The effect of Instructional Methods on Learners with Hearing Impairment's Academic Performance: The Case of CJSM Ngoma Inclusive School, Rwanda

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ABSTRACT

As educational institutions strive for inclusivity, understanding effective teaching strategies is crucial for optimising learning outcomes for these learners. The study's objectives are to examine how instructional methods affect learners with hearing impairments' academic performance of learners with hearing impairment, and identify the effective strategies that can be used to improve their educational outcomes. The study employed a descriptive survey design. Quantitative data was obtained from hard copy anonymous questionnaires. Findings indicate that instructional methods incorporating visual elements and interactive components significantly enhance the learning experience for learners with hearing impairments. The study reveals that technology, when integrated thoughtfully into teaching practices, can provide substantial support, although access and training remain critical factors influencing its effectiveness. Instructional materials such as captions and visual aids are highly regarded for their effectiveness in facilitating comprehension and engagement among learners.

Despite the positive outcomes associated with tailored instructional strategies, challenges related to social engagement and peer interaction persist, indicating the need for comprehensive approaches that address both academic and social dimensions. The research underscores the importance of ongoing professional development for educators and emphasises the necessity of fostering inclusive environments that promote collaboration and understanding among all students. Ultimately, these insights aim to inform best practices in teaching learners with hearing impairments, ensuring equitable educational opportunities.

Keywords: hearing impairment, learners, instructional method, academic performance, inclusive education

INTRODUCTION

The academic success of learners with hearing impairment is a critical area of interest in educational research, as it addresses the broader challenge of inclusive and effective teaching strategies. Numerous nations around the world have conducted studies on the effects of instructional strategies on the academic performance of learners with hearing impairment in inclusive education. Despite the fact that every child is different, students with special needs need a little bit more care and attention than regular students (Sthitaprajnya, 2022). Hearing impairment can significantly affect communication, social interaction, and access to information, leading to disparities in academic performance compared to their hearing peers. Rwanda has approximately 446 000 people living with disabilities (CSO, 2022). They routinely fare worse than others in terms of health, educational success, economic, political, and cultural participation, poverty rates, dependency levels, and legal protection (UNDP, 2022). As educational institutions strive to provide equitable learning opportunities, understanding the impact of various instructional methods on the academic outcomes of learners with hearing impairment become critical.

Like other policy instruments, the current National Strategy for transformation (NST1 2025- 2029), Education Sector Strategic Plan (ESSP - 2025/2029), Special Needs and Inclusive Education Policy and its Strategic Plan (2025-2029) were designed to specifically address the special educational needs of all learners with disabilities including children with hearing impairment in their inclusive education by using different instructional strategies

(SNIE Strategic Plan, 2019). However, learners with hearing impairment face challenges in the classroom that affect their academic performance.

Different instructional strategies, including visual aids, hands-on learning, and the use of technology, can play a transformation role in enhancing comprehension and retention of knowledge among learners with hearing impairment. However, it is not clear which instructional methods are most effective in this context. For instance, (Rowland 2007; Jelinek & Jackson, 2017) have shown that the use of captioning increases vocabulary and improves reading comprehension while giving students access to academic and cultural experiences. Any product system, piece of apparatus, piece of software, or other piece of Assistive Technology (AT) used to maintain, enhance, or increase the functional capabilities of people with disabilities is referred to as assistive technology (ATiA, 2020). This research explored how these diverse teaching approaches affect not only academic performance but also engagement, motivation, and self-efficacy in hearing-impaired learners. By examining the correlation between instructional methods and academic outcomes, the study seeks to inform educators and policymakers about best practices that can foster an inclusive environment conducive to learning for all learners, regardless of their hearing ability.

Additionally, no research has been done on the academic performance of students in Rwanda's inclusive education system, specifically at CJSM Ngoma Inclusive School, who have hearing impairments. Due to the learners' extremely poor performance in class, this study sought to close this gap by examining the impact of instructional strategies on the academic performance of learners with hearing impairment. Therefore, the objectives of this study are to (1) examine how instructional methods affect students with hearing impairments' academic performance of learners with hearing impairment, and (2) identify the effective strategies that can be used to improve their educational outcomes.

