

Assessing Lecturers' Teaching Strategies for Learners with Hearing Impairment in Tanzanian Higher Learning Institutions

Pharida P. Mgwesa¹ & Eugen Mtemi Philip²

¹Department of Psychology and Special Education

The Open University of Tanzania

Email: pharidapmgwesa@gmail.com

²Department of Special Needs Education

Archbishop Mihayo University College of Tabora-AMUCTA (A Constituent

College of St. Augustine University of Tanzania.

ORCID: <https://orcid.org/0000-0002-8642-1994>

Email: eugenphilip@gmail.com

Abstract

This study assessed the teaching strategies employed by lecturers to support learners with hearing impairments (LwHI) in higher learning institutions in Tanzania, addressing a critical gap in inclusive education practices. The research underscores the importance of adapting pedagogical approaches to promote equitable learning opportunities for all students. The study was guided by two objectives: (i) to examine the current teaching strategies utilized by lecturers in inclusive classrooms, and (ii) to explore the perceptions of LwHI regarding the effectiveness of these strategies. Employing a qualitative research approach within a single case study design, data were collected through semi-structured interviews with a purposive sample of 10 lecturers and 10 students with hearing impairments. The findings revealed that lecturers implemented a range of instructional strategies, including video captioning, transcription, sign language interpretation, visual aids, and the use of multimedia resources. Additionally, assistive technologies such as listening devices were employed alongside collaborative learning techniques. Despite these efforts, both lecturers and learners reported several challenges, including limited proficiency in assistive technology use, overcrowded classrooms, time constraints, and communication barriers due to unreliable interpretation services. The study recommends enhanced classroom modifications, targeted training for lecturers in sign language, and the increased application of interactive teaching methods. Furthermore, it calls on curriculum developers to integrate the specific needs of learners with hearing impairments into educational planning and instructional delivery.

Keywords: Teaching strategies, hearing impairment, social constructivism, higher learning institutions

Introduction

Appropriate teaching strategies for learners with hearing impairment (LwHI) are essentially important elements in enhancing access to education and promoting successful learning through facilitating clear communication, engagement, and understanding of the curriculum goals. However, evidence shows that these strategies used for teaching LwHI in higher learning institutions face significant challenges, including communication barriers, limited access to resources, social isolation, overcrowded classrooms, and inadequate training for educators (Kigotho, 2016). These challenges not only hinder their academic success and engagement but also pose substantial challenges to the effective implementation of inclusive education. Inclusive strategies, however, have been shown to improve learning outcomes for LwHI, promote social integration and empower students to advocate for their needs (Arif *et al.*, 2024). To effectively support LwHI, educational institutions must implement teaching strategies that include visual aids, assistive technologies, and collaborative learning opportunities (Farhan & Razmak, 2022). Higher learning institutions ought to create a more equitable learning environment that supports the success of all learners.

LwHI in higher learning institutions have been the subject of considerable research worldwide, highlighting the importance of inclusive education and equal access (Howell & Lazarus, 2003; Kochung, 2011). Studies consistently show that when teachers use appropriate teaching strategies which are tailored to the specific learning needs, learners perform well academically (Heward, 2010). Research conducted in Europe has demonstrated the positive impact of inclusive classroom practices on the academic achievement and social integration of LwHI in European universities (Kottmann *et al.*, 2019; Lsmbrechts *et al.*, 2024). These practices foster a more accessible and engaging learning environment, promote collaboration among peers, and enhance communication strategies that are crucial for their academic success and social interaction (Mitchell & Sutherland, 2020; Cavinato *et al.*, 2021). Similarly, recent studies in the USA have revealed that the use of assistive technologies such as captioning and amplified sound systems in university classrooms brought positive achievement in teaching and learning in classrooms of LwHI (Rehman, 2024; Atcherson *et al.*, 2015). For instance, a study by Quinto-Pozos (2011) on communication strategies and accessibility issues for deaf and hard-of-hearing students in American higher education highlighted the importance of multimodal communication and accommodations.

