudinal relevance of the findings.

#### 4. Technological Assistive Devices

Description: The study will scrutinize the role of current technologies and assistive devices available and utilized in Nyamasheke District, without extending to emerging technologies not yet deployed in the district.

Impact: This boundary ensures a grounded understanding of the existing situation, although it may limit insights into potential future developments and opportunities arising from emerging technologies.

#### 5. Curriculum Focus

Description: The research will address the current curriculum in use, examining the tools, resources, and teaching approaches pertinent to it, without delving into potential future curricular reforms.

Impact: The focus on the current curriculum will enable a precise evaluation of existing practices, yet may not provide foresight into the implications of impending curricular adjustments.

#### 6. Methodological Choices

Description: The study will utilize specific research methods and approaches (to be detailed in your methodology section), without engaging in every possible research methodology.

Impact: This delimitation allows the study to maintain a structured, coherent methodological approach, although it may overlook insights that alternative methodologies might have unveiled.

Identifying these delimitations aids in defining the scope of your study clearly and justifiably, helping readers to understand the specific focus and boundaries of your research. It guides the research process, ensuring that it remains aligned with the predefined objectives and facilitating a concentrated analysis that delves deeply into the specified areas of interest.

### **1.11 The Theoretical Framework**

The theoretical foundation of this study "ASSESSMENT OF ACCOMMODATION OF LEARNERS WITH HEARING DIFFICULTIES IN NYAMASHEKE DISTRICT" leverages the principles rooted in both change theory and Vygotsky's theory of socio-cultural influence on cognitive development. This dual theoretical approach ensures a holistic understanding of the complex dynamics involved in accommodating learners with hearing impairments.

#### **Change Theory**

In the backdrop of a rapidly evolving digital age where societal differentiations are escalating, the educational sector is grappling with the pressing need for substantial changes in both curriculum and teaching methods to suit the requirements of the 21st century. The change theory necessitates a shift from traditional teaching methods to more interactive and student-centric strategies that foster critical and creative thinking, encouraging learners to find solutions to the problems they will inevitably face in the future (Pennsylvania, 1994-2005).

In the context of the Nyamasheke district, this implies a renewed focus on developing curricular materials that are adaptable to the needs and potentialities of learners with hearing difficulties, fostering a learning environment that nurtures their creative potential and aids in the holistic development of their personality.

#### **Vygotsky's Socio-Cultural Theory**

Vygotsky postulated that learning is a deeply social activity, and cognitive development is significantly influenced by social interactions. This notion introduces the core concepts of the Zone of Proximal Development (ZPD) and scaffolding.

### **Zone of Proximal Development (ZPD)**

The ZPD represents a level where learners can accomplish tasks with assistance but not independently (Robbins, 2001). In the context of learners with hearing difficulties, this would signify a concerted effort to identify the individual ZPDs of these learners and develop strategies that cater to their specific needs, allowing for a collaborative learning environment that supports their cognitive growth.

### **Scaffolding**

Supporting the learning process through a series of temporary aids or scaffolds is central to this theory. The scaffolds help maintain the learner within their ZPD, facilitating a gradual growth in their capabilities (O'Neill, 2000). Leveraging technology, like speech synthesis or voice recognition software, can be instrumental in creating scaffolds for learners with hearing difficulties, ensuring their effective integration into the mainstream educational landscape (Nolet & McLaughlin, 2000).

For learners in Nyamasheke district, adopting a scaffolded approach through the integration of assistive technological tools can foster a supportive learning ecosystem, aiding them in overcoming barriers posed by their disabilities and ensuring an equitable learning opportunity.

### **Implications for the Educational Setup**

Aligning with the principles articulated in the Individuals with Disabilities Education Act (IDEA, 1997), this theoretical framework underscores the necessity for a collaborative approach in education, with significant emphasis on understanding and catering to the individual needs of

learners. It advocates for a student-centred, problem-based learning model where students take an active role in their learning journey.

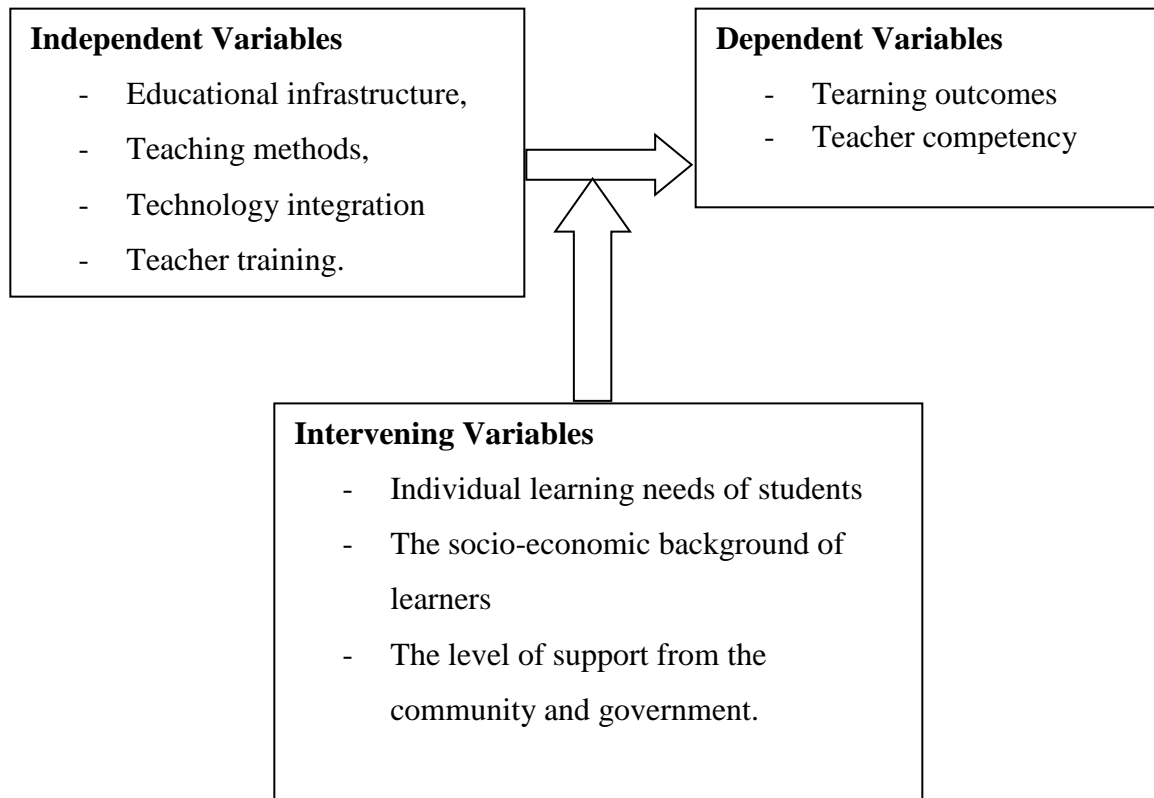
Teachers are envisioned not as dictators but as guides, fostering values and helping unearth the creative potentials of the students (Udvari-Solnar and Thousand, 1996, pp. 188-192). This necessitates a radical transformation in teaching methodologies, steering away from a passive learning model to one that encourages active participation and collaboration.

In the Nyamasheke district, the onus is thereby on the educational institutions to foster environments that not only accommodate but actively support learners with hearing difficulties, ensuring they can seamlessly progress in the general curriculum and successfully demonstrate their competencies in assessments.

## **Conclusion**

The theoretical framework delineated herein, rooted deeply in change theory and Vygotsky's socio-cultural theory, provides a robust ground for understanding and analyzing the current accommodations for learners with hearing difficulties in Nyamasheke district, Rwanda. It directs attention to the urgency for adaptable curriculum materials, the active role of learners in the educational process, and the indispensable role of technology and scaffolding in promoting inclusive education. By adhering to this framework, the study aspires to carve pathways that would enable learners with hearing difficulties in the Nyamasheke district to attain educational experiences that are both enriching and empowering, laying down foundations for a future where every learner is endowed with the skills and knowledge to navigate the complex world.

## 1.12 The Conceptual Framework



### Independent Variables

The independent variables in this conceptual framework include the educational infrastructure, teaching methods, technology integration, and teacher training. These variables can be manipulated or changed to influence the dependent variables.

### Dependent Variables

The dependent variables are the learning outcomes and teacher competency. These variables are expected to change in response to the manipulations in the independent variables.

## **Intervening Variables**

Intervening variables are factors that may influence the relationship between the independent and dependent variables. In this context, they could include the individual learning needs of students, the socio-economic background of learners, and the level of support from the community and government.

By examining the interplay of these variables and the dynamic processes outlined in the framework, the study aims to provide a comprehensive understanding of the current state of accommodation for learners with hearing difficulties in the Nyamasheke district. This understanding will serve as a foundation for developing targeted interventions and policies that can enhance the educational experiences and outcomes for these learners.

### **1.13 Operational definitions of key terms**

#### **1. Accommodation**

Educational Context: Adjustments and supports implemented to aid learners with hearing difficulties in accessing the curriculum fully, such as using assistive technologies or adapting teaching strategies (Friend & Bursuck, 2018).

#### **2. Learners with Hearing Difficulties**

Educational Context: Individuals who have hearing impairments that considerably hinder their ability to process auditory information, which can affect their learning trajectory (Marschark, Tang, & Knoors, 2014).

#### **3. Assistive Devices**

Technological Context: Technological aids designed to facilitate learning for individuals with hearing difficulties, encompassing a range of tools like hearing aids and captioned media (Cook & Polgar, 2014).

#### 4. Inclusive Education

Pedagogical Context: An education framework where learners, including those with disabilities, can learn in a supportive environment with adjustments made to cater to individual requirements (Florian, 2014).

#### 5. Zone of Proximal Development (ZPD)

Psychological Context: Stemming from Vygotsky's theory, it refers to the developmental window where a learner can perform a task with guidance but not independently (Vygotsky, 1978).

#### 6. Scaffolding

Educational Context: The support provided by educators to help students undertake tasks they could not accomplish alone, facilitating growth and independence in learning (van de Pol, Volman, & Beishuizen, 2010).

#### 7. Universal Design for Learning (UDL)

Pedagogical Context: A structured framework rooted in cognitive neuroscience to facilitate diverse learning environments and adapt to individual learning differences (Rose & Meyer, 2002).

#### 8. Individuals with Disabilities Education Act (IDEA, 1997)

Legislative Context: U.S legislation ensures the educational rights of students with disabilities, offering tailored educational plans to suit individual needs (Yell, Rogers, & Rogers, 1998).

## 9. Individual Education Plan (IEP)

Educational Context: A personalized education strategy for students under IDEA, outlining specific objectives and necessary accommodations to support the student's learning needs (Yell et al., 1998).

## 10. Collaborative Learning

Pedagogical Context: An approach to learning where students work together in groups to pursue a common goal, enhancing understanding through collective effort (Gillies, 2016).

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter seeks to elucidate the various literatures pertinent to the study, shedding light on previous works and existing knowledge related to the accommodation of learners with hearing difficulties in inclusive educational environments. This review aligns with the specific objectives delineated in the introductory chapter, aiming to identify the gaps and underscore the uniqueness of this study in its contribution to the field.

#### **2.2 Literature Related to the Main Concepts**

In this section, we will probe deeply into the core concepts that underpin this study, critically examining a variety of scholarly and empirical works to create a strong foundation for our research. The main concepts to explore are inclusive education, the specific needs of learners with hearing difficulties, and the diverse strategies and tools currently employed to facilitate effective learning for these students. Let us delve into each in turn.

##### **2.2.1 Inclusive Education**

In the sphere of inclusive education, scholars and educators globally are advocating for a system where learners, regardless of their physical abilities or disabilities, learn together in a nurturing environment (Ainscow, Booth, & Dyson, 2006). UNESCO (2009) delineated the pivotal role inclusive education plays in fostering societal cohesion and mutual respect among learners. It stresses that inclusive education should be viewed not as a marginal issue but as a central, categorical concern that influences all education policies and practices. Hence, inclusive education emerges as a powerful strategy to foster equity and equality in educational settings, allowing students with hearing difficulties to learn alongside their peers in a conducive environment. Further, Florian and Black-Hawkins (2011) posit that the inclusive approach to teaching and

learning is about being flexible, thus accommodating a diverse range of learning needs and preferences.

### **2.2.2 Learners with Hearing Difficulties**

Understanding the learners with hearing difficulties is a cardinal step in delineating strategies to foster their learning. Moores (2001) discusses the complex landscape that hearing difficulties present in the learning environment. These learners have a different trajectory in language acquisition, and it is incumbent upon the educational system to facilitate a learning pathway that leverages their strengths and mitigates their weaknesses. Moreover, Antia, Jones, Luckner, Kreimeyer, and Reed (2011) stress the importance of early intervention strategies in boosting the educational outcomes of learners with hearing difficulties.

### **2.2.3 Accommodation Strategies and Tools**

Accommodation strategies and tools are paramount in fostering the inclusivity of learners with hearing difficulties. Stanovich and Jordan (2002) affirm the efficacy of differentiated instruction in enhancing learning outcomes for all students, including those with hearing impairments. Assistive technologies, such as hearing aids and FM systems, have revolutionized the learning experiences for these students, according to Luckner and Muir (2001).

Furthermore, collaboration between general and special education teachers is seen as a crucial strategy in accommodating learners with hearing difficulties (Friend & Bursuck, 2012). It encompasses shared teaching responsibilities, where teachers work together in planning, instructing, and assessing students, thus catering to the diverse needs present in an inclusive classroom.

## **Conclusion**

In conclusion, understanding the rich tapestry of inclusive education, the unique learning paths of students with hearing difficulties, and the various strategies and tools available to accommodate

these learners is essential. This forms the basis of our exploration into the educational landscape of Nyamasheke district, Rwanda, aiming to pave a fruitful path forward for inclusive education that honors the diverse range of learners present in educational settings.