LITERATURE REVIEW

Research examining instructional methods reveals significant challenges affecting academic performance of learners with hearing impairment globally. Universal Design for Learning (UDL) paradigm demonstrates significant potential for improving academic performance of learners with hearing impairment by providing flexible, inclusive instructional methods. Multiple studies show UDL's effectiveness: (Novembli et al., 2024) found UDL increased student confidence and participation, while (Caroline et al., 2025) emphasised the importance of varied engagement, representation, and expression methods. Key improvements include; providing multiple means of representation; offering flexible learning environments, and enhancing student engagement and self-expression. However, challenges remain. (Dennis Mumba et al., 2022) noted persistent issues like insufficient resources and inappropriate instructional methodologies. (Espada-Chavarria et al., 2023) highlighted the need for continued practical implementation of universal design teaching models. The evidence suggests UDL is promising but requires ongoing refinement and comprehensive institutional support to maximise its potential for hearing-impaired learners.

Studies consistently demonstrate that instructional strategies significantly influence academic outcomes for students with hearing impairment in inclusive classrooms (Ezechinyere, 2021). Socioeconomic factors, previous academic scores, and deafness-related characteristics also influence performance (Rajamoni et al., 2022). Deaf children have historically performed poorly in reading and other academic subjects within the United States of America. The academic success of students who are deaf and hard of hearing has consistently lagged behind that of their contemporaries, particularly when it comes to reading and math. Additionally, numerous people who are hard of hearing and deaf are at a significant disadvantage in post-secondary education due to their low academic achievement (Herring & Woolsey, 2020). Educators perceive hearing-impaired students as average to below-average performers, while students report difficulties understanding concepts due to inadequate instructional accommodation (Kumatongo & Muzata, 2021). These findings highlight the urgent need for improved teacher training and adapted instructional approaches.

In various African contexts, research on instructional methods for learners with hearing impairment reveals significant impacts on academic performance. However, (Olufemi & Oladele, 2018) demonstrated that specific instructional approaches can be effective, finding that Montessori didactic methods were more efficacious than direct instruction for developing reasoning abilities in hearing-impaired children in Nigeria, with no significant

gender differences observed in effectiveness. Effective teaching methods require patience, creativity, and customised instruction, utilising visual aids, technology, sign language, small-group instruction, and collaborative learning environments (Polvanov, 2023). However, significant challenges persist in implementation. Studies consistently identify barriers including limited resource availability, inadequate infrastructure, outdated materials, and insufficient teacher training in assistive technologies (Caroline et al., 2025; Mgendi et al., 2024). Also, (Odhiambo et al., 2024) note that teachers face obstacles including lack of training in inclusive education, large class sizes, and limited lesson duration insufficient for attending to all learners. The research consistently indicates that while instructional strategies are crucial for academic success, systemic issues including teacher preparation, resource allocation, and communication barriers significantly impact educational outcomes for learners with hearing impairment.

Studies from Southern Africa reveals significant challenges affecting academic performance of learners with hearing impairment. Communication barriers emerge as a primary factor, with teachers lacking adequate sign language competency, negatively impacting knowledge exchange in classrooms (Mumba et al., 2022; Musonda, 2017; Migeha, 2014). Teachers often lack adequate preparation in sign language instruction, contributing to poor academic performance among hearing-impaired students. Multiple factors compound these challenges, including negative attitudes toward academic work, poor pre-academic readiness skills, insufficient resources, inappropriate instructional methodologies, and assessment approaches (Mumba et al., 2022). Students with hearing impairment consistently underperform compared to hearing peers due to inappropriate instructional methodologies, insufficient resources, and unsuitable curriculum content (Mumba et al., 2022; Musonda, 2017). However, intervention approaches show promise for improving outcomes. A South African study demonstrated that learners receiving Listening and Spoken Language therapy achieved superior academic performance and age-equivalent language outcomes compared to those receiving traditional speech-language therapy (Casoojee et al., 2024). The research consistently emphasises that sign language proficiency among teachers is crucial, as communication barriers significantly impair knowledge exchange at the classroom level (Mumba et al., 2022).

