

Teachers' barriers in implementing the revised curriculum for deaf learners: The case of two special schools in Northern Namibia

Isidor Haufiku^{1*}, Hilya Tulipomwene Shuulinawa Nghitoolwa² and James Abah³

¹Ministry of Education, Arts and Culture, Shaama Combined School, Postcode:13693, Eenhana, Namibia

²Ministry of Education, Arts and Culture, I.K. Tjimuhiva Combined Schools, Postcode:13271, Eenhana, Namibia

³Department of Applied Educational Sciences, Faculty of Education, University of Namibia, Postcode: 10960, Katima Mulilo, Namibia

*Corresponding author: ihaufiku2@gmail.com

To cite this article (APA): Haufiku, I., Nghitoolwa, H. T. S., & James Abah. (2024). Teachers' barriers in implementing the revised curriculum for deaf learners: The case of two special schools in Northern Namibia. *Journal of Research, Policy & Practice of Teachers and Teacher Education*, 14(2), 28–44. <https://doi.org/10.37134/jrppte.vol14.2.3.2024>

Received: 01 February 2023; Revised: 04 September 2024; Accepted: 13 September 2024; Published: 17 September 2024

Abstract

The study was conducted to explore teachers' barriers in implementing the revised common curriculum for learners with special educational needs in Northern Namibia. The study used a mixed research approach to collect data from the sample of 20 special education teachers currently teaching at two special schools located in Northern Namibia. Participants were selected using the total population sampling method and data were collected using a questionnaire and focus group discussion. Quantitative data were analysed using descriptive statistics while qualitative data were analysed using the thematic analysis method. The study found that the special education teachers' barriers in implementing the revised curriculum for deaf learners include a shortage of specialised teaching and learning materials, inadequate time per lesson for scaffolding deaf learners, lack of teaching methodology, lack of refresher workshop, minimal parental involvement in learners' education, teachers inadequate knowledge of sign language, lack of assessment tools for deaf learners, insufficient teaching assistance to assist learners, and no specialised curriculum for learners with hearing impairment. The study recommended that the schools as well as the Regional Directorate of Education should organise more workshops for special education teachers in sign language to enable them to develop common signs to teach the learners. Additionally, the government should install Wi-Fi in the Special schools to enable the teachers to access and utilize relevant online resources such as visual teaching materials when teaching. The Universities in Namibia should introduce a teaching specialisation course in Sign language to train teachers.

Keywords: Barrier, deaf learners, Namibia, special school, teachers

Introduction

Namibia has made significant changes to its education system since independence. The recent curriculum reform, the National Curriculum for Basic Education was initially implemented in 2015 and replaced the Pilot Curriculum Guide for Formal Basic Education 1996 as well as the Pilot Curriculum Guide for Formal Senior Secondary Education 1998 (Josua, 2022).

Namibia amended its education curriculum for a variety of reasons. To begin with, The National Curriculum for Basic Education was revised to facilitate the country's developmental plan which aims to advance and industrialize the country by 2030 (Josua, 2022). Moreover, Namibia adjusted its curriculum to accelerate the realization of the goal of Namibia Vision 2030 which intends to raise the standard of living of all Namibian people to the level of their counterparts in the developed nations by 2030 (Josua et al., 2022). According to Josua et al. (2022), education curriculum reforms were made in Namibia to accomplish Goal 4 (quality education) of the Sustainable Development Goals (SDGs) of the United Nations whose purpose is to ensure a fair quality education for everyone in the country. The implementation of the revised curriculum in Namibia was achieved in phases. Table 1 below illustrates the phases of curriculum implementation in Namibia.

Table 1

Implemented Phases of the Revised Curriculum

Phase/Grade	Year of implementation
Junior Primary Phase (Pre-Primary, Grades 1-3)	
Pre-Primary, Grades 1-3	2015
Senior Primary Phase (Grades 4-7)	
Grades 4-7	2016
Junior Secondary Phase (Grades 8 and 9)	
Grade 8	2017
Grade 9	2018
Senior Secondary Phase (Grades 10-12)	
Grade 10	2019
Grade 11	2020
Grade 12	2021

The Revised Curriculum for Basic Education is a common curriculum for all learners in the country, irrespective of their learning disabilities. Although the Ekandjo (2018), stipulates that the National Curriculum for Basic Education in Namibia will be supplemented by The Inclusive Education Curriculum Framework, there was no differentiated curriculum for all 11 state special schools across the country. This implies that all state special education schools have to follow the common National Curriculum for Basic Education. However, special education teachers have the freedom to instruct the common national curriculum based on student's specific needs, making appropriate modifications where mandatory (Zigmond & Kloo, 2017).

The experiences of teachers in implementing the revised Curriculum for Basic Education in mainstream schools have been understood as sufficient research was conducted in the country regarding this matter. However, there is limited research done specifically in Namibia to examine the special education teachers' experiences and challenges of implementing the revised common curriculum. This is despite the peculiar circumstance that the special education teachers found themselves in implementing a common curriculum designed for both mainstream and special school learners in Namibia. This means that the special education schools in Namibia do not have a differentiated curriculum, and special school teachers may be experiencing barriers in implementing the common National Curriculum for Basic Education. This study will thus fill the gap by giving special education teachers a voice to express the difficulties that they are battling in special schools in implementing the revised curriculum.

Moreover, it is imperative to explore special teachers' barriers to implementing the revised curriculum in special schools because learners' academic performances in special schools have dropped significantly. Between 2019 to 2023, the percentage passes of Grade 11 learners who obtained the priority symbols (A to C) in three subjects in Namibia Senior Secondary Certificate Ordinary Level (NSSCO) to qualify for enrolment in grade 12 Namibia Senior Secondary Advanced Subsidiary (NSSCAS) in the study area were 0% (2019), 0% (2020), 0% (2021), 0% (2022) and 0% (2023) (Mungunda, 2023). This was after the revised curriculum for Basic Education was implemented in Namibia. Due to this poor performance special education teachers are considered to have faced unconfirmed barriers to implementing the new curriculum. Thus, it becomes imperative to investigate the teachers' barriers in special schools to address the identified barriers, teachers' roles are central to successful curriculum implementation. This is critical for effective teaching which will empower students to become confident, innovative, compassionate and productive members of our society (Perret & McKee, 2021). Furthermore, this study is pivotal because the findings could inform curriculum developers and policymakers to consider formulating a differentiated curriculum for special schools.