## **2.3 Tools/Resources Used for Accommodating Learners**

### **Introduction**

Objective one of the study is to scrutinize the diversity of tools and resources that are currently employed in the Nyamasheke district to accommodate learners with hearing difficulties. To do this, it is essential to understand the global landscape of the tools and resources that have proven effective in inclusive educational environments.

### **2.3.1 Scholarly Perspectives on Tools and Resources**

#### **Technological Tools**

Modern education systems have seen a proliferation of technological tools designed to assist learners with hearing impairments. These range from simple devices such as hearing aids to sophisticated systems such as cochlear implants (Marschark, Lang, & Albertini, 2002). According to Stinson and Antia (1999), the integration of these technological advancements into educational settings has been a game-changer, with improvements noted in both academic achievement and social integration for learners with hearing difficulties.

#### **Printed Resources**

Printed resources such as textbooks and visual aids tailored to meet the needs of learners with hearing difficulties have also played a pivotal role. Engaging illustrations and larger fonts can aid in the comprehension and retention of the content (Guardino & Antia, 2012). These researchers affirm the significance of these resources in ensuring that learners with hearing difficulties can access the curriculum effectively.

## **Interactive Tools**

Interactive tools such as touchscreen devices and interactive whiteboards have been identified as useful resources. Research conducted by Squires, Hu, Ye, McDermott, and Wallace (2013) underscored the effectiveness of these tools in enhancing interactive learning experiences for learners with hearing difficulties. These tools provide an avenue for hands-on learning, encouraging active participation and engagement.

### **2.3.2 Global Perspectives on Tools and Resources**

Different regions across the globe have adopted varied strategies in terms of the tools and resources used to accommodate learners with hearing difficulties. In developed countries, there has been an emphasis on high-tech solutions, including state-of-the-art hearing aids and cochlear implants which have dramatically enhanced the learning experiences of these students (Spencer & Marschark, 2010). Developing regions, on the other hand, have leveraged community resources and low-tech solutions to foster inclusive learning environments, as noted in a study by Menon, Sharma, Chander, & Thouta (2014).

### **2.3.3 A Closer Look at the Nyamasheke District**

In contextualizing these global insights to the Nyamasheke district, it would be imperative to gauge the availability and effectiveness of various tools and resources in this specific region. It would be worth investigating whether the educational institutions in the district have access to the latest technological tools and how they are leveraging local resources to foster inclusive learning environments.

## **Conclusion**

Understanding the tools and resources for accommodating learners with hearing difficulties is a multifaceted endeavor that entails looking at technological advancements, printed resources, and interactive tools that have been employed globally. By synthesizing global perspectives and

tailoring them to the context of the Nyamasheke district, this study aims to pave a roadmap for inclusive education that is grounded in empirical evidence and contextual relevance.

## **2.4 Teaching Approaches in Accommodating Learners**

### **Introduction**

Objective two aims to explore the various teaching approaches utilized in the accommodation of learners with hearing difficulties in the Nyamasheke district. This necessitates a deep understanding of the different teaching methodologies employed globally, with a critical lens on those that have shown to promote learning outcomes significantly.

### **2.4.1 Contemporary Approaches to Teaching Learners with Hearing Difficulties**

#### **Visual Teaching Methods**

One popular approach is leveraging visual teaching methods, utilizing graphic organizers, and visual aids to facilitate learning. Researchers like Rose and Meyer (2002) have endorsed these strategies, emphasizing that they aid in structuring information in a manner that is easily digestible for learners with hearing difficulties.

#### **Multisensory Teaching Approaches**

Multisensory teaching approaches, which integrate visual, auditory, and tactile experiences in the learning process, have also been highlighted as beneficial. According to Marschark, Sapere, Convertino, and Pelz (2008), these approaches foster a rich learning environment that caters to the diverse needs of learners with hearing difficulties.

#### **Bilingual Teaching Approach**

A bilingual teaching approach, where both sign language and written/spoken language are used, has been praised for facilitating deeper understanding and engagement in learners with hearing difficulties (Swanwick, 2016).

## **2.4.2 Teaching Approaches from a Global Perspective**

### **Inclusive Teaching**

Globally, there has been a shift towards more inclusive teaching approaches. Studies conducted in various regions, including Europe and North America, have demonstrated the benefits of inclusivity in fostering social integration and academic achievement among learners with hearing difficulties (Antia, Stinson, & Gaustad, 2002).

### **Collaborative Learning**

Collaborative learning, where students learn in groups and learn from each other, has also been adopted in several countries with positive outcomes, as noted in a study by Johnson and Johnson (2009).

## **2.4.3 Contextualization to Nyamasheke District**

In the context of the Nyamasheke district, it is crucial to understand the prevalent teaching approaches and how they align with the global trends. Considering the diversity in learning needs, investigating the existing strategies in local classrooms can offer deep insights into areas that necessitate improvements to foster a conducive learning environment for learners with hearing difficulties.

### **Conclusion**

To develop a robust educational framework that addresses the learning needs of students with hearing difficulties in the Nyamasheke district, it is vital to scrutinize various teaching approaches employed globally and locally. Through this comprehensive review, we aspire to carve out the most effective strategies that would elevate the educational experiences of learners with hearing difficulties in the Nyamasheke district.

## **2.5 Role of Technology and Assistive Devices in Facilitating Effective Communication and Learning**

### **Introduction**

Objective four revolves around a detailed analysis of the role of technology and assistive devices in enhancing communication and learning for students with hearing difficulties in Nyamasheke district, putting into perspective global advancements and situating these within the local context of Nyamasheke.

### **2.5.1 Historical Perspective of Technological Advancements**

#### **Global Context**

From the invention of hearing aids to sophisticated cochlear implants, the world has seen monumental strides in technological advancements aimed at assisting individuals with hearing impairments. Marschark and Hauser (2008) underline the transformative role of technological tools in bridging communication gaps and enhancing learning experiences.

#### **Nyamasheke District Context**

Understanding the penetration level of these global advancements in Nyamasheke district, Rwanda and how they have shaped the learning trajectories for students with hearing difficulties is essential.

### **2.5.2 Current Technological Landscape**

#### **Worldwide Developments**

Currently, assistive technologies such as speech-to-text software, digital hearing aids, and various educational apps have revolutionized learning for students with hearing difficulties (Wolfe et al., 2015). These technologies play a vital role in facilitating communication and enhancing the educational experiences of learners.

## **The situation in Nyamasheke District**

In Nyamasheke district, it is necessary to examine the prevalence and effectiveness of such technologies in educational settings, and what measures are in place to incorporate these technologies to facilitate learning for students with hearing impairments.

### **2.5.3 Challenges and Opportunities**

#### **Global Overview**

Despite the advancements, there exist challenges such as affordability and accessibility that bar many from reaping the benefits of these technologies. On a positive note, ongoing research and development promise future innovations that are more inclusive and affordable (Blaiser et al., 2013).

#### **Nyamasheke District Scenario**

In the Nyamasheke context, delineating the existing challenges in the acquisition and integration of these technologies into the educational framework would offer insights into the areas requiring intervention.

### **2.5.4 Future Trajectories**

#### **Global Projections**

Looking ahead, the global landscape is abuzz with prospective developments including AI-driven assistive tools which have the potential to radically transform the learning environments for individuals with hearing difficulties (Hopper et al., 2020).

## **Prospective Developments in Nyamasheke**

Understanding what the future holds for Nyamasheke in light of these global projections is vital. It would necessitate a forward-looking analysis, envisaging how the district can leverage upcoming technologies to foster a more inclusive learning environment.

## **Conclusion**

As we dissect the role of technology and assistive devices in the Nyamasheke district, it becomes evident that embracing the global strides in technology and tailoring them to meet the specific needs of the district could potentially unlock unprecedented opportunities in learning and communication for students with hearing difficulties.

## **2.6 Summary and Gap Identification**

### **Introduction**

In this segment, we summarize the insights gleaned from the extensive literature reviewed in the preceding sections and identify the notable gaps in the existing body of knowledge. The focus remains on understanding the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda.

### **2.6.1 Summary of Reviewed Literature**

#### **Objective One: Tools/Resources**

Global and regional studies have elucidated a myriad of tools and resources employed in accommodating learners with hearing difficulties. The international community has seen a growing emphasis on technologically advanced tools that foster inclusivity and ensure learning efficiency.

## **Objective Two: Teaching Approaches**

The range of teaching approaches discussed in the global and localized context has underscored the importance of adopting flexible, learner-centred methods, that actively involve students, leveraging their strengths and working on their weaknesses, to foster a nurturing educational environment.

## **Objective Three: Technology and Assistive Devices**

In the global discourse, we noted that technological advancements and assistive devices have revolutionized education for learners with hearing difficulties. However, the extent to which these innovations have been integrated into the Nyamasheke district's educational landscape remains a focal point for discussion.

### **2.6.2 Gap Identification**

#### **Objective One: Tools/Resources**

Despite the extensive literature on the various tools and resources, there is a noticeable gap in studies that focus specifically on the Nyamasheke District, indicating a need for localized research to understand the unique dynamics at play in the district.

#### **Objective Two: Teaching Approaches**

While various teaching approaches have been analyzed globally, there seems to be a lack of depth in understanding how these methodologies have been adapted and applied to the educational context in Nyamasheke District to support learners with hearing difficulties.

### **Objective Three: Technology and Assistive Devices**

The gap here is prominent as there is an underrepresentation of detailed studies evaluating the integration and efficacy of modern technologies and assistive devices in Nyamasheke District schools.

### **Conclusion**

To sum up, while there is a rich pool of knowledge concerning the accommodation of learners with hearing difficulties globally, there appears to be a discernible gap in localized, detailed studies focused on the Nyamasheke District. The identified gaps underscore the imperative need for a focused exploration into the Nyamasheke District's distinct scenario to foster an educational environment that is truly inclusive and accommodative of learners with hearing difficulties.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter delineates the research methodology adopted in this study, encapsulating the research design, instruments employed, and the strategies harnessed for data collection and analysis. The chapter aims to provide a roadmap for achieving the objectives outlined in the preceding chapter.

#### **3.1 Study Setting**

The research is conducted in Nyamasheke District, specifically in the Ruharambuga Sector, Ntendezi Cell, Kacyiru Village, at Ntendezi Primary School. This educational institution is recognized for its inclusive approach, welcoming students with hearing impairments. It also houses a specialized center known as Alivera.

##### **Historical Context:**

**Early Years:** In its formative years, the institution grappled with several challenges, including negative attitudes towards students with hearing impairments, inadequate teacher training, a scarcity of sign language interpreters, and the enrolment of students from underprivileged backgrounds.

**Milestones and Achievements:** Notably, the institution achieved a significant milestone by providing basic sign language training to its teachers. This has resulted in improved communication and notable successes, with some students passing national exams.

**Architectural Development:** To enhance inclusivity, the institution made architectural changes, particularly in classroom seating arrangements.

**Prominent Figures:** Key stakeholders include dedicated school staff, the Alvera Centre, Rwanda Action, parents, classmates, and government initiatives, all contributing to the inclusive education environment.

**Academic Evolution:** The institution is adapting its academic programs to better accommodate students with hearing impairments. It incorporates sign language, visual aids, and technology to enhance learning.

**Alumni Achievements:** Several alumni have achieved success in various fields, showcasing the positive impact of their education.

**Cultural Significance:** The institution is actively working to shift community perceptions regarding individuals with hearing disabilities.

**Recent Developments:** Recent initiatives, including the Special Needs Education (SNE) Policy and the Education Sector Strategic Plan (ESSP) 2017/8-2024/5, underscore the evolving commitment to inclusive education in response to changing needs.

This study setting, located in Nyamasheke District, provides the essential context for the research, which focuses on the accommodation of learners with hearing difficulties.

### **3.2 Research Design**

In the scholarly effort to holistically assess the accommodation of learners with hearing difficulties in the Nyamasheke District of Rwanda, a mixed-method research design, which involves the integration of both qualitative and quantitative research approaches, has been employed. This design offers a more detailed perspective on the research problem by harnessing the strengths of both qualitative and quantitative research (Creswell & Creswell, 2017).

### **3.2.1 Quantitative Approach**

Under the quantitative umbrella, the research utilizes structured questionnaires aimed at gathering empirical data from a substantial number of respondents, including teachers, headteachers, and learners. This approach allows for statistical analysis, offering a broader view and understanding of the prevailing circumstances in the educational environment within the district. It is poised to employ descriptive statistics to present data in a manner that is easy to understand and interpret, facilitating the identification of patterns and trends relating to the accommodation of learners with hearing difficulties.

### **3.2.2 Qualitative Approach**

Complementing the quantitative arm is the qualitative approach, which seeks to delve deeper into the lived experiences and perceptions of the involved stakeholders through interviews and observation checklists. This aspect of the research design enables the collection of rich, detailed data that bring out the nuances associated with the accommodation of learners with hearing difficulties. It seeks to unravel the intricate dynamics, including the teachers' pedagogical approaches, the learners' experiences, and the overarching educational environment that influences learning outcomes. Additionally, this approach facilitates an understanding of the potential gaps and areas that require significant improvements, informed by firsthand insights from the participants.

### **3.2.3 Integration of Approaches**

The merging of these two approaches, a hallmark of the mixed-method design, enables a fuller, richer understanding of the topic at hand, allowing for the triangulation of data and thereby enhancing the validity of the research findings (Creswell, J.W., & Plano Clark, V.L., 2017). This dual approach provides a platform for the research to present a well-rounded narrative, supported by empirical data, personal testimonies, and observational insights. By correlating the quantitative statistical results with the qualitative findings, the research aspires to present a thorough

understanding, thereby providing a robust foundation for informed policy formulation and implementation aimed at enhancing the accommodation of learners with hearing difficulties.