In Kenya, the learners' role in the pedagogical process traditionally consisted of being a passive recipient while the teachers' role was to transmit knowledge and skills. The environment in the classroom should resemble a busy workplace with a range of activities and sound levels depending on the type of work being done. Kenya Institute of Curriculum Development (KICD) developed teaching techniques for learners with hearing impairment in inclusive education setting (KICD, 2020).

Past studies on instructional methods and academic performance for students with disabilities in Rwanda reveals significant impacts of teaching approaches. More than 446 000 Rwandans are disabled and live in the country (CSO, 2022). They routinely fare worse than others in terms of health, educational success, economic, political, and cultural participation, poverty rates, dependency levels, and legal protection (UNDP, 2022). Statistics also reveal that 154 of the 91,193 students enrolled in higher education institutions have special educational needs. Initiatives from private organisations, primarily religious institutions and charities, were the first to focus on the education of students with hearing impairment. Signs and spoken language in the local language (Kinyarwanda) were used to deliver instructions (ESSP 2018/19 – 2023/24).

A comparative analysis of various instructional models reveals that inclusive teaching practices positively impact students with hearing impairments. According to research by (Rowland, 2007) and (Jelinek & Jackson, 2001), the use of captioning increases vocabulary and reading comprehension while giving students access to academic and cultural experiences (Rodriguez & Diaz, 2017). Methods that integrate assistive technologies, such as captioning services and hearing aids, are shown to create a more conducive learning environment (Joskow et al., 2025). Furthermore, cooperative learning strategies, which promote peer interaction and support, have been linked to increased motivation and engagement among students. Research indicates that when learners with hearing impairments are provided with tailored instructional approaches, their academic performance in subjects like mathematics and reading improves markedly, thereby narrowing the achievement gap with their hearing peers (Bashir et al., 2024).

Andala & Ng'umbi (2016) demonstrated that teaching methods significantly affect academic performance at Rwandan universities, with group discussions proving most effective, followed by interactive lectures, while traditional lectures were least beneficial. For students with hearing impairments specifically, (Sibomana et al.,

2025) found that inclusive education practices significantly influence learning interest, with 98% of respondents indicating that inclusive settings enhance student engagement and reduce stigma. Key factors included adapted teaching methods, participation in discussions, and building self-esteem among hearing-impaired students. These studies collectively highlight the importance of adaptive, inclusive instructional approaches for students with disabilities in Rwanda's educational system.

The results of a study on teaching English composition to students with hearing impairment in the province of Nyanza revealed that repetition, discussion, questioning, guided writing, and demonstration were the most frequently employed teaching methods. The study also showed that learners who are deaf use the least effective strategies, such as dramatisation and peer teaching, which may be the reason for their poor performance in English composition writing. Maintaining a positive learning environment in the classroom requires a positive attitude (Ting & Gilmore, 2022).

Moreover, the importance of teacher training cannot be overstated in this context. Educators equipped with knowledge and skills to implement specialised instructional methods are better positioned to support learners with hearing impairments effectively (Ismail, 2022). Studies emphasise the need for professional development programs that focus on adaptive teaching techniques and the use of technology in the classroom (Moltudal et al., 2022). As a result, teachers can foster inclusive learning environments that accommodate diverse learning needs, ultimately leading to enhanced academic performance for students with hearing impairments.

METHODS

This study was carried out at CJSM Ngoma Inclusive School, Huye District, Southern province in Rwanda. The study employed a descriptive survey design. Descriptive survey design research methodology is used to collect and analyse data to describe the characteristics, behaviours, or opinions of a population or phenomenon at a single point in time without manipulation of the variables (Creswell, 2009). The study was informed by the Universal Design for Learning paradigm. Adopting this paradigm was ideal for this study because it helps to improve the teaching and learning of all learners by creating inclusive, effective and engaging learning environments. Purposive sampling was done to select CSJM Ngoma because it has learners with hearing impairment who are the main participants of this research. Quantitative data was obtained from hard copy anonymous questionnaires. The questionnaires used a 5-point Likert scale for answers with closed-ended questions focused on how instructional methods affect learners with hearing impairments' academic performance. Quantitative data generated were coded and assessed using Statistical Package for Social Scientists (SPSS) and descriptive statistics.