On the other hand, experiences in Africa about teaching strategies suggest that using sign language interpretation has become the best practice and produces good outcomes for the LwHI. A study by Ndlovu and Moyo (2018),

which examined the challenges faced by LwHI in accessing higher education in South Africa, revealed the importance of specialised support services and inclusive curriculum design. In East Africa, researchers such as Jiseve (2023) explored the effectiveness of inclusive teaching strategies for LwHI in Kenyan universities. The findings reported that the role of trained sign language interpreters and accessible learning materials were essential to LwHI in an inclusive setting. In Uganda, Emong and Eron (2016) investigated the experiences of learners with disabilities in higher education institutions, emphasizing the need for inclusive policies and faculty training.

Several studies have been conducted on teaching strategies for learners with hearing impairment in learning (Hadi *et al.*, 2019; Patrick, 2017). For example, Farrell (2008) examined the effectiveness of the teaching strategies for LwHI in mainstream classrooms, including the use of hearing aids, cochlear implants, and total communication methods involving gestures, sign language, speech reading, and fingerspelling. These strategies, complemented by supportive learning resources, have proven beneficial to learners with hearing impairments (LwHI) in enhancing academic achievement. Similarly, the study revealed that teachers employed these strategies to ensure full access to the curriculum, guided by the prevailing pedagogical approaches (Farrell, 2008). The integration of technology—such as hearing aids, captioning, and sign language interpreters—has also been affirmed as instrumental in facilitating curriculum accessibility for LwHI. (Hallahan & Kauffman, 2006; Heward, 2013). Studies show that some lecturers in higher learning institutions utilise simplified materials and instructional methods and consider physical arrangement and curriculum modification (Hallahan & Kauffman, 2006). Likewise, Loeding (2011) reported that LwHI benefited from loop systems, hearing aids, cochlear implants, FM systems, and visual cues like captioned materials and transcripts.

In addition, a study by Williams (2024) conducted in the United Kingdom found that lecturers also ensured that audiovisual materials, such as videos and online resources, were captioned or had transcripts available. Lecturers also employed assistive listening devices, such as hearing loop systems or FM systems, to improve listening experiences for the learners. These devices were used to transmit sound directly to students' hearing aids, reducing background noise and enhancing comprehension. Further studies conducted by Gambari *et al.* (2013) in Nigeria found that cooperative learning and collaborative activities were effective teaching strategies used by lecturers for LwHI.

In Tanzania, studies by Koboli (2021), Mkongo (2019), and Mtuli (2015) recommended modifying the learning environment by incorporating acoustic

materials to reduce background noise and promoting small group instruction to enhance peer learning. Additionally, lecturers were encouraged to use visual aids—such as slides, diagrams, charts, and written instructions—alongside strategies like total communication, captioning, and motivational techniques as effective methods for supporting teaching and learning for all students, including those with hearing impairments (Mkongo, 2019). Inclusive teaching strategies for LwHI in higher learning institutions involve the use of visual aids, such as slides and written materials, to support verbal communication and improve comprehension (Shartiely, 2013). According to Nsereko (2010), the considerations of optimal seating arrangements that maximise visibility and reduce distance from the teacher are recommended. In addition, visual cues, gestures, and facial expressions enhance comprehension and are particularly beneficial to learners with hearing impairments (LwHI), as they provide additional layers of meaning that support verbal and written communication. Similarly, improving classroom acoustics by using sound-absorbing and reflective materials can help to create a clearer speech environment (Iglehart, 2020).

The Government of Tanzania has implemented a range of policies and legal frameworks to promote inclusive education in the country, particularly for LwHI. Such initiatives include: The National Policy on Disability of 2004 and the Persons with Disabilities Act of 2010, which mandate equal access to education for students with disabilities, including those with hearing impairments (URT, 2004; 2010). Similarly, the Government formulated the Education and Training Policy of 2014, as revised in 2023, which emphasises inclusion of children with disabilities in primary and secondary education levels to ensure equal access and equity in the provision of education (URT, 2014, 2023). In a bid to reinforce the provision of education to children with disabilities, the Government of Tanzania established the National Disability Mainstreaming Strategy (2010-2015), which aimed to promote the inclusion of persons with disabilities in all aspects of society. These include education, advocating for inclusive education policies, teacher training and the provision of assistive devices and accessible learning environments. Additionally, Tanzania's overarching Education Sector Development Programme (ESDP) has consistently prioritised inclusive education as a key strategic area, emphasising the need to improve access, participation, and learning outcomes for children with disabilities in mainstream schools (URT, 2017).