Challenges faced by special school teachers in curriculum implementation

Special school in this study refers to a school for learners with sensory, motor, or intellectual impairments who cannot benefit from inclusive education or a special needs class or unit in mainstream schools (Zigmond & Kloo, 2017). Thus, learners with special education needs are categorized as having either: autism, deaf-blindness, deafness, emotional disturbance, hearing impairment, intellectual disability, orthopaedic impairment, speech or language impairment, traumatic brain injury, or visual impairment. In this paper, hearing impairment refers to an individual's condition of losing hearing capability resulting in a person not receiving various stimuli mainly by his/her hearing sense (Ibitoye, 2021).

Evidence from previous studies discovered that teachers are experiencing challenges in implementing the revised curriculum in special schools. For example, Ntinda and colleagues (2019) in their study on the

experience of teachers of deaf and hard-of-hearing students in a special needs school, revealed that they are experiencing gaps in professional competencies to teach the mainstream curriculums to special learners, this is because there is no differentiated curriculum that recognizes the peculiar educational needs of learners in the special schools. The old curriculum in Namibia was designed in such a way that there was a special curriculum for special needs learners and they were taught in separate schools from the mainstream schools (Naholo, 2020). However, the revised curriculum introduced an inclusive education whereby special needs learners are taught together with normal learners in mainstream schools or special schools and all learners are expected to master the same competencies. Thus, the teachers teaching learners with hearing impairments, in particular, found the implementation of the revised curriculum challenging as they were not trained on how to teach special needs learners during their training courses at universities.

Moreover, there are insufficient specialized teaching and learning materials for deaf learners in special schools. Studies reported that resources such as hearing aids and specialized textbooks necessary for implementing the inclusion of learners with special education needs are inadequate in special schools and at times materials such as textbooks arrive late when applied for by schools (Adewumi & Mosito, 2019; Khomera et al., 2020). In particular, Nembwaya (2023) point out that special schools in the Oshana Region of Namibia are in dire need of a variety of specialised machinery, equipment, learning and teaching materials for the visually and hearing impaired, and those with intellectual impairments. Therefore, a lack of instructional materials will impede special education teachers from successfully implementing the revised curriculum.

Furthermore, special educators are experiencing hindrances due to a lack of funding to cater for the schools' needs. Studies confirmed that special schools have limited capital to purchase the required materials to implement the revised curriculum (Khomera et al., 2020; Nembwaya, 2023). For instance, the Deputy Director of education of the Oshana Region in Namibia took to the media that the directorate has insufficient funds to procure and provide sufficient equipment and materials to Special Schools in the Oshana Region and appealed to the public to come to their aid (Nembwaya, 2023).

The special educators' difficulties in implementing the revised curriculum in special schools are also attributed to a lack of parental involvement in the education of their children. As Khomera and colleagues (2020) acknowledge, special learners with hearing defects are neglected by parents and other family members. Nevertheless, parents' participation in the education of their children is pivotal in the realization of the revised curriculum. As Ainscow (2020) observes, parental engagement in education is crucial as the opinions of families, including children themselves, can assist in bringing new thinking to the efforts of schools to develop more inclusive ways of working. The involvement of parents will also motivate teachers to enact the revised curriculum effectively in special schools' despite not being prepared to teach learners with special educational needs (Monteiro et al., 2018).

Measures for addressing the challenges faced by special school teachers in curriculum implementation

Studies proposed various mechanisms to address the difficulties experienced by special education teachers in enacting the revised curriculum. Firstly, teachers need to be trained adequately to enforce the updated curriculum. Thus, Ntinda and colleagues (2019) recommend that special school educators be provided with professional development concerning teamwork, consultation, testing instruments, and language skills.

In the absence of the Internet and interactive modern gadgets at special schools, Ibitoye (2021) suggests that Realia can be exhibited at the head of the class. According to Ibitoye (2021), incorporating Realia in class is beneficial as it enables hearing-impaired students to press, feel, and smell it to acquire the conceptual awareness that assists them in memorizing meanings in teaching vocabulary.

Besides, the learning environment for deaf learners should be desirable. For instance, special education teachers are urged to promote a supportive education atmosphere for learners with hearing impairments (Lee et al., 2021). On the other hand, schools should establish initiatives that will enhance parents' knowledge of special education and enable their participation in the education of their children. Subanova (2023) argues that the psychological and pedagogical incompetence of parents can be tackled by establishing parental lectures, family – educators' clubs, and parental workshops that will foster a positive relationship with the community, teachers, and other educational stakeholders. Thus, critical stakeholders' education' could promote the implementation of the revised curriculum in special schools. In a different submission, Ainscow (2020) clarifies that special schools in Namibia can reduce variation among themselves by collaborating with others to share resources, ideas, and expertise, and exercise collective responsibilities for student success. Therefore, cooperation of all special schools in the country might promote the sharing of knowledge and pedagogical skills as well as resources that will lead to the successful implementation of the revised curriculum in special.

Research questions

To understand the barriers impacting special education teachers in effectively implementing the revised curriculum, this study answered the following two questions:

1. What challenges do special education teachers experience in implementing the revised curriculum for deaf learners in special schools in Northern Namibia?
2. What are the approaches that special education teachers suggest can be used to overcome the challenges experienced in implementing the revised curriculum for deaf learners in special schools in Northern Namibia?

Methodology

Research design

This study utilised a convergent parallel mixed-methods research approach to collect data about the special education teachers' barriers to implementing the revised curriculum in special schools in Northern Namibia. Quantitative data were collected using the survey questionnaires while qualitative data were collected using semi-structured interviews.

Participants of the Study

The population of the study consisted of 20 Special Education teachers currently teaching in the two special education schools in the study area. Furthermore, the study sample consisted of all 20 Special Education teachers (10 teachers per school) and they were selected using the total population sampling methods. All 20 participants completed the questionnaire. Furthermore, a subsample of 10 teachers who have two or more years of teaching experience (5 teachers per school) were purposively selected to participate in the focus group discussion.