The sampled school had a combined enrolment of 457 learners: 156 learners with hearing impairment and 301 hearing learners. Random sampling technique was used in the selection of learners with hearing impairment, hearing learners, teachers trained to teach learners with hearing impairment and untrained teachers.

In this study, the Slovin's formula was used to come up with the sample size. Calculating Slovin's formula yields: **n=N/(1+Ne2)**. where: **n**: Required sample size **N**: Number of people **e**: Tolerable error margin (Zach, 2022). The table below shows the sample size.

Table 1: Sample size

Respondents	Population	Sample
Learners with hearing impairment	156	112
Hearing learners	301	171
Teachers trained to teach learners with hearing impairment	19	18
Untrained teachers	17	16

Total	**493**	**317**

The ethics and guidelines as outlined by the College of Education at the University of Rwanda's College of Education were strictly followed. Ethical approval was granted by the University of Rwanda. Permission were granted from the relevant authorities and schools. Informed consent was also solicited from the respondents. Respondents were informed that consent must be given voluntarily and that participants have the right to withdraw at any time. Anonymity and confidentiality of the respondents were guaranteed.

RESULTS

The survey results highlight the educational experiences of learners with hearing impairments, emphasising the critical role of learning resources and technology in enhancing their academic performance. Respondents overwhelmingly recognise the benefits of captions and visual aids, which aid comprehension and engagement in the classroom. However, concerns regarding social engagement persist, indicating a need for improved integration and interaction among learners with and without hearing impairments.

Table 2: The learners' views on the effect of instructional methods on the academic performance of learners with hearing impairment.

Key: SA: Strongly agree; A: Agree; N: Neutral; D: Disagree; SD: Strongly disagree.

Question	**Responses (%)**				
	SA	**A**	**N**	**D**	**SD**
The school provides learning resources and instructional materials so that learners with hearing impairments can improve their academic performance.	153 (54)	79 (28)	5 (2)	39 (14)	5(2)
Learning resources are a major factor in improving academic performance for learners with hearing impairment.	93 (33)	161 (57)	10 (3)	8 (3)	11 (4)
Both you and learners who have hearing loss use technology to improve their academic performance.	144 (51)	107 (38)	7 (2)	11 (4)	14 (5)
Learners with hearing impairments perform better when captions are used.	139 (49)	113 (40)	31 (1)	0	0
In both school and home settings, learners with hearing impairments engage in equal play with their hearing peers.	17 (6)	25 (9)	142 (50)	91 (32)	8 (3)
You both benefit from learning together in an inclusive environment as learners with and without hearing impairment.	121 (43)	113 (40)	11 (3)	22 (8)	16 (6)
Your academic performance is improved by the way that your class is seated.	102 (36)	141 (50)	10 (3)	14 (5)	16 (6)
Learners with hearing impairments perform better academically when visual aids are available and used in class.	139 (49)	105 (37)	9 (3)	11 (4)	19 (7)

You are given the tools and resources you need to boost your academic performance.	153 (54)	91 (32)	6 (2)	19 (7)	14 (5)

The data presents survey responses regarding the educational experiences of learners with hearing impairments, focusing on various aspects such as resources, technology, and social engagement. A significant majority of respondents feel that learning resources and technology play a vital role in enhancing the academic performance of learners with hearing impairments. The use of captions and visual aids is highly regarded and seen as beneficial. There is a notable concern regarding social engagement, with a majority neutral or disagreeing about equal participation with peers. Overall, access to resources and an inclusive environment is viewed positively, though there are areas needing improvement, particularly in social interactions. This data highlights the importance of tailored educational strategies and resources for learners with hearing impairments.