To ensure proper inclusion of children with disabilities, Tanzania formulated the National Strategies for Inclusive Education of 2022-2026 which has streamlined specific frameworks and strategies for enhancing inclusive practices in schools, covering areas such as teacher training, curriculum adaptation, and community engagement to guide the implementers of

inclusive education (URT, 2022). In order to enhance teaching skills, the Government of Tanzania has also been conducting teachers training at various education levels. For example, the Patandi Teachers' College, the Open University of Tanzania (OUT), Archbishop Mihayo University (AMUCTA), and the University of Dodoma (UDOM), offer specialised programmes in special and inclusive education, including courses on teaching the Deaf/Hard of Hearing students (Tungaraza, 2014). The named institutions provide a range of educational services, including pre-vocational and vocational training, identification and accommodation of LwHI through sign language, visualisation, and spoken language.

Moreover, the researchers conducted by Beard *et al.* (2019) and Jiseve (2023) show that LwHI in higher learning institutions advocate for flexibility in teaching methods and accommodations tailored to individual needs. This includes providing additional time for assignments, offering alternative assessment formats, and allowing for different communication preferences. Jiseve (2023) indicated that LwHI were satisfied with faculty members who are knowledgeable about hearing impairments, open to communication, and who exhibit sensitivity towards their needs. Philip (2022, 2023) analysed the teaching models that are used in Tanzanian secondary schools including team teaching, coaching and consultative. Among these, team teaching emerged as the most prevalent and robust model, with approximately 73.2% of respondents agreeing that it was more effective than the other approaches. Conversely, the study conducted by Semunyu and Rushahu (2023) at the University of Dares Salaam revealed that the most effective way of teaching LwHI is sign language interpretation. However, the study also identified several challenges, including difficulties in conveying complex technical concepts, issues with voicing, and inconsistencies in sign language variation. Nevertheless, there has been limited research on effective teaching strategies for LwHI in higher learning institutions in Tanzania. A study by Kisanga (2019) also emphasised the need for inclusive policies, faculty training, and assistive technologies. In a similar vein, Kaingo (2023) explored the experiences of LwHI in Tanzanian universities, highlighting the importance of inclusive teaching practices and accessible resources. However, much of the existing research has concentrated on the challenges of implementing inclusive practices, such as insufficient training for lecturers and limited access to resources and support services (Mtebe & Raisamo, 2014).

Notably, a significant research gap persists regarding the teaching strategies employed by lecturers for LwHI as not all educators are trained to manage inclusive classrooms (Mwakyaja, 2013). A study by Philip (2022) noted that many teachers continue to rely primarily on spoken English, indicating a lack of effective strategies tailored to LwHI. While studies from Europe, the USA,

and other African countries have addressed effective teaching strategies, research in Tanzania has predominantly focused on primary and secondary education (Mtuli, 2015; Migehe, 2014; Samweli, 2023). So, few studies have specifically investigated teaching strategies for LwHI in higher education (Kisanga, 2019; Philip, 2022; Semunyu & Rushashu, 2023).