Research instruments and data collection

The study used a survey questionnaire and focus group discussion as instruments to collect data. Copies of the questionnaire were distributed to the study participants and collected back in three days. The questionnaire consisted of two sections: A and B. Section A collected the participants' demographic data. Section B consists of five-point Likert Scale probing questions (1= Disagree, 2= Strongly disagree, 3= Neutral 4= Agree and 5= Strongly agree) that gather data on the challenges special education teachers experience when implementing the revised curriculum in the study area and the approaches they use to overcome their specific challenges. The focus group discussion was scheduled at the convenient time of the participants to ensure that school-related activities were not disrupted. The main purpose of the focus group discussion was to explore in depth the challenges encountered by special education teachers in implementing the revised curriculum and how they can be addressed. Each participating school has formed one focus group. Permission to conduct the research was sought and obtained from the Directors of Education for the Oshana Region and Ohangwena Region as well as from the Principals of the Special schools where the participants (special education teachers) work. Participants were provided with an information sheet detailing the aim of the study. Furthermore, the participants were kept anonymous and pseudonyms were used to identify them and their schools throughout the study. Finally, we sought and obtained permission from the participants to participate in the focus group discussion and record the discussion. The researcher ensures that the study instruments validity and reliability was tested. The content validity of the questionnaire was established by determining the extent to which the instrument covered the research objectives. Using the inter-rating approach, five subject experts at the University of Namibia were requested to check the suitability of the questionnaire for the intended study and give their comments as well as ratings out of 10 marks. Interestingly, all five subject experts commented that the questionnaire was suitable for the study. The average of the rating score was 7.4 which represents 74% or 0.74 inter-rating coefficient. Furthermore, the instrument reliability was ascertained by calculating Cronbach's alpha which is equal to 0.84 and 0.73 reliability coefficients respectively for the two research questions. These suggest that the research instrument is reliable. According to Haufiku and colleagues (2022), a study should strive to achieve an internal consistency of greater than 0.65. Therefore, the study satisfied the internal consistency reliability for every research question and the instruments were considered reliable.

Data analysis

The study employed descriptive statistics using SPSS version 28 to analyse the quantitative data to establish the percentage of response frequencies, while the qualitative data were analysed using the thematic analysis methods in ATLAS.ti. In analysing the qualitative data, the recorded focus group discussion was first transcribed into texts. Then, the texts were carefully checked, sorted and coded based on similar patterns. Furthermore, the codes were grouped into different emerging themes. Finally, the themes were classified or reduced into smaller manageable themes according to the research questions.

Findings and discussions

Important demographic characteristics of the participants

Participant gender, age group, qualifications and years of teaching experience

The table below shows the participant's gender, age group, teaching qualification and years of experience of teaching learners with hearing impairment. The results on gender show that 30 % (6/20 participants) were male while 70% (14/20 participants) were female. On the age categories of the participant, 10% (2/20 participants) were below 30 years, 65% (13/20 participants) were between 31-40 years, 10% (2/20 participants) were between 41-50 years and 15% (3/20 participants) were between 51-60 years. This result implies that the majority of teachers teaching learners with hearing impairment in the study location were youth. Furthermore, 90% (18/20 participants) had Bachelor of Education (Honours) (B.Ed Hons.) as their highest education qualification while 10% (2/20 participants) had Master of Education (M.Ed). These suggest that all the participants are fully qualified to teach at the special education school - secondary school phase, which is the current level of studying by the learners with hearing impairment in this study. In Namibia, the Ministry of Education, Arts and Culture stipulates that the required minimum academic qualification for a qualified secondary school teacher is the Bachelor of Education (Honours) in the specific subject discipline. The results also revealed that majority of the participants (60% or 12/20) have less than five years of teaching experience in the special education school. This suggests that majority of the teachers may not possess the depth of experience needed to effectively mediate teaching and learning of such special learners, by developing and using relevant instructional aids that is responsive to the learning needs of learners with hearing impairment. According to Ceka and Murati (2016), job experience of teachers is crucial in developing and using relevant teaching and learning support materials for teaching effectiveness, emphasising that more skills are acquired as the teacher gains more years of experience.

Table 2

Participant Responses on Gender, Age Group, Qualifications and Years of Teaching Experience

Variable	Categories	Counts	Percentage (%)
Gender	Male	6	30
	Female	14	70
Age	< 30	2	10
	31-30	13	65
	41-50	2	10
	51-60	3	15
Highest qualifications	Bachelor of Education (Honours)	18	90
	Master of Education (M.Ed.)	2	10
Years of teaching experience	< 5 years	12	60
	6 – 10 years	4	20
	11– 15 years	3	15
	> 15 years	1	5

Barriers experienced by special education teachers when implementing the revised curriculum

The results revealed that teachers in special schools in the study area experienced the following barriers in teaching deaf learners when implementing the new curriculum: Shortage of specialised teaching and learning materials, limited time per lesson for scaffolding, lack of teaching methodology, refresher workshops, minimal parental involvement in learners learning, nonconductive infrastructures for deaf learners, lack of knowledge of sign language, lack of assessment tools for sign language, insufficient assistant teachers to assist learners, and absence of special curriculum for learners with hearing impairment.

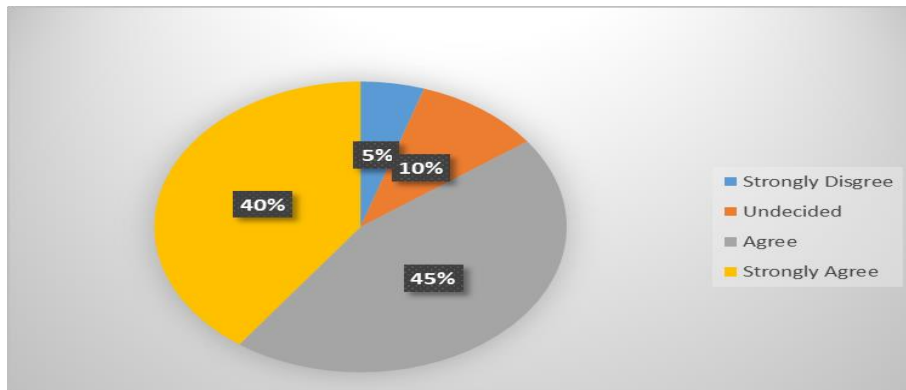
Shortage of specialised teaching and learning material

The results (see Figure 1) show that 40% of the study participants strongly agreed and 45% of the participants agreed that they face the barriers of shortage of specialised teaching and learning material for sign language to make it easier to teach learners with hearing impairment in special schools. In the focus group discussion, it also emerges that the shortage of specialized teaching and learning materials was strongly emphasised as the teachers' major barrier to implementing the new curriculum in special schools in the study area as seen in the excerpt, "Special schools also do not have adequate books for sign language and videos to assist teachers in explaining the topic thoroughly" (Focus Group 1).