Table 3: Teachers' views on the effect of instructional methods on the academic performance of students with hearing impairment.

Question	**Responses (%)**				
	SA	**A**	**N**	**D**	**SD**
The school makes resources and teaching aids available to help learners with hearing impairments perform better academically.	24 (71)	9 (26)	1 (3)	0	0
The instructional materials used greatly enhance the academic performance of hearing-impaired learners.	19 (56)	13 (38)	1 (3)	1 (3)	0
Learners with hearing impairments can benefit from technologies that help them perform better academically.	13 (38)	16 (47)	2 (6)	1 (3)	2 (6)
Hearing-impaired learners perform better when captions are used.	9 (26)	7 (21)	0	12 (35)	6 (18)
In both school and home settings, learners with hearing impairments engage in equal play with their hearing peers.	8 (24)	3 (9)	0	11 (32)	12 (35)
Learning in an inclusive environment is enjoyable for learners with hearing impairment.	10 (29)	18 (53)	3 (9)	1 (3)	2 (6)
The way learners with hearing impairments sit in class has an impact on their academic performance.	19 (56)	9 (26)	3 (9)	1 (3)	2 (6)
Learners with hearing impairment perform better in class when using visual aids.	21 (62)	11 (32)	2 (6)	0	0
A capable and reliable administrative system improves both the academic performance of learners with hearing impairment and that of their hearing peers.	19 (56)	13 (38)	1 (3)	1 (3)	0
Giving learners with hearing impairment access to the necessary tools and resources in the classroom boosts their academic performance.	22 (65)	9 (26)	3 (9)	0	0

The survey results provide insights into the perceptions of respondents regarding the educational support available for learners with hearing impairments. A strong majority of respondents believe that the availability of

resources and teaching aids significantly supports the academic performance of learners with hearing impairments. Instructional materials and visual aids are seen as particularly effective, with high agreement that they enhance learning outcomes. While there is recognition of the benefits of technology, opinions are more divided, suggesting that access to and training on these technologies may need improvement. Concerns about social engagement and equal play with peers reflect potential challenges in inclusive environments, indicating that further efforts are needed to facilitate interactions between hearing-impaired learners and their peers. Overall, respondents express a positive view towards inclusive education, emphasising the importance of appropriate seating arrangements, administrative support, and access to necessary tools and resources in promoting academic success.

Table 4: Primary School Learners' Pre-test and Post-test Results (2024–2025) n= 54

Grade Level	Pre-test Mean Score (%)	Post-test Mean Score (%)	Observed Improvement (%)
P1	78.4	82.3	+3.9
P2	85.6	87.5	+1.9
P3	82.3	84.2	+1.9
P4	69.2	74.2	+5.0
P5	67.1	70.5	+3.4
P6	69.7	73.6	+3.9
Overall Mean	75.4	78.7	+3.3

The data indicate consistent improvement across all primary grades following the application of inclusive instructional methods. The most substantial gain was recorded in P4 (+5%), showing that visual and interactive teaching strategies had a strong impact on learners' comprehension and engagement. These findings highlight the effectiveness of learner-centred approaches in improving academic outcomes among learners with hearing impairment.

Table 5: Secondary School Learners' Pre-test and Post-test Results (2024–2025) n= 58

Grade Level	Pre-test Mean Score (%)	Post-test Mean Score (%)	Observed Improvement (%)
S1	65.1	71.2	+6.1
S2	53.1	56.5	+3.4
S3	71.5	75.3	+3.8
S4	78.5	82.0	+3.5
S5	81.5	84.3	+2.8
S6	90.2	91.0	+0.8
Overall Mean	73.3	76.7	+3.4

Secondary school learners also exhibited notable academic progress, particularly in S1 (+6.1%), which reflects strong learning gains after exposure to inclusive instructional methods. However, improvement margins narrowed in upper grades, suggesting that more complex curriculum content and reduced use of adaptive

strategies may affect performance. Overall, both data sets confirm that inclusive, visual, and interactive instructional approaches contribute positively to the academic achievement of learners with hearing impairment.