Despite the Tanzanian government's efforts to enhance support for learners with hearing impairments (LwHI) in higher learning institutions—such as recruiting trained lecturers, providing note-takers and sign language transcribers, and establishing resource rooms—the teaching strategies employed by lecturers have not yielded the desired outcomes (Haule, 2015; Kisanga, 2017; Seni, 2022). This highlights the critical need for research that investigates the specific instructional methods used to support LwHI in these settings. Understanding how lecturers adapt their teaching and evaluating the effectiveness of these strategies is essential for informing the development of a more inclusive and responsive educational framework. Such insights are vital for improving the academic experiences and outcomes of LwHI in Tanzania. Addressing this knowledge gap, the current study aimed to inform policy and practice while fostering a more equitable learning environment for all students. Specifically, the study focused on two objectives: (i) to explore the current teaching strategies employed by lecturers in Tanzanian higher learning institutions when teaching students with hearing impairments; and (ii) to examine the perceptions of students with hearing impairments regarding the teaching strategies used by lecturers in these institutions.

Theoretical Framework

This study was guided by the Social Constructivism Theory (SCT), originally developed by Lev Vygotsky in 1978. The SCT emphasises the role of social interactions in the learning process, highlighting how collaborative and active learning environments can enhance the educational experiences of LwHI (Vygotsky & Cole, 2018; Akpan *et al.*, 2020). The theory underscores the need to engage with more knowledgeable others, those with greater skills, such as teachers or peers, to foster cognitive growth (Amineh & Asl, 2015). Another central concept in SCT is the Zone of Proximal Development (ZPD), which refers to the range between what a learner can achieve independently and what they can accomplish with guidance and support. The underlying principle is that learners should initially attempt tasks independently, receiving support from teachers or parents only when necessary. This approach involves presenting learners with appropriately challenging activities and offering guidance selectively to promote their autonomy and learning success (Berk, 1994). This approach underscores the significance of scaffolding in the learning process, which involves creating supportive conditions that enable a child to progress from their existing knowledge to

new skills and understanding. Teachers or parents typically fulfil this supportive role (Eun, 2020). The theory is relevant to this study as it underscores the importance of social interactions, cultural contexts, and collaborative learning in education. The study explores how LwHI engage with instructors and peers, highlighting the role of knowledgeable others in providing guidance and scaffolding to support cognitive development. The study identifies effective strategies that accommodate diverse learning needs, ultimately contributing to improved educational outcomes. Furthermore, it aligns with the principles of Sociocultural Theory (SCT) by examining current assessment practices, thereby informing the development of more inclusive and effective teaching strategies.

Methods and Materials

A qualitative research approach using a case study was employed, as the study objectives required in-depth exploration (Creswell & Creswell, 2023). The research was conducted in Dodoma City, Tanzania, at a university selected purposively for its relevance to the targeted population. Purposive sampling techniques were used to select participants, focusing on lecturers with at least five years of experience teaching LwHI, as well as those teaching courses that include a significant number of such learners. A total of ten lecturers and ten LwHI were sampled to enable in-depth exploration while ensuring manageable data collection (Campbell, 2020). The inclusion of LwHI was essential to directly capture their lived experiences and the challenges they encounter. Data were collected through semi-structured interviews with both lecturers and LwHI, capturing diverse perspectives on the educational experience. This method provided rich insights into the challenges faced and the strategies considered effective in teaching LwHI (Taherdoost, 2022). Additionally, thematic analysis was employed to analyse the collected data, allowing for the identification and examination of themes across the datasets.

Findings and Discussions

This section presents and discusses the research findings in alignment with the study's objectives, which are to explore the teaching strategies employed by lecturers in Tanzanian higher learning institutions for learners with hearing impairments, and to examine the perceptions of LwHI regarding the effectiveness of these strategies. The discussion centres on teaching strategies employed by lecturers for LwHI so as to provide a deeper understanding of current practices and their implications for inclusive education.

Lecturers' teaching strategies for Learners with Hearing Impairment

In this objective, most lecturers explained a range of commonly used teaching strategies for learners with hearing impairments. These included

captioning and transcription, sign language interpretation, visual aids and multimedia resources, clear communication strategies, assistive listening devices, collaborative learning, flexible assessment, and inclusion. Participants highlighted not only the strategies used during the presentation but also, they reflected on their effectiveness.