Interestingly, both focus groups 2/2 highlighted that they experienced a lack of teaching and learning materials as the new curriculum did not consider deaf learners and most of the resources available were useful only to the mainstream schools. According to du Plessis and Mestry (2019) and Engelbrecht and colleagues (2015), a shortage of specialised teaching and learning materials can have significant implications for special education. Furthermore, issues can arise for various reasons, including limited resources, outdated or insufficient curriculum, and challenges in producing or procuring specialised materials

Figure 1

Participants' Responses on the Shortage of Specialised Teaching and Learning Materials



The shortage of specialized teaching and learning materials in special schools poses unique challenges. special schools cater for learners with diverse learning needs and abilities, often requiring highly customized resources (Troia & Maddox, 2004). Thus, addressing the shortage of specialised teaching and learning materials can help ensure that these learners have access to high-quality education that meets their unique needs and prepares them for success in their chosen fields.

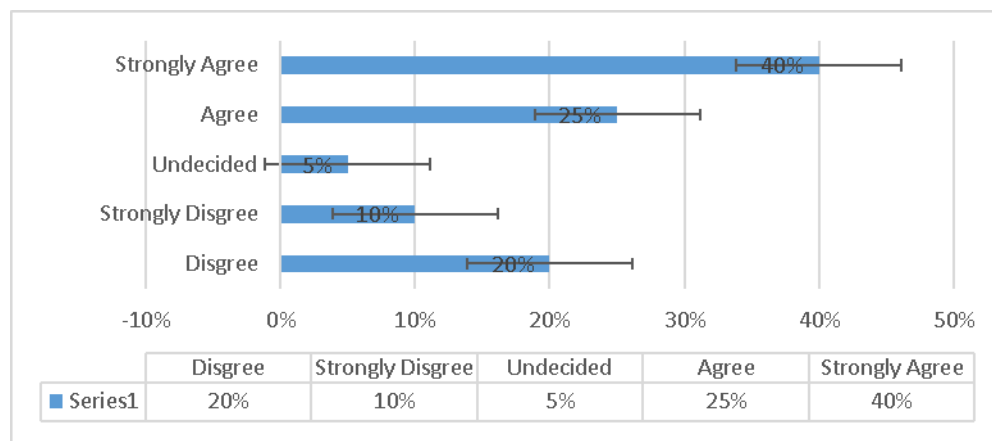
Limited time per lesson for scaffolding learners

The results (see Figure 2) depict that the majority of the participants 40% strongly agree and 25% agree that they have limited time per lesson which makes it difficult for scaffolding learners in the study area. Special learners need more time to spend with the teachers. This was supported by the focus group discussion during which the participants stated that the time allocated per lesson is limited to scaffolding the special learners. One vocal participant exclaimed, "Teachers require sufficient time to spend with special learners, especially the upper grades" (Focus Group 1).

The study conducted by Moustache and Makhoba (2024) when working with learners with hearing impairments revealed the importance of implementing effective strategies to optimize their learning experience within a limited time frame. Moustache and Makhoba (2024) stressed the significance of using visual aids like diagrams, charts, and videos including transcripts to supplement verbal instructions when teaching learners with hearing impairments. In the study area however, it was reported earlier that there is a shortage of teaching and learning materials to cater for the teaching and learning needs of the Special school teachers and learners respectively.

Figure 2

Participants' Responses on Limited Time Per Lesson for Scaffolding Learners



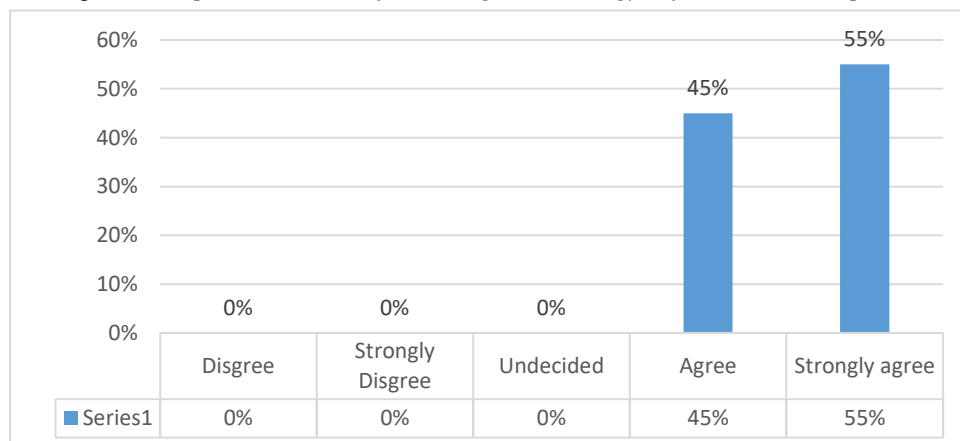
Lack of teaching methodology refresher workshop

The results (see Figure 3) indicate that the majority of the participants (55%) strongly agree and 45% agree that they do not have teaching methodology refresher workshops on implementing the new curriculum in the study area. Participants from all 2 focus groups bemoaned the lack of refresher workshops on sign language teaching methodology as seen in the excerpt, "Sign language teachers need special training in sign language and technology, especially the use of computers and overhead Projectors" (Focus Group 2).

Participants also indicated that most workshops organized are for mainstream schools and they cannot implement the knowledge acquired there at special schools. Both focus group discussions further echoed that no support from the regional office was provided to train the newly appointed teachers in sign language.

Figure 3

Participant's Responses on Lack of Teaching Methodology Refresher Workshop



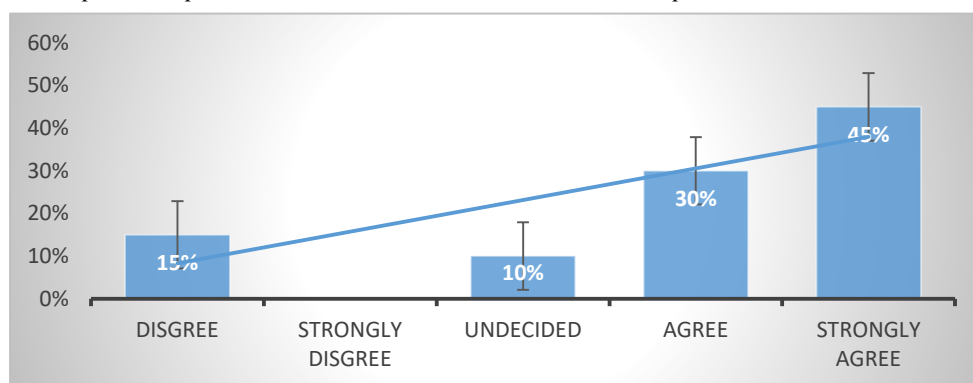
It is worrisome to hear that there is a lack of teaching methodology refresher workshops for special school teachers in the study area. According to Maheady and colleagues (2016), workshops are crucial for professional development and ensuring that teachers have the tools and knowledge to provide the best education for their learners. Furthermore, a study conducted by Maheady and colleagues (2016) stated that special schools need to partner with universities, colleges, or educational organizations that have expertise in special education. They may be able to provide Maheady resources, and trainers, or even host workshops. Also, workshops are crucial for educators to stay updated with the latest techniques and strategies in teaching, and encourage experienced teachers to share their expertise by leading workshops on specific teaching methodologies they excel in. This can foster a sense of community and peer learning and, if necessary, work with educational policymakers to advocate for policies that prioritize and allocate resources for teacher professional development (Eden et al., 2024).