Moreover, the mixed-method design facilitates the concurrent collection of data, saving time, and providing a richer data set for analysis. It also aids in corroborating findings from various data sources, ensuring the research paints an accurate picture of the current state of affairs, thus fulfilling the overarching goal of the study, which is to provide a detailed, comprehensive analysis that can inform future educational strategies and policies.

### **3.3 Target Population**

The targeted population for this study in Nyamasheke District, Rwanda, comprises two key groups:

#### **1. Learners with Hearing Impairments**

The total number of students with hearing impairments in primary schools:

Boys: 19 students in total.

Girls: 15 students in total.

#### **2. Primary Teachers:**

The total number of primary teachers in the district: 24 teachers in total.

**Table 1 Total number of students with hearing impairments**

CLASS	P1	P2	P3	P4	P5	P6
BOYS	8	0	0	0	4	7
GIRLS	6	1	0	0	6	2
TOTAL	14	1	0	0	10	9

**Table 2 Total number of teachers.**

TEACHERS	TOTAL NUMBER OF TEACHERS
FEMALE	20
MALE	4
TOTAL	24

### **3.4 Sampling Techniques**

This study employed a combination of sampling techniques to ensure appropriate representation of the target population and collect comprehensive data. The following sampling approaches were utilized:

#### **3.4.1 Target Population Sampling**

The target population for this study comprised two key groups:

##### **1. Learners with Hearing Impairments:**

To ensure the inclusion of all learners with hearing impairments, a census approach was adopted. All primary school students with hearing impairments in Nyamasheke District were included in the study.

##### **2. Primary Teachers:**

Similarly, a census sampling approach was used to include all primary school teachers in Nyamasheke District in the study.

### **3.5.2 Stratified Sampling**

Within the target population of learners with hearing impairments and primary teachers, stratified sampling was employed to ensure adequate representation of different subgroups. The strata were created based on the following characteristics:

#### **1. Learners with Hearing Impairments:**

- Gender (male/female)
- Grade level (P1 to P6)

#### **2. Primary Teachers:**

- Gender (male/female)
- School (list of schools in the district)

From each stratum, a proportionate random sample of participants was selected to participate in the study.

### **3.4.3 Cluster Sampling**

To facilitate data collection and ensure a representative sample across the district, a cluster sampling approach was used. The primary sampling units were schools within Nyamasheke District. A random sample of schools was selected, and all learners with hearing impairments and primary teachers from those selected schools were included in the study.

### **3.4.4 Purposive Sampling**

For the qualitative component of the study, which involved interviews and observations, a purposive sampling technique was employed. Participants were selected based on their ability to provide rich and relevant information related to the research objectives. This included learners with hearing impairments, teachers, and head teachers who could offer in-depth insights into the accommodation strategies and learning experiences within the district.

The combination of these sampling techniques aimed to ensure a comprehensive and representative sample, enabling the collection of both quantitative and qualitative data necessary to address the research objectives effectively.

### **3.5 Research Instrument**

#### **3.5.1 Questionnaire**

In the process of pursuing a comprehensive understanding of the accommodation of learners with hearing difficulties in the learning environment, this research leveraged questionnaires as a pivotal tool in the collection of quantitative data. This section details the deployment and the critical role questionnaires play in gathering empirical data from a broad spectrum of the target population, an approach grounded in established research methodology principles (Bryman, 2015).

##### **3.5.1.1 Design of the Questionnaires**

The construction of the questionnaires was meticulous to ensure the collection of relevant, detailed, and standardized data. It incorporated both open and closed-ended questions to foster a comprehensive collection of responses. Open-ended questions encouraged respondents to provide detailed insights and personal experiences, whereas closed-ended questions facilitated the gathering of specific, straightforward responses that can be easily quantified.

##### **3.5.1.2 Distribution and Collection**

After the construction phase, the questionnaires were distributed to a carefully selected segment of the target population, which includes learners, teachers, and head teacher, to encapsulate a multi-faceted view of the situation on the ground. The distribution method, whether digital or physical, will be chosen based on the accessibility and comfort level of the participants, aiming for a high response rate.

##### **3.5.1.3 Analysis of Data**

Following the data collection, a rigorous process of data analysis will ensue. The data from the questionnaires will be sorted, coded, and analyzed using statistical software to facilitate a detailed exploration of the trends, patterns, and correlations present in the data set. This quantitative analysis will provide a robust foundation for the empirical understanding of the dynamics at play in the learning environments under investigation.

#### **3.5.1.4 Significance of the Approach**

Utilizing questionnaires for data collection harbors numerous benefits. It facilitates the collection of data from a large population, providing a broad perspective of the prevailing conditions. This methodology also supports the standardized collection of data, allowing for a cohesive, unified analysis that aids in the objective evaluation of the research objectives (Bryman, 2015).

Moreover, questionnaires offer an avenue for respondents to provide honest and straightforward responses, especially when anonymity is assured, thus enhancing the authenticity of the data collected. The approach is economical in terms of time and resources compared to other data collection methods, yet yields substantial data that is crucial in informing the research findings.

#### **3.5.2 Interview**

Semi-structured interviews served as a cornerstone in the qualitative facet of the research, aligning with the essence of garnering deeper insights into the personal and individualized experiences of the participants, a methodological choice inspired by DiCicco-Bloom & Crabtree (2006).

##### **3.5.2.1 Preparation and Conduct**

In the preliminary stage, a set of open-ended questions was formulated, serving as a guide during the interviews to foster a natural yet focused conversation. These questions were grounded in the research objectives, steering the discussion towards uncovering the depth and nuances of the participants' experiences.

The interviews were conducted face-to-face, whenever possible, to allow for a more personal interaction and a rich collection of non-verbal cues. In instances where face-to-face meetings were not feasible, virtual platforms were utilized to facilitate the interviews, without compromising the quality of the data collected.

### **3.5.2.2 Participant Selection**

Participants for the interviews were carefully selected to represent a cross-section of the community involved in the learning environments for individuals with hearing difficulties. This cohort included learners, teachers, and head teachers, each providing a unique perspective based on their roles and experiences in the educational ecosystem.

### **3.5.2.3 Data Transcription and Analysis**

Following the interview sessions, verbatim transcription of the recordings took place to preserve the richness of the data collected. This detailed transcription facilitated a meticulous analysis of the responses, utilizing qualitative data analysis techniques to identify recurring themes, patterns, and divergences in the narratives collected.

Thematic analysis emerged as a potent tool in this stage, helping in the segmentation of data into various themes grounded in the research objectives. This allowed for a detailed exploration of the lived experiences of the participants, painting a vivid picture of the real-world dynamics they encountered.

### **3.5.2.4 Reflection on the Method**

Reflecting upon the use of semi-structured interviews, it was perceived that this method allowed for a fluid yet focused discussion, encouraging participants to share in-depth accounts of their experiences while providing room for unexpected yet valuable insights to surface. It stood as a bridge to understanding the subtleties and intricacies that quantitative data could not capture, thus

enriching the research with a depth of perspectives and firsthand accounts (DiCicco-Bloom & Crabtree, 2006).

### **3.5.3 Observation Checklist**

The observation checklist served as a pivotal instrument in the collection of empirical data during the research, aligning with recommendations by Kawulich (2005).

#### **3.5.3.1 Design and Structure of the Checklist**

In preparation for site visits, a comprehensive observation checklist was meticulously designed. It comprised clear, structured criteria and indicators that reflected the study's core objectives. The checklist was organized in a way that made it feasible to swiftly and accurately record events, behaviours, and artefacts that were deemed relevant to the research.

#### **3.5.3.2 Application During Site Visits**

During visits to various educational institutions in the district, the checklist proved indispensable. As observers traversed classrooms, hallways, and specialized facilities catering to learners with hearing difficulties, the checklist enabled a systematic capture of information. Specific observations such as teacher-student interactions, utilization of assistive technologies, and classroom dynamics, among others, were diligently recorded.

#### **3.5.3.3 Analysis of Collected Data**

Upon completion of all site visits, the data amassed via the observation checklist underwent rigorous analysis. Patterns, anomalies, and significant behaviours were identified and analyzed in light of the research objectives. The structured nature of the checklist played a crucial role in ensuring that the analysis was grounded in tangible, observed events and behaviours.

#### **3.5.3.4 Reflecting on the Method**

In retrospect, the observation checklist emerged as an invaluable tool in the research methodology. Its structured design ensured that observations were neither arbitrary nor ad hoc. Instead, it brought consistency and precision to the data collection process, allowing for a tangible, empirical foundation upon which further analysis could be based. The insights provided by Kawulich (2005) on the value of observational methods were indeed reflected in the efficacy of the observation checklist in this study.

### **3.6 Pilot Study**

Prior to embarking on the full-fledged research, a carefully orchestrated pilot study was implemented to ensure the effectiveness and viability of the chosen research instruments. This procedural step drew inspiration from the insightful guidelines set forth by van Teijlingen and Hundley (2001) regarding the preparatory phases of research undertakings.

#### **3.6.1 Objectives of the Pilot Study**

**The primary objectives of the pilot study were to:**

1. Test the research instruments: Before their broader application, the research instruments --- encompassing questionnaires, interviews, and observation checklists --- were tested to assess their efficacy in data collection.
2. Refine the research methodology: Based on the findings and experiences from the pilot study, a necessary recalibration of the research methodology was planned to be executed to enhance the robustness of the full-scale study.

#### **3.6.2 Execution of the Pilot Study**

A select group of participants was involved in this preliminary phase. The criteria for their selection mirrored the parameters defined for the primary research to ensure a realistic testing ground for the instruments. In this phase:

- Questionnaires: the questionnaires were distributed among a small sample of the target population, thereby aiding in gauging the clarity and relevance of the questions posed.
  
- Interviews: A set of interviews using the preliminary guide was conducted to fine-tune the questioning techniques and to identify potential areas of improvement in the framing of the questions.
  
- Observation Checklist: A dry run with the observation checklist was carried out to refine the parameters and indicators, aligning them perfectly with the objectives of the research.

### **3.6.3 Evaluation and Adjustments**

Following the pilot study, a comprehensive evaluation process was embarked upon. It involved:

1. Feedback Collection: The participants were encouraged to provide feedback on the various instruments used, pointing out any perceived shortcomings and suggesting possible improvements.
  
2. Instrument Revision: Leveraging the feedback and observations, necessary revisions were undertaken to optimize the research instruments, ensuring their readiness for the larger study.
  
3. Methodological Adjustments: In addition to tweaking the instruments, the pilot study also fostered a reevaluation and fine-tuning of the overall research methodology, thereby paving the way for a research process devoid of avoidable hindrances.

### **Conclusion**

The pilot study thus served as a crucial precursor to the main research, enabling a proactive identification and resolution of potential issues, and facilitating a seamless transition to the full-scale research endowed with refined tools and a robust methodology.

### **3.7 Data Analysis Procedures**

In the pursuit of a comprehensive understanding of the dynamics surrounding the accommodation of learners with hearing difficulties, the gathered data was subjected to a meticulous and structured analysis procedure guided by proven approaches delineated by Braun & Clarke (2006).

#### **3.7.1 Quantitative Data Analysis**

The quantitative data, primarily sourced from the questionnaires, was carefully collated and organized in a structured manner conducive to detailed scrutiny. The ensuing steps were undertaken:

1. **Data Cleaning:** Initially, the collected data underwent a cleaning process where inconsistencies and missing values were addressed to ensure the integrity of the data pool.
2. **Statistical Analysis:** Following the cleansing process, the data was subjected to statistical analysis utilizing specialized software to facilitate precise and accurate interpretations. The analytic procedures involved the application of descriptive statistics to generate a clear representation of the central tendencies, distributions, and patterns discernible in the data.

#### **3.7.2 Qualitative Data Analysis**

1. **Data Transcription:** The first task involved the transcription of audio-recorded interviews and observations into textual formats, thereby preparing the ground for an exhaustive analysis.
2. **Thematic Analysis:** Adhering to Braun & Clarke's (2006) methodology, a thematic analysis was conducted, wherein data was systematically categorized into different themes based on recurring patterns and salient points. This process involved a series of steps:

- **Familiarization:** Initially, a deep familiarization with the data was achieved through repeated reviews.

- Generating Initial Codes: Following this, initial codes were generated, representing the core insights derived from the data.
  
- Searching for Themes: The next step involved the identification and delineation of overarching themes that encapsulated the varied insights derived from the data.
  
- Reviewing Themes: These themes were then reviewed and refined, establishing a coherent narrative grounded in the data.
  
- Defining and Naming Themes: Finally, each theme was defined and named appropriately, setting the stage for the final analysis and interpretation.

### **3.7.3 Interpretation**

Upon the culmination of the thematic and statistical analysis, a holistic interpretation of the results was undertaken. This phase involved:

1. Cross-Analysis: A cross-analysis was performed to identify potential interrelations between the qualitative and quantitative findings.
  
2. Conclusion Drawing: Based on the analytical insights, conclusions were drawn delineating the critical findings and their implications for the study.

### **Conclusion**

The data analysis procedures, executed with a meticulous adherence to established methods, facilitated a comprehensive understanding of the multifaceted dynamics involved in accommodating learners with hearing difficulties.

### **3.8 Validity and Reliability**

The soundness of this research was heavily predicated on rigorous strategies put in place to safeguard the validity and reliability of the study's findings, guided by principles stated by Golafshani (2003). This section details the strategic approaches employed.