Captioned materials and transcripts

The study found that lecturers employed audiovisual materials, such as videos and online resources with captions and transcripts, which allowed LwHI to access the content effectively and follow along with the information being presented. However, challenges were found in terms of technical expertise when using such strategies. As one participant remarked:

Captioning and transcription services are suitable for accommodating students with hearing impairments in our institution; they ensure accessibility and equal participation in lectures and course materials. However, challenges arise when technical issues or delays occur in providing timely captioning or transcription; this temporarily hinders the students' ability to access the content (L6).

These findings concur with the previous study conducted by Hallahan and Kauffman (2006) and Banks (2019), which reported that LwHI benefited from captioned materials and transcripts. Hence, using captioning material during teaching HI learners seemed to be vital to LwHI.

Use of sign language interpretation and clear communication

The findings indicate that sign language interpretation services provided in Tanzanian universities are often inadequate due to a shortage of qualified interpreters and limited competence in the field. This inadequacy contributes to frequent misunderstandings and misconceptions of academic concepts among LwHI. The participant described another teaching strategy used that involved sign language interpretation to support learners understands concepts in their language:

I use sign language interpretation in my lectures to facilitate effective communication for students with hearing impairments. This allows direct interaction and engagement in the classroom. However, it is challenging to find qualified sign language interpreters, especially in specialised subject areas. I'm not competent in using sign language. Furthermore, clear communication strategies, such as facing the students and using visual cues, help foster a supportive learning environment. Nonetheless, maintaining consistent, clear communication is difficult in larger lecture halls (L2).

This reflection highlights the critical need for institutional investment in training and deploying qualified sign language interpreters, particularly in subject-specific contexts. It also underscores the importance of equipping

lecturers with basic sign language skills and effective communication techniques. Additionally, it points to the influence of physical learning environments—such as large lecture halls—on the quality of communication and inclusivity. Available studies show that LwHI benefit greatly through the use of sign language, studies conducted by (Jiseve, 2023; Mkama, 2023; Mkama, 2024; Semunyu&Rushahu, 2023). Similar findings are also underscored by Rehman (2024), Banks (2019), which reveal the benefits of sign language interpretation.

Use of visual aids and multimedia

The study found that lecturers made efforts to support learners with hearing impairments by using visual aids, multimedia presentations, and written materials to supplement verbal instruction. These included slides, diagrams, charts, and written instructions, as well as the provision of lecture notes and learning materials to offer multiple modes of communication and enhance understanding. However, despite these positive intentions, several challenges emerged. Many lecturers lacked the necessary skills and confidence to effectively use multimedia technology, and often struggled to apply these tools in ways that fully addressed the learning needs of LwHI. One participant emphasized the value of visual and multimedia resources as alternative means to promote comprehension and inclusion for learners with hearing impairments. The participant said:

The use of visual aids and multimedia resources enhances alternative means of understanding. Nevertheless, creating accessible and inclusive visual materials requires careful consideration. Moreover, ensuring proper contrast, readability, and compatibility with assistive technologies is challenging. Furthermore, I offer flexible assessments that enable them to demonstrate their knowledge and skills through written assignments and visual presentations. However, designing and grading alternative assessments is time-consuming and requires additional resources. Ensuring fairness and maintaining the same level of rigour across different assessment formats is challenging (L8).

This reflection underscores the importance of institutional support in developing inclusive teaching and assessment practices. It suggests a need for professional development focused on creating accessible visual materials and using technology effectively. Moreover, it highlights the necessity for clear policies and resource allocation to support alternative assessments that are fair, rigorous, and adaptable to diverse learner needs. Without such systemic support, even well-intentioned efforts by individual lecturers may fall short in achieving full inclusivity. This finding is supported by Mtuli (2015) and Philip (2023) who underscore that the utilisation of visual materials, such as slides, diagrams, charts, and written instructions, as well as total communication, captioning, and motivation, are effective strategies for LwHI, which have produced the desired results for such learners.