Minimal parental involvement in learners' education

As shown in (Figure 4), the results revealed that 45% of the participants strongly agreed and 30% agreed that minimal parental involvement in their learners' education constitutes one of the barriers they are facing in implementing the new curriculum in special schools in the study area. This means that parents do not partake actively in the education of special children, especially in sign language teaching. Participants from both two focus groups reiterate that "Lack of parental involvement in the education of their special children is attributed to their lack of sign language knowledge" (Focus Group 2) and "Sign language education should commence at home. However, parents should first get basic training in sign language to train their special children before enrolling for school" (Focus Group 1). Lastly, parents do not motivate the learners to have an interest in schooling.

Figure 4

Participants Responses on Minimal Parental Involvement in Special Learners Education



According to Nthuku et. al (2024), there can be various factors that contribute to minimal parental involvement in the education of learners with hearing impairments. For example, some parents may not be fully aware of the importance of their involvement in their child's education, especially for learners with special needs like hearing impairments. They might not understand the impact their support can have on their child's education. Additionally, some parents may face challenges in accessing resources or information about how to support a child with a hearing impairment (Barger et al., 2019). This could include information on available services, assistive technology, or educational strategies. For parents whose first language is not the same as the language of instruction, there may be communication barriers that make it more challenging to engage with the educational system.

Hornby & Lafaele (2011) allude that addressing these barriers requires a concerted effort from both the educational institution and the parents themselves whereby, schools can provide resources, clear communication, and a welcoming environment. Additionally, providing information and support tailored to the specific needs of parents with children who have hearing impairments can go a long way in encouraging their active involvement in their child's education.

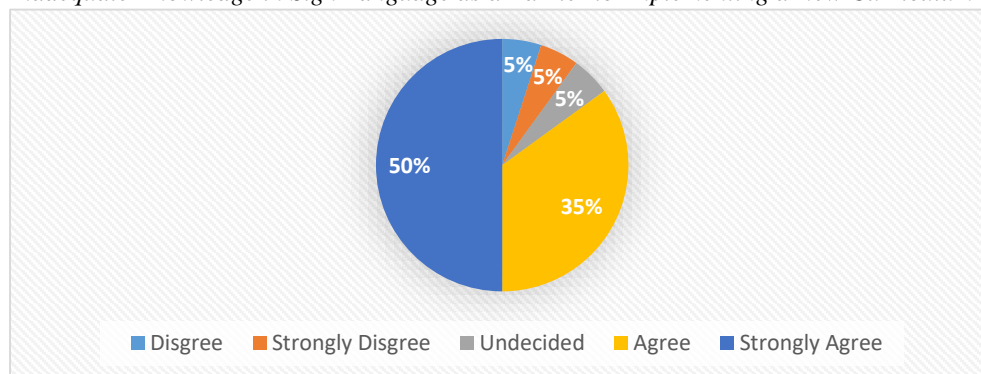
Teachers' inadequate knowledge of sign language

The results in (Figure 5) depict that 50% of participants strongly agreed and 35% agreed that teachers' inadequate knowledge of sign language constitutes another barrier that teachers in special schools in the study area face in implementing the new curriculum. The majority of teachers echoed that they were not trained in sign language at the university level or the secondary school level. Participants from both focus group discussions highlighted that learners need teachers who are fluent in sign language as can be seen in the excerpts, "Teachers in grades 4-12 were not trained in sign language at the university level and even at secondary school level, and the regional office did not organize intensive training on sign language for teachers before starting teaching at special schools" (Focus group 1) and "Novice teachers therefore need training in sign language and general knowledge of learners with hearing impairment" (Focus Group 2).

Thus, the teachers are not qualified to teach sign language which makes it difficult for them to implement the new curriculum in special schools. Besides, the Ministry of Education, Arts and Culture does not provide any support for the teachers to acquire the skills and capacity for teaching sign language through continuous professional development programs or workshops. Furthermore, both two focus group discussions indicated that there was no common sign language employed by the teachers because they did not get standardized training in sign language.

Figure 5

Inadequate Knowledge in Sign Language as a Barrier to Implementing a New Curriculum in Special Schools



The study conducted by Ngobeni and colleagues (2020) revealed that teachers' inadequate knowledge of sign language can be a significant barrier to teaching deaf or hard-of-hearing learners. Additionally, when teachers do not have in-depth knowledge of sign language, it becomes challenging for them to effectively communicate with deaf or hard-of-hearing learners. Furthermore, without proper knowledge of sign language, teachers may struggle to convey information in a way that is accessible to learners who rely on this mode of communication. Moreover, this can lead to misunderstandings, and frustration, and ultimately hinder the learning process. This can lead to gaps in understanding and potentially hinder academic progress. Understanding sign language is not just about communication; it's also about understanding the culture and experiences of the Deaf community. Without this understanding, teachers may inadvertently display cultural insensitivity (Ikpeze, 2016). According to Metzger and colleagues (2021) and Webb and Napier (2015), schools and educational institutions should offer sign language training for teachers. This can be through workshops, short courses, or even hiring qualified sign language instructors. Encouraging inclusive practices in the classroom, such as using visual aids, providing transcripts or captions for videos, and allowing for alternative modes of assessment, can help bridge communication gaps (Metzger et al., 2021). Additionally, technology can be a powerful tool for facilitating communication, tools like video conferencing platforms with real-time captioning or signing avatars can enhance accessibility (Mack et al., 2020).