Figure 1: Comparison of academic performance among learners with hearing impairment

Figure 1 presents a clustered bar chart comparing the mean Pre-test and Post-test scores across primary and secondary grades. The chart indicates overall improvement in performance across both levels, highlighting the positive impact of inclusive instructional methods. The gap between bars shows the extent of progress recorded after the application of visual, sign-supported, and interactive teaching strategies.

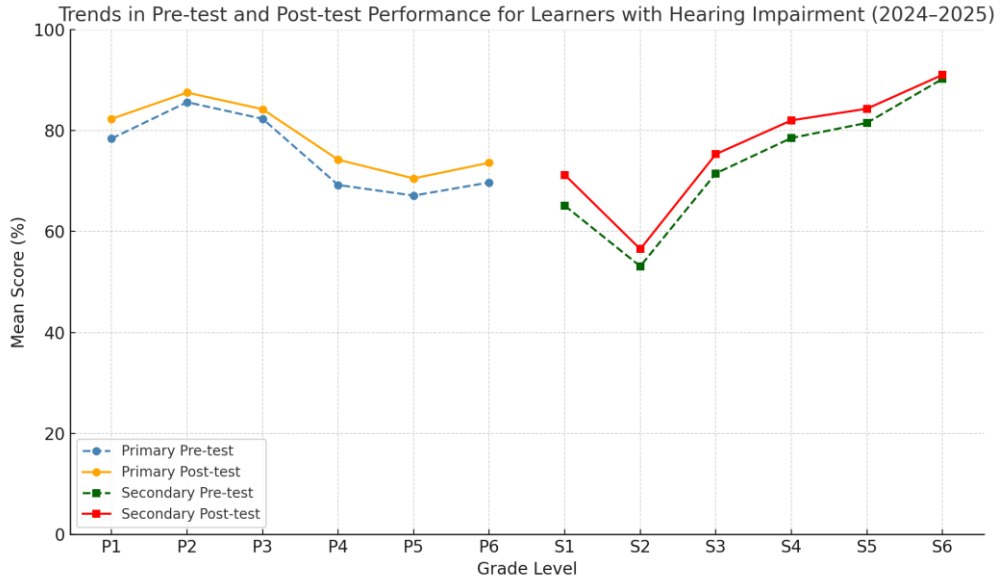

Figure 2: Trends in pre-test and post test results for students with hearing impairment (2024 – 2025)

Figure 2 shows the trend in Pre-test and Post-test results for both primary and secondary learners. The upward progression from Pre-test to Post-test scores across most grade levels reflects the beneficial influence of instructional interventions on learners' academic achievement. The trend further suggests that consistent use of learner-centred methods contributes to sustained performance gains.

DISCUSSION

The survey findings present a nuanced picture of the educational landscape for learners with hearing impairments, highlighting both strengths and challenges. A significant majority of respondents recognise the vital role that learning resources and technology play in enhancing academic performance of hearing impaired learners. Mbazi et al., (2025) found that assistive devices enhance communication, academic performance, and self-esteem among hearing impaired learners. This consensus underscores the importance of providing tailored educational materials that address the specific needs of these learners. The strong endorsement of captions and visual aids

as beneficial tools emphasises their effectiveness in supporting comprehension and engagement, suggesting that educators should prioritise their integration in lesson planning.

Despite this positive outlook on academic resources, the divided opinions regarding technology indicate a critical area for improvement. While many acknowledge the advantages that technology can offer, there is a clear need for better access and training. This gap suggests that merely providing technological tools is insufficient; schools must also invest in professional development for educators and training for students to ensure that these resources are used effectively. The research reveals persistent challenges in technology integration, including the digital divide, infrastructure limitations, and uneven teacher preparedness (Val et al., 2024). In the same vein, Saputra et al., (2025) note that while technology offers transformative potential for personalised learning and research, studies consistently note substantial barriers. By fostering a more comprehensive understanding of how to implement technology in the classroom, educators can enhance its impact on learning outcomes for students with hearing impairments.