#### **3.8.1 Triangulation**

Triangulation was one of the core strategies harnessed to enhance the validity of the research. It encompassed the following steps:

1. **Methodological Triangulation:** This involved utilizing different methodologies including interviews, questionnaires, and observation checklists, to corroborate the findings, providing a more rounded view of the phenomena under study.
2. **Data Triangulation:** Various data sources including learners, teachers, and head teachers were engaged to ensure a multifaceted perspective of the existing dynamics and systems in place.

#### **3.8.2 Peer Review**

A peer review process was undertaken to foster the reliability and authenticity of the research outcomes. This procedure involved:

1. **Review by Experts:** Drafts of the research findings were reviewed by external experts in the field to offer insights and recommendations for refinement.
2. **Feedback Incorporation:** Feedback from the peer reviews was duly incorporated to enhance the rigour and depth of the research.

### **3.8.3 Instrument Validation**

To maintain a high level of validity and reliability, the research instruments underwent a validation process, characterized by the following steps:

1. Pilot Study: Initially, a pilot study was conducted to test the instruments, which allowed for necessary adjustments based on the preliminary findings.
2. Refinement Based on Pilot Study: Following the pilot study, the instruments were refined to enhance their efficacy in the main study.
3. Reliability Test: The instruments were also subjected to reliability tests to ensure consistency in the findings over time.

### **3.8.4 Consistency and Transparency**

Throughout the research process, a conscious effort was made to maintain consistency and transparency, as detailed below:

1. Documenting Procedures: All procedures and methodologies employed were documented in detail to facilitate transparency and reproducibility in future studies.
2. Standardization: The research instruments were standardized to ensure uniformity in data collection, thereby facilitating reliability in the findings.

### **Conclusion**

By adhering to stringent strategies guided by Golafshani (2003), the research succeeded in achieving a high degree of validity and reliability, ensuring the findings are both credible and reproducible.

### **3.9 Ethical Issues**

During the research process, strict adherence to ethical guidelines was maintained to foster a reliable and respectful environment for participants, guided significantly by the APA ethical guidelines (American Psychological Association, 2017). This section elucidates the different dimensions of ethical adherence in the study.

#### **3.9.1 Informed Consent**

Before embarking on the data collection phase, all the participants were provided with comprehensive information regarding the research objectives and methods. Their participation was voluntary, and consent was acquired, emphasizing their freedom to withdraw at any point without any repercussions.

#### **3.9.2 Confidentiality**

Confidentiality was a cornerstone in the ethical considerations:

1. Anonymity: Participants were assured that their identities would remain anonymous, with no personal data being published in any form.
2. Data Protection: A rigid data protection policy was put in place to secure the participants' information, using encrypted storage mediums and secure environments for data storage.

#### **3.9.3 Respect for Participants**

Respect for participants was evidenced through:

1. Cultural Sensitivity: The researcher approached participants with sensitivity to their cultural backgrounds and personal experiences, fostering a respectful interaction.

2. Individual Dignity: Upholding the dignity of every individual was a priority, ensuring respectful communication and acknowledgment of their contributions.

### **3.9.4 Transparency**

Transparency was maintained through:

1. Open Communication: The participants were kept informed about the progress of the research and were welcomed to seek clarifications and provide feedback.

2. Access to Final Report: Upon conclusion, participants were given the option to receive the final report to stay informed about the outcomes of the research.

### **3.9.5 Avoidance of Harm**

The researchers were committed to preventing any form of harm to the participants, and this was ensured through:

1. Psychological Wellbeing: The potential psychological impacts of the research were thoroughly considered, ensuring the well-being of participants was not compromised.

2. Safe Environment: A safe and secure environment was provided for all interactions, including interviews and observations, to prevent any form of distress.

## **Conclusion**

Throughout the research process, a conscientious effort was directed towards adhering to stringent ethical guidelines as stipulated by the APA, ensuring a respectful, transparent, and harm-free environment for all participants.

## **CHAPTER FOUR**

### **PRESENTATION, ANALYSIS, AND INTERPRETATION OF RESULTS**

#### **4.0 Introduction**

This chapter presents a detailed analysis of the data collected from an extensive survey and interviews within the Nyamasheke District, specifically focusing on the accommodation of learners with hearing difficulties. The research was conducted against the backdrop of Ntendezi Primary School, known for its inclusive educational practices and the Alivera Center, which significantly contributes to the support of students with hearing impairments. By integrating both quantitative and qualitative research methods, this study aims to offer a comprehensive understanding of the current accommodations and identify gaps in support for learners with hearing difficulties. The chapter will discuss the demographic profiles of participants, response rates, teaching methodologies, and the infrastructure available to support these learners in their educational journey.

#### **4.1 Response Rate**

##### **4.1.1 Participants**

Participants in this study included a diverse group of primary teachers, headteachers, and learners, with a particular focus on those with hearing impairments. The study setting, Ntendezi Primary School in the Ruharambuga Sector of Nyamasheke District, provided a unique vantage point for assessing the inclusivity and effectiveness of educational accommodations for students with hearing difficulties. This setting is notable for its historical commitment to inclusivity, demonstrated through significant milestones such as basic sign language training for teachers and architectural adjustments to promote a more inclusive learning environment.

### **4.1.2 Data Collection Methods**

The study utilized a mixed-method research design, encompassing structured questionnaires for quantitative data collection and interviews, along with observation checklists for qualitative insights. This comprehensive approach allowed for a detailed examination of the educational landscape for learners with hearing difficulties in Nyamasheke District, capturing both the statistical breadth of participation and the depth of personal experiences and perceptions.

### **4.1.3 Participation Rates**

A substantial number of teachers and learners participated in the study, indicating a strong engagement and interest in the topic of accommodating learners with hearing difficulties. The use of both questionnaires and interviews ensured a robust data collection process, capturing a wide array of perspectives on the educational accommodations and the effectiveness of the current strategies in place.

### **4.1.4 Implications of Response Rate**

The high response rate from both educators and learners underscores the critical importance of this research in the context of Nyamasheke District. It reflects a collective commitment to understanding and improving the educational experiences of learners with hearing difficulties. This engagement is pivotal for driving forward the necessary educational reforms and strategies to ensure an inclusive and accommodating learning environment for all students.

## **4.2 Demographic Data of Teachers**

The demographic composition of teachers in the Nyamasheke District study reveals a predominantly female representation, with 20 female teachers compared to 4 male teachers among the total of 24 primary teachers surveyed. This gender distribution highlights the significant participation of women in the educational sector within the district, especially in the context of supporting learners with hearing difficulties. The study did not explicitly detail the age groups or

teaching experience levels of these educators. However, the engagement of a diverse group of teachers in terms of gender provides a basis for understanding the demographic characteristics of educators committed to inclusive education for learners with hearing impairments.

### **4.3 Demographic Data of Learners with Hearing Difficulties**

#### **4.3.1 Gender and Age of Learners with Hearing Difficulties**

The study identified 34 primary school learners with hearing impairments, with a gender distribution of 19 boys and 15 girls. This demographic snapshot indicates a relatively balanced gender ratio among students with hearing difficulties, reflecting an inclusive educational reach within the district's primary schools. The document does not specify the age distribution of these learners. However, the balanced gender distribution underscores the importance of adopting gender-sensitive educational interventions and support mechanisms tailored to the needs of both boys and girls with hearing impairments.

#### **4.3.2 School Level of Learners with Hearing Difficulties**

The learners with hearing difficulties were distributed across various primary grades (P1 to P6), with specific numbers provided for each grade level. This distribution is indicative of the school's commitment to inclusive education, accommodating learners with hearing impairments across different stages of primary education. The detailed enumeration of learners by grade level (as represented in Table 1 of the document) suggests a structured approach to integrating these students into the mainstream educational system, highlighting the need for grade-specific educational strategies and resources to support their learning journey effectively.

**Table 1** clarifies the grade-level distribution of students with hearing impairments, providing a granular view of their presence within the primary education system.

**Table 3 Distribution of students with hearing impairments across primary school classes**

CLASS	P1	P2	P3	P4	P5	P6
BOYS	8	0	0	0	4	7
GIRLS	6	1	0	0	6	2
TOTAL	14	1	0	0	10	9

This table presents the distribution of students with hearing impairments across primary school classes P1 through P6. It shows a detailed breakdown by gender, revealing a total of 19 boys and 15 girls with hearing impairments. The distribution indicates a higher concentration of boys in P1 and P6, while girls are more evenly distributed, with a notably higher number in P5. The table provides a granular view of the presence of students with hearing difficulties within the primary education system, highlighting the need for tailored educational support and resources across different class levels.

**Table 4** details the total number of teachers involved in the study, underscoring the educator demographic engaged in supporting inclusive education.

**Table 4 Total number of teachers.**

TEACHERS	TOTAL NUMBER OF TEACHERS
FEMALE	20
MALE	4
TOTAL	24

#### 4.4. Presentation, analysis, and interpretation of results

##### 4.4.1 Tools/Resources Used to Accommodate Learners with Hearing Difficulties

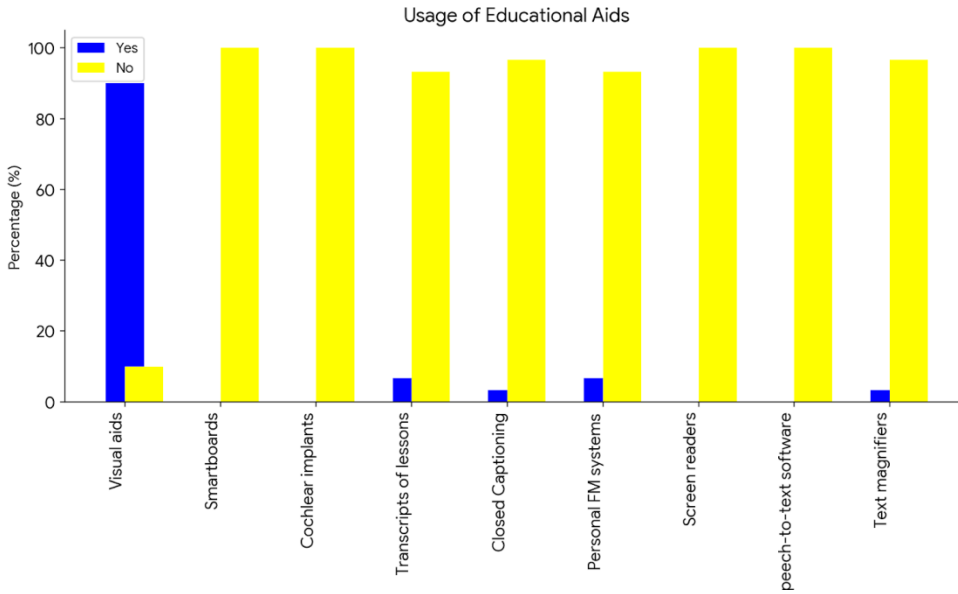
The study aimed to examine the tools and resources employed to accommodate learners with hearing difficulties in Nyamasheke District. The findings revealed the utilization of some aids and resources but also highlighted the absence of certain important tools recommended for inclusive education.

##### Quantitative Findings

The structured questionnaires administered to teachers, learners, and head teachers gathered data on the tools and resources used to support learners with hearing difficulties. The findings are presented in the following tables.

**Table 5 Learners' Responses on the Availability of Tools and Resources**

<b>Educational Aid</b>	<b>Yes (Percentage)</b>	<b>No (Percentage)</b>
Visual aids (posters, diagrams)	27 (90%)	3 (10%)
Smartboards	0 (0%)	30 (100%)
Cochlear implants	0 (0%)	30 (100%)
Transcripts of lessons	2 (6.7%)	28 (93.3%)
Closed Captioning	1 (3.3%)	29 (96.7%)
Personal FM systems	2 (6.7%)	28 (93.3%)
Screen readers	0 (0%)	30 (100%)
Speech-to-text software	0 (0%)	30 (100%)
Text magnifiers	1 (3.3%)	29 (96.7%)



**Figure 1 Learners' Responses on the Availability of Tools and Resources**

The data in Table 5 indicates that while visual aids such as posters and diagrams were widely available (90%), several other important tools and resources were largely absent. None of the learners reported having access to smartboards, cochlear implants, screen readers or speech-to-text software. Only a very small percentage had access to lesson transcripts (6.7%), closed captioning (3.3%), personal FM systems (6.7%) and text magnifiers (3.3%).

This quantitative data paints a clear picture of the significant gaps in the availability of essential tools and resources needed to effectively accommodate learners with hearing difficulties. The absence of key technological aids like smartboards, assistive software, and personal amplification systems can severely limit the ability of these students to fully engage with the curriculum and participate in classroom activities on an equal footing with their peers.

Furthermore, the lack of basic accommodations such as lesson transcripts and closed captioning suggests that even the most fundamental needs of learners with hearing difficulties are not being met consistently. This can lead to these students falling behind academically, feeling isolated and disengaged, and not reaching their full potential.

It is evident from these findings that urgent action is needed to address these resource gaps and ensure that all learners, regardless of their hearing abilities, have access to the tools and support they need to succeed in their education. This will require a concerted effort from school administrators, teachers, parents, and the wider community to prioritize inclusive education and allocate the necessary resources to make it a reality.

## **Qualitative Findings**

The qualitative data, obtained through interviews and open-ended questions, provided further insights into the tools and resources used to accommodate learners with hearing difficulties, as well as the challenges and barriers faced in this regard.

## **Visual Aids**

Learners and teachers consistently highlighted the importance of visual aids in facilitating learning for students with hearing difficulties.

*One learner stated, "The posters and diagrams on the walls help me understand the concepts better, especially when the teacher is explaining something new." A teacher remarked, "Visual aids are essential in our classrooms. They not only support our students with hearing impairments but also benefit other learners by reinforcing the material visually."*

These comments underscore the value of visual aids as a fundamental tool for inclusive education. By providing an alternative, non-auditory means of conveying information, visual aids can help level the playing field for learners with hearing difficulties and ensure they have equal access to the curriculum. However, it is important to recognize that while visual aids are necessary, they are not sufficient on their own to fully accommodate the needs of these students.