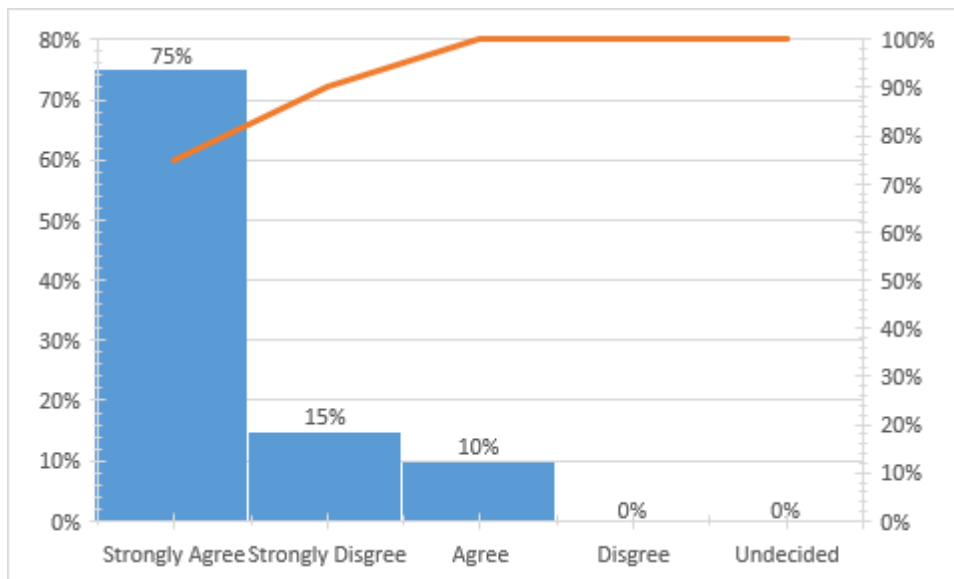
Lack of assessment tools for deaf learners

The participants' responses in Figure 6 below show that 75% strongly agreed and 10% agreed that they experienced a barrier of lack of assessment tools for deaf learners, which hampered them exhaustively in enacting the new curriculum in the study area. As seen in the excerpt "Tools should be provided to record learners' assessments as future evidence that the assessment took place, for instance, a video camera to take a video during formative and summative assessment activities" (Focus group 2), one of the focus groups stressed the need for tools to keep records of deaf learners' assessments.

The study conducted by Manga and Masuku (2020) highlighted that the lack of appropriate assessment tools for deaf learners is a significant challenge in the field of special education. Also, many standardised assessments are not designed with the needs and experiences of deaf individuals in mind. This lack of representation can result in assessments that do not accurately measure their true abilities.

Figure 6

Lack of Assessment Tools for Deaf Learners as Teachers' Barrier to Implementing the New Curriculum in the Study Area



According to Sanchez-Gordon and Luján-Mora (2020) and Thurlow and Kopriva (2015) developers need to consider the needs of deaf learners from the outset, ensuring that assessments are designed to be inclusive and accessible. Furthermore, collaboration with experts in deaf education, including deaf individuals themselves, is crucial in creating assessments that accurately measure their abilities. Assessments should incorporate sign language and other visual communication methods to ensure that deaf learners can fully engage with the materials. Professionals involved in assessment development and administration should receive training on deaf culture and the unique needs of deaf learners (Sanchez-Gordon & Luján-Mora, 2020). Investment in research to develop new assessment tools and adapt existing ones to better suit the needs of deaf learners is essential. Ultimately, addressing the lack of assessment tools for deaf learners requires a concerted effort from educators, researchers, policymakers, and the broader community to ensure that every individual, regardless of their hearing status, has the opportunity to demonstrate their true abilities (Sanchez-Gordon & Luján-Mora, 2020; Thurlow & Kopriva, 2015).

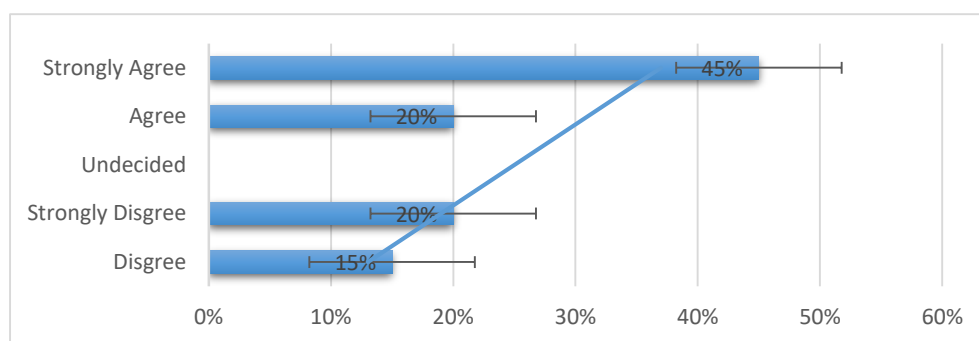
Unconducive infrastructures for deaf learners

The results in Figure 7 below depict that 45% of the participants strongly agreed and 20% agreed that they face the barrier of unconducive infrastructures for deaf learners/learners with hearing impairment. Results from the two focus groups also agreed that the existing infrastructures are not deaf learners friendly as can be seen in the excerpts, "For example, the classrooms have tiles and learners make noise with chairs unaware that they are making noise" (Focus groups 1 & 2) and "Some classes are made out of corrugated iron and deaf learners use to hit on the iron, making noise during the lesson or school hours thereby distracting learning and the surroundings because they cannot hear the noise" (Focus group 2).

Some scholars Scovia (2018) and Ngeno (2020) define unconducive infrastructures for deaf learners as physical or environmental conditions that hinder or impede the learning experiences of individuals who are deaf or hard of hearing.

Figure 7

Unconducive Infrastructures to Deaf Learners as a Teacher's Barrier to Implementing New Curricula for Deaf Learners in the Study Area.



According to Mealings and Buchholz (2024), inadequate soundproofing or acoustic treatment in classrooms causes excessive background noise or echo, which can make it difficult for learners to hear or understand spoken information. Therefore, is essential to address these infrastructural challenges to create inclusive and accessible learning environments for deaf learners. This can be achieved through a combination of policy changes, investment in accessibility features, staff training, and awareness-building efforts within educational institutions and communities (Mealings & Buchholz, 2024)

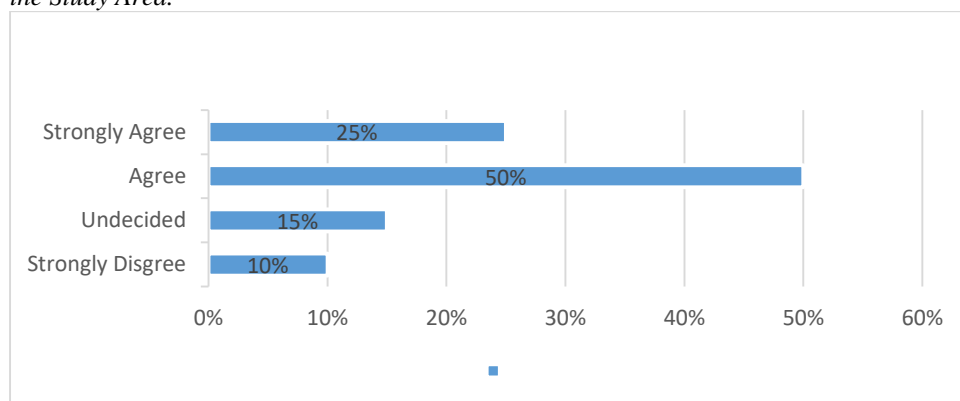
Insufficient teaching assistants to assist deaf learners