Collaborative learning activities

The findings revealed that lecturers encouraged collaborative learning activities that foster peer support and interaction. These include group work, discussions, and cooperative projects that provide opportunities for LwHI to engage with their peers, exchange ideas, and learn from different perspectives. However, while these activities were observed to be beneficial, they also presented challenges particularly when learners with hearing impairments required individual assistance from lecturers, which was not always readily available. Additionally, some students with hearing impairments reported experiences of stigma from their hearing peers, which affected their sense of inclusion. Lecturers also highlighted the use of collaborative teaching as a strategy aimed at accommodating all students, including those with hearing impairments, by fostering peer interaction and shared learning experiences. As participant L3 explained:

I promote collaborative learning activities and encourage peer-to-peer interactions and knowledge sharing, allowing them to learn from their classmates. However, challenges arise when ensuring effective communication during group discussions. Students need additional support. As a facilitator, I must ensure that all learners are actively participating and contributing. This is difficult because of overcrowded classrooms (L3).

This statement underscores the value of collaborative learning in fostering inclusion and mutual learning among students, including those with hearing impairments. However, it also points to the practical limitations posed by overcrowded classrooms, which hinder effective communication and individualized support. This finding correlates with findings by Hornby (2014), Wynne (2010) and Philip (2021) who all agree that cooperative learning and collaborative activities are effective teaching strategies used by lecturers for LwHI. Generally, lecturers demonstrated a commitment to inclusive education but emphasized the need for additional support, training, and infrastructure to effectively implement these strategies.

Assistive listening devices and amplification systems

The study found that lecturers utilised assistive listening and amplification devices, such as microphones and speakers, to enhance the audibility of their lectures and improve sound clarity for learners with hearing impairments. These tools help transmit sound directly to students' hearing aids or assistive listening devices, effectively reducing background noise and supporting better comprehension. However, many lecturers reported difficulties in managing this technology due to a lack of technical skills and training as commented by one of the participants below.

The use of assistive listening devices, such as personal FM systems, speakers, and microphones which are found in the classrooms, helps to ensure hearing clearly for those with residual hearing. Yet, ensuring the availability and

maintenance of these devices is a challenge, as limited resources and technical issues once arise, which temporarily disrupt the students' access to these devices. Also, the systems are not active enough (L10)

The quotation above highlights the critical role of assistive listening devices in supporting learners with hearing impairments, particularly those with residual hearing. However, it also reveals systemic gaps in resource allocation, device maintenance, and technical support. This finding is similar to finding by Hanks (2011) and Mkongo (2021). Additionally, Banks (2019) reported that LWHI benefit from loop systems, hearing aids, cochlear implants, FM systems, and infrared systems. Personal hearing aids were also noted to enhance learning for those with residual hearing. To realize these benefits, classrooms should be modified with the installation of group hearing aids.

The perceptions of students with Hearing Impairments regarding the teaching strategies used by lecturers in teaching

Research findings revealed that lecturers were employing different teaching strategies to enhance and accommodate learning needs of LWHI. On the other hand, students shared their perceptions on the teaching strategies employed by their lecturers; i.e., sign language interpretations, captioning and subtitling, clear communication, and collaboration, which were viewed both positively and negatively (see details below). Based on the respondents' verbatim, data suggest that teaching strategies employed by lecturers were perceived positively when implemented well with consideration of all learners and perceived negatively when implemented improperly.

Effective Communication

Students reported that clear communication, such as facing the audience, speaking clearly, and using visual cues enhanced their understanding and engagement in class discussions. One respondent shared their thoughts on the communication strategies used during lectures, stating:

Clear communication strategies employed by lecturers, such as facing the students, speaking clearly, and using visual cues, greatly assist in my understanding and ensure effective classroom communication. Additionally, visual aids and multimedia resources used by lecturers greatly enhance my learning experience. They make the information more accessible and facilitate my comprehension of complex topics (S10).

This perspective underscores the importance of intentional communication practices and the integration of visual and multimedia tools in promoting inclusive learning. The student's experience suggests that relatively simple strategies such as maintaining eye contact, using visual cues, and providing multimedia support can significantly enhance comprehension for learners with hearing impairment. This finding aligns with Mtebe and Raisamo

(2014), who emphasise that effective communication is vital for LwHI to access information in academic settings. Similarly, Philip (2022) highlights that; communication strategies significantly impact the academic experiences of LwHI. However, while some students expressed appreciation for these strategies, others noted that lecturers occasionally failed to implement them consistently, leading to confusion and hindering engagement. This inconsistency contrasts with the literature, which often assumes that effective communication is uniformly applied.