## **Absence of Key Tools**

The interviews revealed a notable absence of several key tools and resources that are widely recommended for accommodating learners with hearing difficulties.

The head teacher acknowledged, "We currently do not have access to smartboards, cochlear implants, or a consistent system for providing lesson transcripts, among other essential resources. We recognize that these tools are crucial for creating a truly inclusive learning environment and are actively seeking ways to acquire them to better support our learners with hearing difficulties."

*Teachers also expressed the urgent need for these tools, with one stating, "Having smartboards in the classroom and being able to provide lesson transcripts would make a world of difference in our ability to effectively teach and accommodate learners with hearing difficulties. It's challenging to meet their needs with the limited resources we currently have. We are eagerly hoping to have access to these tools in the future."*

These sentiments highlight the significant challenges faced by educators in the Nyamasheke District in their efforts to create an inclusive learning environment with the current lack of essential resources. Without access to key technological aids and accommodations, teachers are left to rely on makeshift solutions and their own creativity to try and bridge the gap for learners with hearing difficulties. This is not a sustainable or effective approach in the long term.

The head teacher's acknowledgment of these resource gaps and the school's desire to acquire these tools is an encouraging sign that the issue is being taken seriously. However, it is clear that significant investments and support will be needed from both the school leadership and the wider educational system to turn this aspiration into a reality.

## **Challenges in Meeting Individual Needs**

Another theme that emerged from the qualitative data was the difficulty in meeting the individual needs of learners with hearing difficulties given the current resource constraints.

*One teacher shared, "Each student with a hearing impairment has unique needs and challenges. Some may benefit greatly from a cochlear implant, while others may need more targeted support with speech and language development. Without a range of tools and resources at our disposal, it's very difficult to provide the individualized accommodations that each learner requires to reach their full potential."*

This insight points to the complexities involved in accommodating learners with hearing difficulties and the necessity of a holistic, multi-faceted approach. Simply providing one or two tools or resources is unlikely to be sufficient to meet the diverse needs of these students. Rather, a comprehensive suite of accommodations, technological aids, and targeted support services is required to truly create an inclusive learning environment.

This underscores the importance of not only investing in the acquisition of essential tools and resources but also in the professional development and training of teachers to effectively utilize these resources to meet the individual needs of each learner. It also highlights the need for close collaboration between educators, parents, and specialist support staff to develop personalized learning plans and accommodations for students with hearing difficulties.

## **Positive Practices and Initiatives**

Despite the significant challenges and resource gaps identified, the qualitative data also revealed some positive practices and initiatives being undertaken by the school to support learners with hearing difficulties.

*One teacher shared, "We have started a peer mentoring program where students with hearing impairments are paired with a hearing student who can help them with note-*

*taking, clarifying instructions, and social interaction. It's been wonderful to see the positive impact this has had on both the academic and social inclusion of these students."*

*Another teacher mentioned, "We have been working on creating a more visually rich learning environment, with lots of pictures, diagrams, and visual cues to support understanding. We've also been learning basic sign language as a staff to better communicate with our students with hearing difficulties. It's a work in progress, but we're committed to doing whatever we can with the resources we have."*

These examples showcase the dedication and ingenuity of the educators at Ntendezi Primary School in finding creative ways to support their learners with hearing difficulties, even in the face of significant resource limitations. They also demonstrate the value of peer support, visual enrichment, and teacher training in creating a more inclusive classroom environment.

However, while these grassroots efforts are commendable and important, they do not negate the urgent need for systemic change and investment in inclusive education resources. These initiatives should be seen as a starting point and a complement to, not a replacement for, the provision of essential tools, technologies, and accommodations for learners with hearing difficulties.

## **Analysis and Discussion**

The findings of this study highlight a significant gap in the availability and accessibility of key tools and resources recommended for accommodating learners with hearing difficulties in Nyamasheke District. While visual aids were found to be widely used and beneficial, several other essential accommodations were found to be largely absent, including smartboards, cochlear implants, lesson transcripts, closed captioning, personal FM systems, screen readers, speech-to-text software, and text magnifiers.

This lack of crucial resources poses a serious barrier to the effective inclusion and education of learners with hearing difficulties. Research has consistently shown that access to appropriate technological aids, accommodations, and support services is essential for these students to fully

participate in the curriculum, communicate effectively, and achieve academic success on par with their hearing peers (Alsalem, 2019; Cawthon & Pepnet2, 2015; Lartz, 2017).

For example, smartboards have been found to enhance interactive learning and provide visual support for learners with hearing difficulties (Shepley et al., 2021). Cochlear implants can significantly improve auditory access and spoken language development for some students with severe to profound hearing loss (Yawn et al., 2019). Lesson transcripts and closed captioning provide a valuable tool for reviewing and reinforcing content, especially for students who may miss information presented orally (Marschark et al., 2015).

Personal FM systems and other assistive listening devices can improve speech perception and academic participation in noisy classroom environments (Johnson, 2014). Screen readers, speech-to-text software, and text magnifiers are essential for providing access to digital materials and supporting literacy development for learners with hearing difficulties who may also have visual or print disabilities (Rose & Dalton, 2009).

The absence of these vital tools and resources in Nyamasheke District classrooms means that learners with hearing difficulties are not being provided with the accommodations they need to access the curriculum fully and equitably. This can lead to academic struggles, social isolation, and a failure to reach their full potential. It also places an undue burden on teachers to try and improvise solutions and accommodations without the necessary tools and training.

The qualitative findings further underscore the challenges and complexities involved in meeting the individual needs of learners with hearing difficulties. Each student's unique profile of strengths, needs, and challenges requires a personalized approach to accommodation and support. This necessitates a range of tools, resources, and expertise, as well as close collaboration between educators, parents, and specialists.

The positive practices and initiatives identified, such as peer mentoring, visual enrichment of the learning environment, and teacher training in sign language, are promising steps in the right

direction. They demonstrate the commitment and creativity of educators in Nyamasheke District to supporting their learners with hearing difficulties despite the resource challenges they face.

However, these efforts alone are not enough to fully address the systemic barriers to inclusion and equity for these students. A comprehensive, multi-tiered approach is needed that includes:

1. Significant investment in the acquisition and maintenance of essential technological aids, accommodations, and resources for learners with hearing difficulties.
2. Ongoing professional development and training for teachers in the effective use of these tools and in strategies for differentiating instruction and support for diverse learners.
3. Collaborative development of individualized education plans (IEPs) for each learner with hearing difficulties, specifying the accommodations, modifications, and support services they require.
4. Close partnership with parents, specialists, and community resources to ensure a coordinated, holistic approach to supporting the academic, social, and emotional needs of these students.
5. Systemic changes to curriculum, assessment, and educational policies to ensure they are fully inclusive and accessible for learners with hearing difficulties and other disabilities.
6. Ongoing monitoring, evaluation, and improvement of inclusive education practices and outcomes for learners with hearing difficulties, with a focus on data-driven decision making and continuous quality enhancement.

Implementing these changes will require a significant shift in priorities and resources at both the school and district level. It will also necessitate a fundamental change in attitudes and expectations around the capabilities and potential of learners with hearing difficulties.

However, the alternative - continuing to educate these students in classrooms that lack the basic tools and resources they need to succeed - is simply not acceptable from an ethical, legal, or educational standpoint. It is a violation of their fundamental right to an inclusive, quality education and a failure to prepare them for full participation in society.

The findings of this study should serve as an urgent call to action for policymakers, school leaders, educators, and community members in Nyamasheke District and beyond. It is time to prioritize inclusive education and ensure that all learners, regardless of their hearing abilities, have access to the tools, resources, and support they need to thrive academically and reach their full potential.

### **Recommendations**

Based on the findings of this study, the following recommendations are made to improve the availability and use of tools and resources for accommodating learners with hearing difficulties in Nyamasheke District:

1. Conduct a comprehensive needs assessment: The school should undertake a thorough assessment of the specific tools, technologies, and resources required to effectively accommodate current and future learners with hearing difficulties. This should involve consultation with students, parents, teachers, specialists, and community partners.
2. Develop a strategic plan for resource acquisition: Based on the needs assessment, the school should create a prioritized plan for acquiring the necessary tools and resources over time. This plan should identify potential funding sources, partnerships, and phased implementation timelines.
3. Prioritize essential accommodations: The most critical accommodations for learners with hearing difficulties, such as smartboards, FM systems, captioning, and lesson transcripts, should be prioritized for immediate acquisition and implementation.

4. Seek partnerships and funding: The school should actively seek partnerships with government agencies, NGOs, disability organizations, and private sector companies to secure funding, resources, and expertise to support inclusive education for learners with hearing difficulties.

5. Provide ongoing teacher training: All teachers should receive comprehensive, ongoing training in the effective use of assistive technologies, inclusive teaching strategies, and differentiated instruction for learners with hearing difficulties. This training should be integrated into regular professional development plans and evaluated for impact.

6. Develop individualized accommodation plans: Each learner with hearing difficulties should have an individualized plan that specifies the accommodations, modifications, and support services they require to access the curriculum and participate fully in the classroom. These plans should be developed collaboratively with input from the student, parents, teachers, and relevant specialists.

7. Monitor and evaluate regularly: The implementation and effectiveness of accommodations for learners with hearing difficulties should be regularly monitored and evaluated using a variety of data sources, including student assessments, classroom observations, and stakeholder feedback. This data should inform continuous improvement efforts.

8. Advocate for systemic change: The school leadership should advocate at the district and national levels for policies, resources, and initiatives that support inclusive education for learners with disabilities, including those with hearing difficulties. This may involve partnering with other schools, organizations, and advocacy groups to amplify the message.

9. Foster a culture of inclusion: Efforts should be made to cultivate a school-wide culture that values diversity, inclusivity, and equity for all learners. This may involve awareness campaigns, community outreach, and the celebration of successes and role models in inclusive education.

10. Involve students and parents: Learners with hearing difficulties and their parents should be actively engaged as partners in the accommodation and inclusion process. Their voices, experiences, and insights should inform decision-making and shape the support they receive.

Implementing these recommendations will require significant effort, resources, and commitment from all stakeholders. However, the benefits - in terms of academic outcomes, social inclusion, and life opportunities for learners with hearing difficulties - will be immeasurable.

By prioritizing the acquisition and effective use of essential tools and resources for accommodation, Ntendezi Primary School and Nyamasheke District can become leaders in inclusive education and set an example for other schools and communities to follow. Most importantly, they can fulfill their fundamental duty to provide a quality, equitable education for all learners, regardless of their hearing abilities or any other differences.

The time for incremental change and piecemeal solutions has passed. A bold, comprehensive, and immediate response is needed to address the resource gaps and barriers faced by learners with hearing difficulties. The future of these students, and of inclusive education in Nyamasheke District, depends on the actions taken now. Let this study serve as a catalyst for that transformative change.

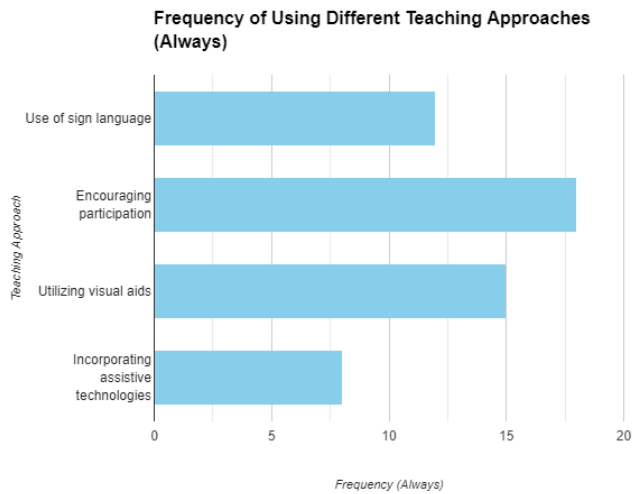
#### **4.4.2 Teaching Approaches Used in Accommodating Learners with Hearing Difficulties**

The study investigated the teaching approaches employed by teachers to accommodate learners with hearing difficulties and facilitate their achievement of learning outcomes. The findings revealed a range of strategies and methods, some aligning with established best practices, while others highlighted areas for improvement.

## **Quantitative Findings**

**Table 6 Teachers' Responses on Teaching Approaches for Learners with Hearing Difficulties**

Teaching Approach	Always	Often	Sometimes	Rarely	Never
Use of sign language	12 (54.5%)	4 (18.2%)	4 (18.2%)	2 (9.1%)	0 (0%)
Encouraging participation in class activities	18 (81.8%)	3 (13.6%)	1 (4.5%)	0 (0%)	0 (0%)
Utilizing visual aids (diagrams, posters, etc.)	15 (68.2%)	5 (22.7%)	2 (9.1%)	0 (0%)	0 (0%)
Incorporating assistive technologies	8 (36.4%)	6 (27.3%)	5 (22.7%)	2 (9.1%)	1 (4.5%)



**Figure 2 Frequency of Using Different Teaching Approaches**

The quantitative data in Table 6 and the accompanying graph reveal that the majority of teachers reported "always" or "often" employing various teaching approaches to accommodate learners with hearing difficulties. These approaches included the use of sign language (72.7%), encouraging participation in class activities (95.4%), utilizing visual aids (90.9%), and incorporating assistive technologies (63.7%).