The notable concerns regarding social engagement present another layer of complexity on hearing impaired learners. The majority of respondents feeling neutral or disagreeing about equal participation with peers indicates that, despite the availability of academic resources, social integration remains a significant challenge. Research indicates that hearing impaired students experienced substantial difficulties during the COVID-19 pandemic, with challenges including: communication barriers from mask-wearing (Mansutti et al., 2022), limited online learning accessibility (Aljedaani et al., 2022), and increased feelings of loneliness (Tavanai et al., 2021). Classroom engagement studies suggest additional complications, with communication barriers and limited sign language proficiency among teachers hindering social interactions (Mgendi et al., 2024). The research consistently demonstrates that hearing impaired learners require targeted support strategies to mitigate these social engagement complexities. This concern points to potential barriers, such as communication difficulties or social stigma, that may hinder meaningful interactions between hearing-impaired learners and their hearing peers. Addressing these challenges is essential for fostering an inclusive educational environment where all students feel valued and engaged.

To improve social engagement, schools must implement targeted strategies that promote interaction and collaboration among students. Evidence from multiple studies strongly supports this approach. Zitha et al. (2023) found that innovative strategies like group projects, role-playing, peer-to-peer learning, and talent integration can dramatically improve student performance and academic success. Qureshi et al. (2023) further validated these findings, demonstrating that social factors such as peer interaction and social presence positively impact collaborative learning. The research, drawing from studies across different educational levels, provides compelling evidence that collaborative approaches enhance communication, cooperation, and social responsibility. Therefore, initiatives such as buddy systems, inclusive group activities, and awareness programs can help bridge the gap between hearing-impaired learners and their peers. Furthermore, fostering a culture of empathy and understanding within the school community is vital for encouraging inclusive behaviours.

Analysis of the pre-test and post-test results revealed a general improvement in learners' academic performance following the application of inclusive instructional methods. At the primary level, mean scores increased across all grades, with notable gains in P4 (+5%) and P1 (+3.9%), reflecting the positive influence of visual and sign-supported teaching strategies. Similarly, secondary school learners demonstrated measurable progress, with the highest improvement recorded in S1 (+6.1%), suggesting that early exposure to learner-centred instructional methods enhanced comprehension and retention. The clustered bar charts and line graphs illustrate consistent upward trends from pre-test to post-test results across both school levels. These quantitative results confirm that the adoption of interactive, visual, and inclusive instructional practices significantly improved the academic performance of learners with hearing impairment.

Overall, while the findings highlight a strong belief in the importance of learning resources and technology for academic success, they also reveal significant challenges related to social engagement. By addressing the barriers to social interaction and enhancing access to and training on technology, educational institutions can create a more supportive environment that benefits both the academic and social development of learners with hearing impairments. This holistic approach is essential for ensuring that all students have the opportunity to thrive in an inclusive educational landscape.

CONCLUSIONS

The findings highlight a strong consensus among respondents regarding the crucial role of learning resources and technology in enhancing the academic performance of learners with hearing impairments. The positive feedback on the effectiveness of captions and visual aids underscores their significance in facilitating understanding and engagement. However, the divided opinions about technology indicate a need for improved access and training, suggesting that while technological tools can provide substantial benefits, their impact is contingent upon the ability of both educators and students to utilise them effectively. This calls for a concerted effort to enhance professional development and training initiatives to maximise the potential of these resources.

The study revealed that there are concerns surrounding social engagement which is a critical challenge in fostering inclusive educational environments. The neutrality or disagreement regarding equal participation with peers highlights the barriers that hinder meaningful interactions between hearing-impaired learners and their hearing counterparts. To address these challenges, schools must implement targeted strategies that promote social integration, such as collaborative activities and awareness programs. By creating opportunities for interaction and cultivating a culture of empathy, educational institutions can enhance not only the academic success but also the social development of learners with hearing impairments, ultimately ensuring a more equitable and inclusive learning environment for all students.

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Conflicts of interest

There are no conflicts of interest in this study.

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