The results in (Figure 8) revealed that 25% of the participants strongly agreed and 50% agreed that insufficient teaching assistants to assist learners with hearing impairment is a teaching barrier they faced in implementing the new curriculum in the study area. As seen in the excerpts "Insufficient teaching assistants can be a significant challenge for both the learners and the teachers involved" (Focus Group 1), "The insufficient number of teaching assistants to assist deaf learners can lead to several other major challenges in their educational experience" (Focus Group 2) and "With fewer teaching assistants, it becomes challenging to provide the necessary one-on-one support that deaf learners may require" (Focus groups 1 & 2), participants from both focus groups also alluded to the shortage of assistant teachers to assist deaf learners who are lagging while the teacher continues with others.

According to the study conducted by Love and Hale (2022) and Bintoro and colleagues (2023), deaf learners often rely on various communication methods such as sign language, lip reading, or assistive technology. Furthermore, without enough teaching assistants, there may be delays or breakdowns in communication, hindering the learning process. Deaf learners may struggle to access teaching, discussions, and other educational materials if they do not have sufficient support.

Figure 8

Insufficient Teaching Assistants to Assist Learners as a Teaching Barrier to Implement the New Curriculum in the Study Area.



Insufficient teaching assistants may lead to less participation in group activities, discussions, and collaborative projects. Additionally, this can isolate deaf learners and hinder their social and academic integration (Leigh et al., 2022). Without appropriate support, deaf learners may face delays in their academic progress. This can impact their overall educational experience and potentially lead to frustration or disengagement. Without adequate support, it may be challenging to accurately assess the progress and achievements of deaf learners, potentially leading to inaccurate evaluations of their abilities (Bintoro et al., 2023). Finally, the shortage of teaching assistants can create disparities in educational opportunities between deaf learners and their hearing peers.

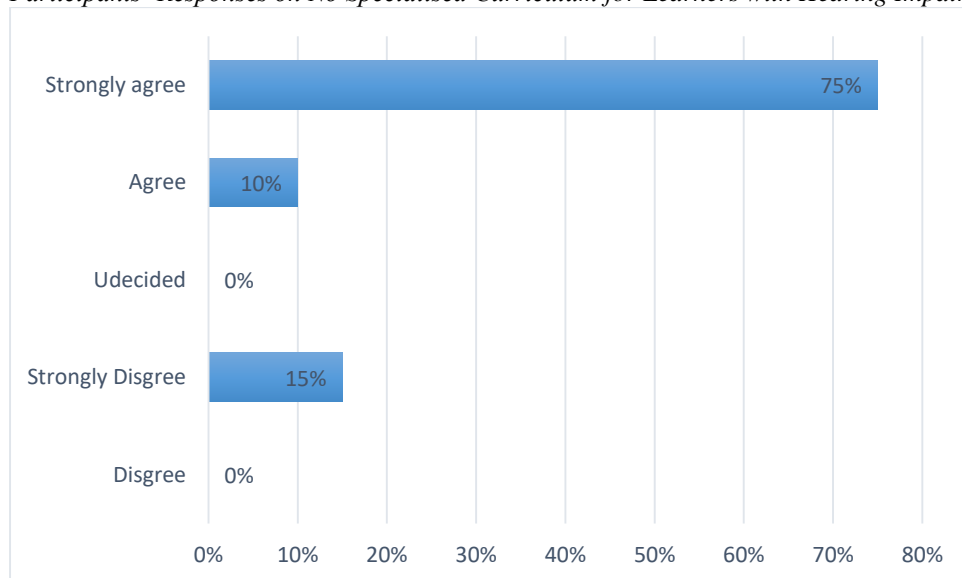
No specialised curriculum for learners with hearing impairment

The results in Figure 9 show that 75% of participants strongly agreed and 10% agreed that they face a barrier of no specialised curriculum for learners with hearing impairment since the government introduced inclusive education. Special education learners, especially deaf learners need a special curriculum besides the mainstream school curriculum. All the focus group discussions highlighted that there is no specialized curriculum for deaf learners, "In the past, deaf learners used to repeat a grade and that was not because they failed but to ensure the syllabus was completed because deaf learners are very slow in learning compared to the other learners" (Focus Group 1 & 2). "Time is also not adequate to cover the curriculum content for that year" (Focus Groups 1 & 2).

According to Mumba (2022) and Mantzikos and Lappa (2020), when teachers are not provided with a specialized curriculum or adequate resources for learners with hearing impairments, they face several significant barriers. Furthermore, these barriers can make it difficult for them to effectively educate and support learners with hearing impairments. As a result, teachers may struggle to find appropriate teaching materials, technology, and tools designed for learners with hearing impairments. Therefore, the lack of specialized curriculum for special schools can hinder effective teaching and learning processes and limit the ability to provide a rich and engaging educational experience for learners with hearing impairment. Effective communication is crucial in any educational setting. Thus, without a specialized curriculum, Special school teachers may struggle to effectively communicate with learners who have hearing impairments (Mantzikos & Lappa, 2020).

Figure 9

Participants' Responses on No Specialised Curriculum for Learners with Hearing Impairment



Without a specialised curriculum, teachers may struggle to develop, and implement effective strategies for learners with hearing impairments. Therefore, the Ministry of Education, training institutions, and policymakers needs to recognize the barriers impeding the effective implementation of the revised curriculum in Special schools, especially in the study area and provide the necessary support, training, and resources to empower teachers to create enabling learning environments for learners with hearing impairments.

Approaches to overcome the barriers special education teachers experienced when implementing the revised curriculum

The results in Figure 10 show the participants' responses provided via a questionnaire on the approaches that special education teachers can use to overcome the barriers experienced when implementing the revised curriculum. Additionally, Figure 11 shows the themes that arise from the focus group discussion on the approaches suggested. In the questionnaire responses, the majority of the participants (75%) suggested that special education teachers should collaborate countrywide to share experiences on best practices of teaching and assessing learners with hearing impairment. Furthermore, participants (65%) suggested that the special education curriculum should be reformed and concentrate more on vocational subjects, and 65% suggested that the Regional Directorate should organise more Sign language workshops to train the teachers on common signs. Fifty per cent (50%) of the participants advocated for the provision of more visual teaching materials and 55% of them suggested that the government should install Wi-Fi in all special schools. This will help teachers to access more visual teaching materials from different sources. These results were supported by the findings from the focus group discussion, and the participants suggested similar approaches.