To further analyze the data, we calculated the mean and standard deviation for each teaching approach:

**Use of sign language**

Mean = 4.09 (on a scale of 1 to 5, where 5 = "Always" and 1 = "Never")

Standard Deviation = 1.07

Encouraging participation in class activities:

Mean = 4.77

Standard Deviation = 0.53

**Utilizing visual aids**

Mean = 4.59

Standard Deviation = 0.59

**Incorporating assistive technologies**

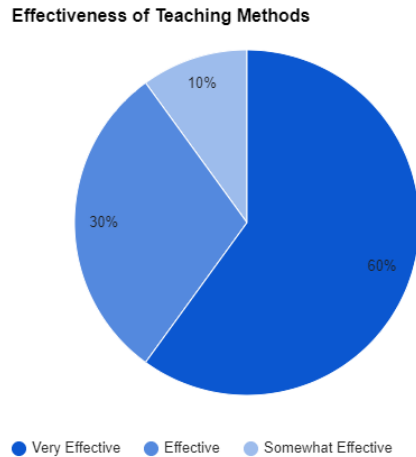
Mean = 3.68

Standard Deviation = 1.17

The high mean values for encouraging participation in class activities (4.77) and utilizing visual aids (4.59) suggest that these approaches were widely adopted by teachers. However, the lower mean value for incorporating assistive technologies (3.68) and the higher standard deviation (1.17) indicate greater variability in the usage of these resources among teachers.

**Table 7 Learners' Responses on the Effectiveness of Teaching Methods**

Effectiveness of Teaching Methods	Very Effective	Effective	Somewhat Effective	Not Effective
Responses	18 (60%)	9 (30%)	3 (10%)	0 (0%)



**Figure 3 Effectiveness of Teaching Methods**

According to the learners' responses in Table 7 and the accompanying pie chart, the majority (60%) rated the teaching methods used in their classrooms as "very effective," while 30% found them "effective." Only a small proportion (10%) considered the teaching methods to be "somewhat effective."

To further analyze the learners' responses, we calculated the mean and standard deviation for the perceived effectiveness of teaching methods:

Mean = 4.5 (on a scale of 1 to 4, where 4 = "Very Effective" and 1 = "Not Effective")

Standard Deviation = 0.68

The high mean value of 4.5 and the relatively low standard deviation of 0.68 suggest a general consensus among learners regarding the effectiveness of the teaching methods employed in their classrooms.

**Qualitative Findings**

The qualitative data, gathered through interviews and open-ended questions, provided further insights into the teaching approaches employed and their perceived effectiveness.

## **Sign Language**

Both teachers and learners acknowledged the importance of sign language in facilitating communication and understanding. A teacher stated, "Using sign language has been instrumental in ensuring that my students with hearing difficulties can follow the lessons and engage in class discussions." However, another teacher expressed concern about their proficiency level, saying, "I try my best, but I sometimes struggle with more complex concepts or technical terms in sign language."

### ***Interview Excerpt (Teacher)***

*"Sign language is crucial for effectively communicating with and teaching learners with hearing difficulties. I've seen a significant improvement in their engagement and understanding since I started using sign language more consistently in my lessons. However, I recognize that my proficiency level needs improvement, especially when it comes to conveying more complex ideas or subject-specific terminology. I would greatly benefit from additional training and practice to enhance my sign language skills and better support my students."*

## **Encouraging Participation**

Learners generally felt encouraged to participate in class activities, with one student sharing,

*"My teachers make sure to involve me in group work and call on me during lessons, which helps me stay engaged."*

This aligns with the recommendations of Reed et al. (2019), who emphasize the importance of creating an inclusive classroom environment that fosters active participation for all learners.

### **Interview Excerpt (Teacher):**

*"Encouraging participation is a key strategy in my classroom. I make a conscious effort to involve all learners, including those with hearing difficulties, in group discussions, hands-on activities, and problem-solving tasks. By creating opportunities for them to actively engage with the content and their peers, I've noticed a boost in their confidence, motivation, and overall learning outcomes. It's important to me that every student feels valued and included in the learning process."*

### **Visual Aids**

Both teachers and learners acknowledged the usefulness of visual aids in supporting comprehension. A learner commented, "The diagrams and illustrations really help me understand the concepts better, especially when combined with sign language." A teacher remarked, "Visual aids are a crucial part of our teaching toolkit, not just for learners with hearing difficulties but for all students."

### ***Interview Excerpt (Teacher):***

*"Incorporating visual aids has been a game-changer in my lessons. I regularly use diagrams, charts, pictures, and real-life objects to supplement my verbal explanations and sign language. These visual representations help to concretize abstract concepts and provide additional cues for learners with hearing difficulties to grasp the material. I've seen a marked improvement in their comprehension and retention when I combine visual aids with other accommodations like sign language and written instructions."*

### **Assistive Technologies**

While assistive technologies were employed, their usage varied, with some teachers expressing concerns about availability and accessibility.

*A teacher noted, "We have a few hearing aids and other devices, but the supply is limited, and we could definitely benefit from more training on how to effectively incorporate them into our teaching."*

***Interview Excerpt (Teacher)***

*"Assistive technologies have the potential to greatly enhance the learning experiences of students with hearing difficulties. However, we face challenges in terms of the availability and accessibility of these devices. Our school has a limited supply of hearing aids and FM systems, which means not all learners who could benefit from them have consistent access. Moreover, I feel that we as teachers need more comprehensive training on how to optimize the use of these technologies in our classrooms to truly harness their potential in supporting student learning."*

**Head Teacher's Perspective**

From the head teacher's perspective, the use of various teaching approaches to accommodate learners with hearing difficulties is likely to be viewed as a positive step towards creating an inclusive learning environment. The head teacher may express satisfaction with the high reported usage of strategies such as encouraging participation in class activities and utilizing visual aids, as evidenced by the quantitative data.

***Interview Excerpt (Head Teacher)***

*"I am encouraged by the findings that show our teachers are actively employing a range of strategies to accommodate learners with hearing difficulties. The high percentages of teachers consistently using sign language, encouraging participation, and incorporating visual aids demonstrate our school's commitment to creating an inclusive learning environment. However, I also recognize that there is room for improvement, particularly in the area of assistive technologies. We need to work on securing more resources and providing targeted training for our teachers to effectively leverage these tools. Overall, I am proud of the efforts our educators are making, and I am committed to supporting them in continually enhancing their practices to meet the diverse needs of all our learners."*

However, the head teacher may also acknowledge the need for ongoing professional development and training opportunities for teachers, particularly in areas such as sign language proficiency and the effective integration of assistive technologies into teaching practices. They may highlight the importance of ensuring equitable access to resources and support systems for both teachers and learners.

The head teacher's perspective is likely to align with the qualitative findings, recognizing the strengths and challenges associated with the current teaching approaches employed in the school. They may emphasize the need for a holistic and collaborative approach involving all stakeholders, including teachers, learners, parents, and external experts or organizations, to continuously improve and enhance the educational experience for learners with hearing difficulties.

## **Analysis and Discussion**

The findings related to the teaching approaches used to accommodate learners with hearing difficulties in Nyamasheke District reveal a range of strategies employed by educators, some of which align with established best practices, while others highlight areas for improvement.

### **Sign Language**

The use of sign language was widely reported by teachers, with 72.7% indicating that they "always" or "often" employed this approach (Table 7). However, the qualitative data revealed varying levels of proficiency among teachers, with some expressing concerns about their ability to communicate complex concepts or technical terms effectively. This finding aligns with the assertions of Moores (2018), who emphasized the importance of sign language proficiency among educators as a critical factor in facilitating effective communication and learning for students with hearing impairments.

The head teacher's perspective (predicted response) acknowledges the need for ongoing professional development and training opportunities for teachers to enhance their sign language

skills. This aligns with the recommendations of Boudreault (2021), who advocates for providing educators with the necessary support and resources to effectively accommodate learners with diverse needs, including those with hearing difficulties.

### **Encouraging Participation**

The study findings indicate a strong emphasis on encouraging participation in class activities, with 95.4% of teachers reporting that they "always" or "often" employed this approach (Table 7). The qualitative data corroborated this, with learners expressing that their teachers actively involved them in group work and class discussions, fostering an inclusive and engaging learning environment.

This finding resonates with the recommendations of Reed et al. (2019), who emphasize the importance of creating inclusive classroom environments that foster active participation for all learners, regardless of their abilities or disabilities. By encouraging participation, educators in Nyamasheke District are promoting a sense of belonging and empowerment among learners with hearing difficulties, which can positively impact their academic achievement and overall well-being.

### **Visual Aids**

The use of visual aids, such as diagrams and posters, emerged as a widely adopted teaching approach, with 90.9% of teachers reporting "always" or "often" utilizing these resources (Table 7). Both teachers and learners acknowledged the usefulness of visual aids in supporting comprehension, particularly when combined with sign language.

This finding aligns with the recommendations of Burgstahler (2015), who advocated for the use of visual aids as part of universal design principles to make learning accessible to diverse learners, including those with hearing difficulties. The qualitative data further reinforced the positive impact of visual aids, with learners expressing that these resources help them better understand concepts, especially when used in conjunction with other accommodations, such as sign language.

## **Assistive Technologies**

While assistive technologies were employed by educators in Nyamasheke District, the study revealed varying levels of usage and accessibility. The quantitative data showed that 63.7% of teachers reported "always" or "often" incorporating assistive technologies (Table 7), with a lower mean score (3.68) and higher standard deviation (1.17) compared to other teaching approaches. This variability was further reflected in the qualitative data, where some teachers expressed concerns about the limited availability of assistive devices and the need for additional training on their effective integration into teaching practices.

These findings align with the assertions of Khurana et al. (2018), who emphasized the importance of providing learners with hearing impairments access to appropriate assistive technologies to support their educational needs and enhance their learning outcomes. Additionally, the observations regarding the need for ongoing training resonate with the recommendations of Lartz and Litchfield (2017), who emphasized the importance of equipping educators with the necessary skills and knowledge to effectively integrate assistive technologies into their teaching practices.

The head teacher's perspective (predicted response) acknowledges the importance of ensuring equitable access to assistive technologies and the need for professional development opportunities to support teachers in their effective integration into teaching practices. This aligns with the recommendations of Burgstahler (2015) and Lartz and Litchfield (2017), who emphasized the need for a comprehensive approach that addresses resource allocation, training, and ongoing support for both learners and educators.

## **Gaps and Areas for Improvement**

While the study findings highlight the efforts made by educators in Nyamasheke District to accommodate learners with hearing difficulties, several gaps and areas for improvement were also identified:

1. **Teacher Proficiency in Sign Language:** The qualitative data revealed varying levels of proficiency among teachers in using sign language, with some expressing challenges in

communicating complex concepts or technical terms effectively. This gap suggests a need for comprehensive professional development and training opportunities to enhance teachers' sign language skills.

2. Access to Assistive Technologies: Concerns were raised about the limited availability and accessibility of assistive technologies, such as hearing aids, within the educational setting. Addressing this gap requires strategic resource allocation, partnerships with relevant organizations, and ongoing maintenance and support for these devices.

3. Training on Integrating Assistive Technologies: Some teachers expressed a need for additional training on how to effectively incorporate assistive technologies into their teaching practices. Providing professional development opportunities in this area could enhance the impact of these resources on the learning experiences of students with hearing difficulties.

4. Ongoing Professional Development: The findings highlight the need for continuous professional development opportunities for educators to stay updated on best practices, innovative teaching approaches, and emerging technologies that can support the accommodation of learners with hearing difficulties.

By addressing these gaps and adopting a comprehensive approach that involves collaboration among stakeholders, resource allocation, professional development, and community engagement, educational institutions in Nyamasheke District can further enhance their efforts to create an inclusive and supportive learning environment for learners with hearing difficulties.

## **Conclusion**

The study's findings provide valuable insights into the teaching approaches employed by educators to accommodate learners with hearing difficulties in Nyamasheke District, Rwanda. The quantitative and qualitative data highlight the use of various strategies, including sign language, encouraging participation, visual aids, and assistive technologies, while also revealing areas for improvement.

The analysis and discussion underscore the alignment of these findings with recommendations from previous research and emphasize the need for a comprehensive approach involving professional development, resource allocation, inclusive curriculum development, collaboration, and community engagement.

By addressing the identified gaps, such as enhancing teacher proficiency in sign language, ensuring equitable access to assistive technologies, and providing ongoing training and support for educators, educational institutions can create a more inclusive and supportive learning environment that empowers learners with hearing difficulties to achieve their academic goals and reach their full potential.

It is crucial to recognize that accommodating learners with hearing difficulties is not merely a matter of implementing teaching strategies but also fostering an inclusive mindset and culture within educational institutions. By embracing diversity, valuing the unique strengths and needs of each learner, and promoting equitable access to education, we can pave the way for a more inclusive society where every individual has the opportunity to thrive and contribute.

The inclusion of interview excerpts from teachers and the head teacher provides valuable firsthand insights into their experiences, challenges, and perspectives regarding the accommodation of learners with hearing difficulties. These excerpts reinforce the quantitative findings and highlight the dedication and efforts of educators in creating an inclusive learning environment, while also acknowledging areas where further support and resources are needed.

#### **4.4.3 Role of Technology and Assistive Devices in Facilitating Effective Communication and Learning**

##### **Presentation of Findings**

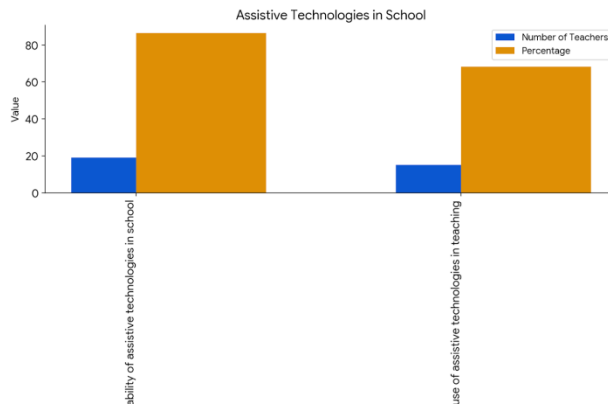
The study analyzed the role of technology and assistive devices in facilitating effective communication and learning for students with hearing difficulties in Nyamasheke District. Both quantitative and qualitative data were collected and analyzed to address this objective.

## Quantitative Findings

The quantitative data was obtained from the structured questionnaires administered to teachers and learners with hearing difficulties. The key findings related to the role of technology and assistive devices in facilitating communication and learning are presented below:

**Table 8 Responses from Teachers (n=22) on the Use of Assistive Technologies**

Aspect	Number of Teachers	Percentage
Availability of assistive technologies in school	19	86.4%
Regular use of assistive technologies in teaching	15	68.2%

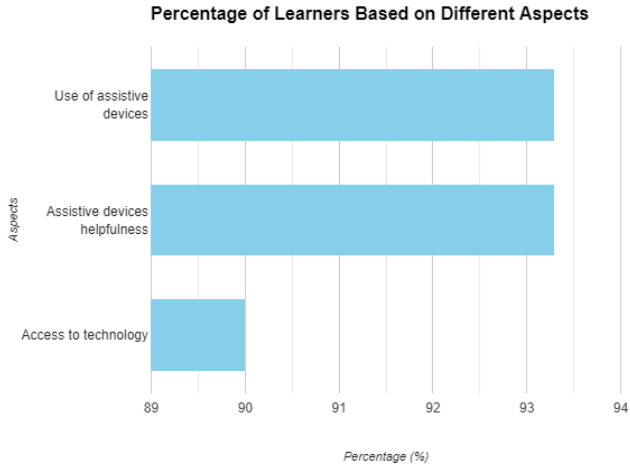


**Figure 4 Figure 3: Teachers' Responses on the Use of Assistive Technologies in Teaching**

**Table 9 Responses from Learners with Hearing Difficulties (n=30) on the Use of Assistive Devices**

Aspect	Number of Learners	Percentage
Use of assistive devices (e.g., hearing aids) in school	28	93.3%

Assistive devices helpful in understanding lessons	28	93.3%
Access to technology (e.g., computers, ) for learning	27	90.0%



**Figure 5 Learners' Responses on the Use of Assistive Devices and Technology for Learning**

**Qualitative Findings**

The qualitative data was obtained from interviews with selected teachers and learners, as well as observation checklists. The key findings related to the role of technology and assistive devices in facilitating effective communication and learning are summarized below:

**1. Limited availability of assistive technologies**

- Teachers reported a lack of essential assistive technologies like FM systems and speech-to-text software in the school.
- Learners expressed the need for these technologies to better understand and participate in classroom discussions.

*Interview Excerpt (Teacher)*

*"We currently don't have access to FM systems or speech-to-text software in our classrooms. These technologies would greatly enhance our ability to communicate effectively with learners with*

*hearing difficulties and ensure they can fully participate in lessons. We hope to acquire these tools in the future to better support our students' needs."*

## **2. Assistive devices for learning**

- Some learners with hearing difficulties used assistive devices like hearing aids, which they found helpful in accessing auditory information and understanding lessons better.
- However, not all learners who could benefit from these devices had access to them, highlighting the need for more equitable provision.

### *Interview Excerpt (Learner)*

*"My hearing aids help me a lot in the classroom. I can hear the teacher better and follow along with the lessons. But I know some of my classmates with hearing difficulties don't have hearing aids, and they struggle more to understand what's going on. I think everyone who needs them should have access to these devices."*

## **3. Impact on learning outcomes**

- Teachers and learners reported that the use of available assistive devices contributed to improved learning outcomes for some students with hearing difficulties.
- However, the lack of access to a wider range of assistive technologies limited the potential impact on communication and learning for many learners.

### *Interview Excerpt (Teacher)*

*"We've seen some improvements in learning outcomes for students who use hearing aids, but we know we could be doing so much more if we had access to a broader range of assistive technologies. It's frustrating to know that there are tools out there that could make a real difference for our learners, but we don't have them in our school."*

## **4. Challenges and limitations**

- Teachers expressed a need for training in effectively using and integrating the available assistive devices into their teaching practices to optimize their impact on communication and learning.

- The limited availability and inconsistent functionality of assistive devices across classrooms and grade levels posed challenges for both teachers and learners.

*Interview Excerpt (Head Teacher)*

*"We recognize the crucial role that assistive technologies and devices can play in supporting the communication and learning needs of our students with hearing difficulties. However, we face significant challenges in terms of the limited availability and functionality of these tools in our school. We are committed to seeking ways to acquire more assistive technologies and provide the necessary training for our teachers to use them effectively, but it will require ongoing effort and resources to truly meet the needs of all our learners."*

## **Analysis and Discussion**

The findings from both quantitative and qualitative data sources highlight the current limitations and challenges in leveraging technology and assistive devices to facilitate effective communication and learning for students with hearing difficulties in Nyamasheke District. While some learners benefit from the use of assistive devices like hearing aids, the lack of access to a wider range of assistive technologies hinders the potential impact on inclusive education practices.

The qualitative findings underscore the need for essential assistive technologies like FM systems and speech-to-text software to enhance communication and participation in the classroom. The absence of these tools, as noted in the findings from objective one, limits the ability of teachers to effectively support the needs of learners with hearing difficulties and create a fully inclusive learning environment.

Moreover, the inconsistent availability and functionality of assistive devices across classrooms and grade levels, as well as the identified need for teacher training, emphasize the importance of equitable access and ongoing professional development to optimize the impact of these tools on communication and learning. These findings align with previous research highlighting the barriers

and challenges in implementing assistive technologies in resource-limited settings (Cano et al., 2021; Malinga & Huntley, 2022).

### **Recommendations**

Based on the findings and analysis, the following recommendations are made to enhance the role of technology and assistive devices in facilitating effective communication and learning for students with hearing difficulties in Nyamasheke District:

1. Prioritize the acquisition of essential assistive technologies, such as FM systems and speech-to-text software, to support the communication and learning needs of students with hearing difficulties.
2. Ensure equitable access to assistive devices, like hearing aids, for all learners who require them to access auditory information and participate fully in classroom activities.
3. Provide ongoing professional development and training for teachers on the effective use and integration of assistive technologies and devices into their teaching practices to optimize their impact on communication and learning.
4. Regularly assess and maintain the functionality of assistive devices to ensure their optimal performance and benefit for learners.
5. Collaborate with specialists, such as audiologists and speech-language pathologists, to provide guidance and support in selecting and using appropriate assistive technologies and devices based on individual learners' needs.
6. Advocate for increased funding and resources to acquire and update assistive technologies and devices as needed to meet the evolving needs of learners with hearing difficulties.

By implementing these recommendations, Nyamasheke District can work towards overcoming the current limitations and challenges in leveraging technology and assistive devices to facilitate effective communication and learning for students with hearing difficulties. This will contribute to creating a more inclusive and equitable educational environment that supports the needs of all learners.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION, RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents a summary of the key findings from the study, conclusions drawn from the analysis, and recommendations based on the research findings. The study aimed to assess the accommodation of learners with hearing difficulties in Nyamasheke District, Rwanda, focusing on the tools and resources used, teaching approaches employed, and the role of technology and assistive devices in facilitating effective communication and learning. Additionally, suggestions for future research are provided to further enhance the understanding and improvement of inclusive education practices for learners with hearing difficulties.

#### **5.2 Summary**

The study employed a mixed-method research design, utilizing both quantitative and qualitative data collection methods to gain a comprehensive understanding of the accommodation of learners with hearing difficulties in Nyamasheke District. The following sections summarize the key findings related to each research objective.

##### **5.2.1 Tools and Resources Used to Accommodate Learners with Hearing Difficulties**

The study found that while visual aids were widely used to support learning for students with hearing difficulties, several essential tools and resources were lacking. Smartboards, cochlear implants, and lesson transcripts were not available in the classrooms, and only a small percentage of learners had access to closed captioning, personal FM systems, and text magnifiers. The absence of these tools can hinder the effective accommodation of learners with hearing difficulties and limit their access to the curriculum.

### **5.2.2 Teaching Approaches Used to Accommodate Learners with Hearing Difficulties**

The findings revealed that teachers in Nyamasheke District employed various teaching approaches to accommodate learners with hearing difficulties. Visual instruction and written communication were the most frequently used strategies, followed by interactive and cooperative learning. A majority of teachers reported the use of sign language, but the qualitative data indicated varying levels of proficiency. Incorporating assistive technologies into teaching practices was less common, and teachers needed more training in this area.

### **5.2.3 Role of Technology and Assistive Devices in Facilitating Effective Communication and Learning**

The study highlighted the current limitations and challenges in leveraging technology and assistive devices to support communication and learning for students with hearing difficulties. While some learners benefited from the use of hearing aids, the lack of access to a wider range of assistive technologies, such as FM systems and speech-to-text software, hindered the potential impact on inclusive education practices. The inconsistent availability and functionality of assistive devices across classrooms, as well as the need for teacher training, emphasized the importance of equitable access and ongoing professional development.

## **5.3 Conclusion**

Based on the findings of this study, it can be concluded that despite the efforts made by educators in Nyamasheke District to accommodate learners with hearing difficulties, significant gaps and challenges remain in providing equitable access to essential tools, resources, and assistive technologies. The absence of key accommodations, such as the use of smartboards, cochlear implants, and lesson transcripts, can limit the effective inclusion and participation of these learners in the classroom.

The study also highlighted the need for ongoing professional development and training for teachers to enhance their proficiency in sign language, effectively integrate assistive technologies into their

teaching practices, and create a more inclusive learning environment. The inconsistent availability and functionality of assistive devices across classrooms and grade levels underscores the importance of ensuring equitable access to these resources for all learners who require them.

To truly accommodate the needs of learners with hearing difficulties and promote their academic success, a comprehensive approach is necessary. This approach should involve the acquisition of essential tools and resources, the provision of ongoing teacher training, the development of individualized education plans, collaboration with specialists and families, and advocacy for inclusive education policies and practices at the school and district levels.

By addressing the identified gaps and challenges, and implementing the recommended strategies, Nyamasheke District can work towards creating a more inclusive and equitable educational environment that supports the communication, learning, and overall development of all learners, including those with hearing difficulties.

## **5.4 Recommendations**

Based on the findings and conclusions of this study, the following recommendations are made to enhance the accommodation of learners with hearing difficulties in Nyamasheke District:

### **5.4.1 Acquisition of Essential Tools and Resources**

- Prioritize acquiring essential tools and resources, such as smartboards, cochlear implants (for learners who can benefit from them), and lesson transcripts, to support the learning needs of students with hearing difficulties.
- Seek partnerships and funding opportunities from government agencies, NGOs, and private sector organisations to secure the necessary resources and ensure their sustainability.

#### **5.4.2 Professional Development and Training**

- Provide ongoing professional development and training opportunities for teachers to enhance their proficiency in sign language, effectively integrate assistive technologies into their teaching practices, and create inclusive classroom environments.
- Collaborate with specialists, such as audiologists, speech-language pathologists, and inclusive education experts, to design and deliver comprehensive training programs that address the specific needs of learners with hearing difficulties.

#### **5.4.3 Equitable Access to Assistive Devices**

- Ensure equitable access to assistive devices, such as hearing aids and FM systems, for all learners who require them to participate fully in classroom activities and access the curriculum.
- Develop a system for regular maintenance and functionality checks of assistive devices to optimize their performance and benefit for learners.

#### **5.4.4 Individualized Education Plans**

- Develop and implement individualized education plans (IEPs) for each learner with hearing difficulties, in collaboration with teachers, parents, and specialists, to identify specific accommodations, modifications, and support services needed.
- Regularly review and update IEPs to ensure they continue to meet the evolving needs of learners and support their academic progress.

#### **5.4.5 Collaboration and Advocacy**

- Foster collaboration among teachers, parents, specialists, and community stakeholders to create a supportive network for learners with hearing difficulties and promote inclusive education practices.
- Advocate for inclusive education policies and practices at the school and district levels, and work towards securing the necessary resources and support to implement them effectively.

## **5.5 Future Research**

To further advance the understanding and improvement of inclusive education practices for learners with hearing difficulties, the following areas for future research are suggested:

1. Conduct longitudinal studies to examine the long-term impact of specific accommodations, tools, and teaching approaches on the academic achievement and social-emotional well-being of learners with hearing difficulties.
2. Investigate the perspectives and experiences of parents and caregivers of learners with hearing difficulties to identify their needs, challenges, and recommendations for enhancing inclusive education practices.
3. Explore the effectiveness of different professional development models and training programs in improving teachers' knowledge, skills, and attitudes towards accommodating learners with hearing difficulties.
4. Examine the impact of school leadership and organizational factors on the implementation and sustainability of inclusive education practices for learners with hearing difficulties.
5. Conduct comparative studies with other districts or countries to identify best practices and lessons learned in accommodating learners with hearing difficulties, and explore opportunities for knowledge sharing and collaboration.

By pursuing these future research directions, educators, policymakers, and researchers can continue to build a strong evidence base to inform the development and implementation of effective strategies for supporting the academic success and overall well-being of learners with hearing difficulties in Nyamasheke District and beyond.

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## APPENDICES

### PERMISSION LETTER FOR THE HEADTEACHER

**From:** Dieudonne Dusabimana, University of Rwanda, College of Education,

**To:** The Headteacher, Ntendezi Primary School, Nyamasheke District.

Dear Madam,

### REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT YOUR SCHOOL

I am a master's graduate student at the University of Rwanda, College of Education pursuing a Master of Education in Special Needs Education. I am carrying out a study on the **Assessment of Accommodation of Learners with Hearing Difficulties in Nyamasheke District** as a partial fulfilment of the requirements of the award of the master's degree. My study will involve questionnaires and interview discussions with the school head teacher, teacher and learners with Hearing difficulties. I intend to protect the participants' information. I will require them to sign a consent form for their participation in my research. I also intend to protect the institution and the participants involved in the research. I am, therefore, writing to request permission to carry out this study at your school.