Figure 10

Questionnaire Responses an Approaches That Special Education Teachers Suggest Can Be Used to Overcome Their Barriers

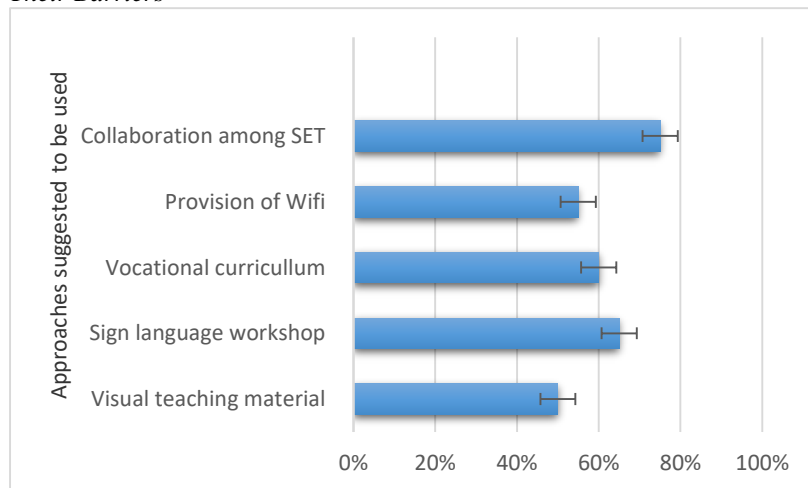
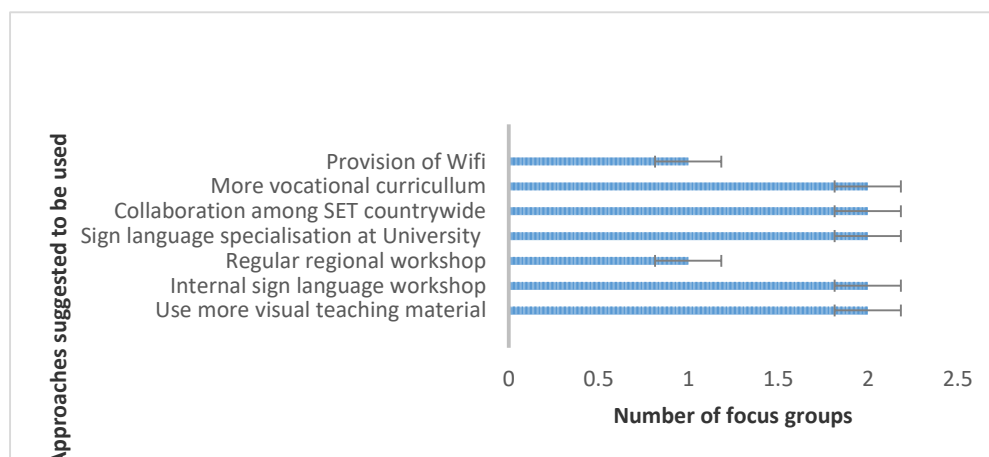


Figure 11

Focus Group Participants' Responses on Approaches That Special Education Teachers Suggest Can Be Used to Overcome the Barriers.



During the focus group discussion, on the approaches to be implemented to overcome the special education teachers' barriers when implementing the revised curriculum, the participants suggested that the internet should be installed in all special schools to enable Teachers to download visual teaching materials. In addition, they advocated for regular regional refresher workshops. Furthermore, the participants suggested that the Special Schools curriculum should focus more on vocational subjects rather than content subjects. They also suggested collaboration among Special School teachers countrywide to share experiences on best practices, while the Universities in Namibia should introduce a teaching specialisation course to train teachers in Sign Language, as currently there is no such specialisation offered by the Universities. Additionally, the participants advocated that Special Schools should organise intensive internal Sign Language workshops to develop and use common signs as well as develop more visual teaching materials. As noted by Young (2018), special education teachers can collaborate, support staff and other professionals to develop and implement the new curriculum. Furthermore, they can apply different instruction techniques to help accommodate diverse learning needs within the classroom.

Conclusion and recommendations

Based on the results of the study, it is concluded that the special education teachers in Northern Namibia are faced with several barriers in implementing the revised curriculum. The identified barriers include a shortage of specialised teaching and learning materials, limited time per lesson for scaffolding deaf learners, lack of refresher workshops, minimal parental involvement in the learners' education, teachers' inadequate knowledge of sign language, lack of assessment tools for deaf learners, insufficient teaching assistance to assist learners, deaf learners require individualised support when they miss important content if there is no teacher assistance the learners will miss out and non-availability of specialised curriculum for learners with hearing impairment, specialised curriculum for deaf learners is crucial for ensuring their academic success, social integration. It breaks down barriers, fostering inclusion and empower individuals to reach their full potential. The study recommended that Special school teachers should collaborate countrywide to share experiences on best practices in teaching and assessing learners with hearing impairment, the curriculum for deaf learners should be more focused on vocational subjects rather than content subjects, and the schools as well as the Regional office should organise workshop in sign language for teachers to develop common signs, while Universities in Namibia should introduce a teaching specialisation course in Sign language to train Special education teachers.

Conflicts of Interest

The authors hereby declare that there is no conflict of interest concerning the publication of this article.

Author contribution

The authors confirm contributions to the paper as follows: Isidor Haufiku conceived the study, planned the experiments, participated in data collection and write the first of the manuscript, Hilya Tulipomwene Shuulinawa Nghitoolwa participated in planning the study, performed the literature search, developed the research instruments, lead the data collection, performed the data entry and analysis; James Abah also participated in planning the study, guide the manuscript development, validate the research instruments, performed data interpretation, reviewed the manuscript and shaped the scientific technicalities, and formatted the manuscript. All the authors read and approved the final version of the manuscript.

Data availability statement

The data that support the findings of this study are freely available on a reasonable request from the corresponding author. The data are not publicly available due to the research ethical restrictions.

Acknowledgements

We wish to acknowledge the Oshana and Ohangwena Regional Director of Education for granting permission to carry out the study in the region and as well as the Principals of Special Schools for accepting this study to be carried out in their schools. Finally, we thank the study participants for their voluntary participation in the study.

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