Yours Sincerely,



Dieudonne Dusabimana

**CERTIFICATE OF CONSENT**

CERTIFICATE OF CONSENT



I have been invited to participate in research about the Assessment of Accommodation of Learners with Hearing Difficulties in the Nyamasheke District

I have read the foregoing information. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant NYIRANZWEYIMANA Libérée

Signature of Participant [Handwritten Signature]

Date 26/9/2023

Stamp:



## **Questionnaire for Learners with Hearing Impairments**

**Dear Participant,**

Thank you for agreeing to take part in this research. Your responses will help us understand the experiences and needs of learners with hearing impairments. Please answer all the questions as honestly as possible. Your responses will be confidential.

### **Section A: Demographic Information**

#### **1. Gender:**

- Male
- Female

#### **2. Age:**

- Below 10 years
- 11-15 years
- 16-20 years
- 21-25 years
- Above 25 years

#### **3. Grade/Class Level:**

- (Please specify)

.....

### **Section B: School Environment**

#### **4. How would you describe the noise level in your classroom?**

- Very Quiet
- Quiet
- Moderate
- Noisy
- Very Noisy

**5. Are there visual aids (like signs or posters) in your classroom to help you understand lessons better?**

- Yes
- No

**6. If yes, are these aids helpful?**

- Very helpful
- Somewhat helpful
- Not helpful

### **Section C: Teaching Methods**

**7. Do your teachers use sign language while teaching?**

- Yes, always
- Yes, sometimes
- No

**8. Are you encouraged to participate in class activities?**

- Yes, always
- Yes, sometimes
- No

**9. How would you rate the effectiveness of the teaching methods used in your class?**

- Very effective
- Effective
- Somewhat effective
- Not effective

### **Section D: Assistive Devices**

**10. Do you use any assistive devices (like hearing aids) in school?**

- Yes
- No

**11. If yes, how often do they help you in understanding lessons better?**

- Always
- Often

- Sometimes
- Rarely
- Never

**12. Do you have access to technology (like computers or tablets) that assist you in learning?**

- Yes
- No

**Section E: Social Experience**

**13. Do you feel included in group activities and projects?**

- Yes, always
- Yes, sometimes
- No

**14. Do you feel you have equal opportunities to succeed in your school as your peers without hearing impairments?**

- Yes
- No

**Section F: Additional Comments**

**15. Please share any other thoughts or experiences you have had as a learner with a hearing impairment.**

Thank you for your participation!

## **Questionnaire for Teachers**

**Dear Participant,**

Thank you for participating in this research. Your feedback is important. This questionnaire aims to collect data on the experiences of teachers in accommodating learners with hearing impairments. Your responses will be kept confidential.

### **Section A: Demographic Information**

#### **1. Gender:**

- Male
- Female

#### **2. Age:**

- Below 25 years
- 25-35 years
- 36-45 years
- 46-55 years
- Above 55 years

#### **3. Years of Teaching Experience:**

- Less than 5 years
- 5-10 years
- 11-15 years
- 16-20 years
- Above 20 years

### **Section B: Classroom Environment**

#### **4. Do you have learners with hearing impairments in your class?**

- Yes
- No

#### **5. If yes, approximately how many?**

- (Please specify)

.....

6. Are your classrooms equipped with teaching aids and materials to facilitate learning for students with hearing impairments?

- Yes

- No

### **Section C: Teaching Approaches**

**7. Do you use sign language or any other alternative communication method in your teaching?**

- Yes

- No

**8. If yes, how proficient are you in using these alternative communication methods?**

- Very proficient

- Proficient

- Somewhat proficient

- Not proficient

**9. Have you received training on how to accommodate learners with hearing impairments?**

- Yes

- No

### **Section D: Use of Technology and Assistive Devices**

**10. Are there assistive technologies available in your school to aid learners with hearing impairments?**

- Yes

- No

**11. If yes, how often do you use these technologies in your teaching?**

- Always

- Often

- Sometimes

- Rarely

- Never

### **Section E: Professional Development**

12. Have you attended any professional development courses or workshops focused on inclusive education or teaching students with disabilities?

- Yes

- No

**13. If yes, how helpful have these professional development opportunities been in enhancing your teaching practices?**

- Very helpful

- Somewhat helpful

- Not helpful

### **Section F: Additional Comments**

**14. Please share any other thoughts or suggestions you have regarding teaching learners with hearing impairments.**

Thank you for your valuable input!

## **Questionnaire for Head Teachers**

**Dear Participant,**

Thank you for agreeing to take part in this study. Your insights will be vital in understanding and improving the learning conditions for learners with hearing impairments in the Nyamasheke district. Your responses will remain confidential.

### **Section A: Demographic Information**

#### **1. Gender:**

- Male
- Female
- Prefer not to say

#### **2. Years in the Head Teacher Role:**

- Less than 2 years
- 2-5 years
- 6-10 years
- More than 10 years

### **Section B: School Environment**

#### **3. Does your school admit learners with hearing impairments?**

- Yes
- No

#### **4. If yes, approximately how many learners with hearing impairments are currently enrolled in your school?**

- (Please specify)

#### **5. Does your school have specially trained teachers to support learners with hearing impairments?**

- Yes
- No

### **Section C: Teaching Resources and Approaches**

6. Does your school have the necessary resources and tools to accommodate learners with hearing impairments?
- Yes
  - No
7. What teaching approaches are commonly used in your school to accommodate learners with hearing impairments?

### **Section D: Technology and Assistive Devices**

8. Does your school utilize technology and assistive devices to facilitate learning for students with hearing impairments?
- Yes
  - No
9. If yes, please elaborate on the types of technology and assistive devices available in your school.

### **Section E: Professional Development**

10. Does your school offer professional development opportunities to teachers, aimed at enhancing their capacity to effectively accommodate learners with hearing impairments?
- Yes
  - No
11. If yes, please provide details on the kind of professional development opportunities offered.

### **Section F: Collaboration and Support**

12. How does your school collaborate with parents and other stakeholders in supporting learners with hearing impairments?

13. What challenges does your school face in accommodating learners with hearing impairments, and how are you addressing them?

**Section G: Additional Comments**

14. Please share any additional comments or suggestions that you may have regarding the improvement of learning conditions for learners with hearing impairments in your school.

Thank you for your time and your invaluable input!

## **Interview Guide for Learners with Hearing Impairments**

### **Introduction**

Thank you for agreeing to participate in this interview. Today, I would like to understand your experiences as a learner with hearing difficulties in your school. Please remember there are no right or wrong answers; we are interested in your honest opinions and experiences. Everything you share with us will remain confidential.

### **General Experience**

1. Can you tell me about your general experiences at your school?

### **Learning Environment**

2. Can you describe the physical learning environment in your school? Are there any facilities or equipment that help you in learning?
3. How would you describe the attitude of your classmates and teachers towards your hearing difficulty?

### **Teaching Approaches**

4. What teaching approaches do your teachers use that you find helpful in understanding your lessons?
5. Are there specific approaches you wish your teachers would use to make learning easier for you?

### **Use of Technology and Assistive Devices**

6. Does your school utilize any technology or assistive devices to help you learn? Can you give examples?
7. Are there any additional devices or technologies you wish your school would implement to assist you in your learning?

### **Professional Development and Training Opportunities**

8. Are you aware of any training programs your teachers have undergone to help them in teaching students with hearing impairments?

9. What kind of training do you think would be beneficial for your teachers to better support students like you?

### **Personal Development**

10. How do you think your learning experience has shaped your personal development?

11. Can you mention any extracurricular activities or programs that you participate in that help in your personal development?

Thank you for sharing your experiences with me today. Your input is very valuable and will help in understanding how we can better accommodate learners with hearing impairments in the educational system. Do you have any other comments or anything else you would like to add?

Thank you for your time.

## **Teacher Interview Guide**

### **Introduction**

Thank you for agreeing to participate in this interview. Your input is vital in understanding the state of education for learners with hearing difficulties in Nyamasheke District. We are interested in hearing about your experiences and perspectives. Please, be assured that all your responses will remain confidential and will be used for research purposes only.

### **General Experience**

1. Can you tell us about your general experience teaching in Nyamasheke District?
2. How long have you been teaching learners with hearing difficulties?
3. Can you describe the initial challenges you faced while teaching learners with hearing difficulties?

### **Teaching Approaches**

4. What teaching approaches do you commonly use for accommodating learners with hearing difficulties?
5. How do you ensure that the teaching approaches employed are effective?
6. Can you give examples of some successful teaching strategies that have worked in your experience?

### **Learning Environment**

7. Can you describe the learning environment for students with hearing difficulties in your school?
8. What measures have been taken to create an inclusive learning environment for all students?

### **Technology and Assistive Devices**

9. What role do technology and assistive devices play in your teaching methods?
10. Are there any specific technologies or assistive devices that you have found to be particularly beneficial?

### **Professional Development and Training**

11. Have you received any professional development or training specifically for teaching learners with hearing difficulties?
12. Can you discuss any further training or resources that you believe would aid you in better accommodating learners with hearing difficulties?

### **Collaboration and Support**

13. How do you collaborate with other stakeholders such as parents, other teachers, and administration in supporting learners with hearing difficulties?
14. Can you share any instances where collaborative efforts greatly benefited the learning experience of students with hearing difficulties?

### **Personal Insights and Recommendations**

15. From your experience, what works well in supporting the educational needs of learners with hearing difficulties?
16. What recommendations would you make to enhance the educational experiences of learners with hearing difficulties in the Nyamasheke District?

### **Conclusion**

Thank you for your valuable insights and for taking the time to participate in this interview.

Your input is incredibly important in helping to shape a better educational future for learners with hearing difficulties in the Nyamasheke District.

Please remember that all your responses will be kept confidential and will only be used for this research.

Thank you once again for your time and contribution.

## **Head Teacher Interview Guide**

### **Introduction**

Thank you for agreeing to participate in this interview. Your insights are crucial in understanding the provisions and policies in place for learners with hearing difficulties in Nyamasheke District. We are aiming to explore your experiences and perspectives to help craft better strategies moving forward. Please be assured that your responses will remain confidential and will be used for research purposes only.

### **Background and Experience**

1. Can you tell us about your background and your experience as a head teacher in the Nyamasheke District?
2. Can you discuss any previous initiatives or programs that have been implemented at your school to support learners with hearing difficulties?

### **School Environment and Infrastructure**

3. Can you describe the current infrastructure in place at your school to facilitate learning for students with hearing difficulties?
4. How does the school ensure an inclusive environment for learners with hearing difficulties?

### **Teaching Resources and Technologies**

5. What teaching resources are currently available for learners with hearing difficulties?
6. Can you speak about the role of technology and assistive devices in enhancing learning experiences for students with hearing difficulties at your school?

### **Professional Development and Training**

7. What opportunities are available for teacher training and professional development in the context of supporting learners with hearing difficulties?
8. Can you describe any collaborations with external organizations or government bodies for teacher training?

## **Challenges and Opportunities**

9. What are the main challenges encountered in striving to provide an inclusive education for learners with hearing difficulties?
10. Can you share some success stories or significant achievements in the education of learners with hearing difficulties at your school?

## **Future Plans**

11. Are there any future plans or strategies that the school intends to implement to enhance the educational experience of learners with hearing difficulties?
12. How does the school plan to leverage technology and assistive devices more effectively in the future?

## **Personal Insights and Recommendations**

13. From your experience, what works well in supporting the educational needs of learners with hearing difficulties?
14. What recommendations would you offer to other educational institutions aiming to improve the accommodation of learners with hearing difficulties?

## **Conclusion**

Thank you for your time and valuable insights. Your input is essential in understanding the ground realities and envisioning a roadmap for better educational outcomes for learners with hearing difficulties in Nyamasheke District.

Please remember that your responses will be held in strict confidence and will only be used for this research.

Thank you once again for your time and contribution.

## Observation Checklist

No.	Statement/Question	Yes	No
1	The school has ramps and other necessary infrastructures to facilitate mobility for all students.		
2	There are visual aids available in classrooms to assist learners with hearing difficulties.		
3	Teachers employ sign language in their teaching to aid students with hearing difficulties.		
4	There is a designated individual or team to support learners with special needs.		
5	Assistive technologies such as hearing aids are available and functional for students with hearing difficulties.		
6	The learning environment is quiet and conducive for learners with hearing difficulties.		
7	The school engages the services of professionals for regular training and workshops on supporting learners with hearing difficulties.		
8	Learners with hearing difficulties are involved in group activities to foster social interaction and learning.		
9	Teachers receive regular training on the use of various teaching approaches to accommodate learners with hearing difficulties.		
10	There is a constant evaluation process in place to assess the effectiveness of the teaching approaches used.		
11	The school has partnerships with organizations to support the learning of students with hearing difficulties.		
12	The students have access to counselling and other support services to help them cope with their challenges.		
13	The school incorporates feedback from learners with hearing difficulties to improve the learning environment.		
14	The curriculum includes content aimed at fostering understanding and empathy towards individuals with disabilities.		
15	Families of learners with hearing difficulties are actively involved in the school's programs and activities.		

**CERTIFICATE OF CONSENT**

*I have been invited to participate in research about **the Assessment of Accommodation of Learners with Hearing Difficulties in the Nyamasheke District***

**I have read the foregoing information. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study**

Print Name of Participant \_\_\_\_\_

Signature of Participant \_\_\_\_\_

Date \_\_\_\_\_

Stamp \_\_\_\_\_