Use of Visual Aids

Students expressed positive perceptions of the use of visual aids and multimedia resources, noting that these tools greatly facilitated their learning experiences as one of the participants remarked the following:

Not all lecturers effectively incorporate visual aids and multimedia resources. Some rely heavily on auditory information, which poses challenges for me in comprehending the material. Furthermore, some lecturers do not consistently employ clear communication strategies, such as facing the students or using visual cues; sometimes, they move randomly in the classroom. This hinders the ability to lip-read and fully engage in classroom discussions (S5).

Another participant explained that:

I appreciate the use of visual aids and multimedia resources by lecturers. It helps me to follow the lectures more easily and ensure that I don't miss out on any important information. (S1)

The narratives above depict contrasting student experiences, which highlight the uneven implementation of inclusive teaching practices among lecturers. While some students benefit significantly from the use of visual and multimedia supports, others face barriers when such strategies are inconsistently applied or absent altogether. Standardising practices such as facing students, minimising unnecessary movement, and integrating visual aids would help create a more equitable learning environment for learners with hearing impairments. This finding resonates with Mtuli (2015) and Migeheha (2014), who argue that visual aids are essential for enhancing comprehension among LwHI. However, some participants also reported that not all lecturers effectively incorporated these resources, with certain educators relying heavily on auditory information (S5). This divergence suggests that while the literature supports the use of visual aids, actual classroom implementation may vary, resulting in mixed experiences for LwHI.

Sign Language Interpretation

The role of sign language interpretation emerged as another critical theme. Students highlighted the value of sign language interpreters in facilitating

their understanding and engagement in discussions (S4). With regard to challenges faced by students, one participant explained that:

There have been instances where the sign language interpretations made by some lecturers are not accurate or the interpreter was not fully qualified and aware of the content clearly, leading to misunderstandings and confusion (S3).

Regarding the importance of sign language interpretation as a teaching strategy for students, including those with hearing impairments, as one respondent explained:

The sign language interpretation provided by lecturers is valuable. It enables me to fully understand and engage in class discussions, ensuring that I have equal access to the content (S4)

These results align with findings from other studies that emphasise the necessity of qualified interpreters to ensure accessibility. For example, a study by Chekwaze and Juma (2024) mentioned that the use of sign language was interpreted poorly by students because it was not mentioned within the curriculum, thus it seemed to be challenging. Although the Tanzanian education curriculum does not designate sign language as an official language of instruction, it is commonly used to support learners with hearing impairments. However, some students noted that the accuracy of sign language interpretations varied significantly, often resulting in misunderstandings (S3). This inconsistency highlights a critical gap in the quality of support services and underscores the urgent need for well-trained, qualified interpreters. It also raises important questions about the training, professional development, and institutional support available for individuals providing interpretation services in higher education settings. ***Collaborative Learning***

The findings also revealed a positive perception of collaborative learning strategies. Students appreciated opportunities for group discussions and peer interactions which enhanced their understanding and allowed for shared learning experiences. However, the effectiveness of such strategies often depended on the lecturer's ability to facilitate these interactions, indicating a need for training in collaborative teaching methods. This aligns with the study findings by Chekwaze and Juma (2024) which indicated that the inability of hearing-impaired students to comprehend class lessons was linked to teachers' inadequate sign language skills. In such cases, students with hearing impairments often had to rely on their peers for information regarding course content and expectations. However, some of these classmates were perceived by lecturers as lacking the necessary knowledge and skills to provide accurate and reliable support. As a result, this peer

dependence sometimes led to the spread of misinformation, further hindering the academic progress of learners with hearing impairments.

Inconsistency in strategy implementation

Learners also registered negative perceptions regarding the inconsistency of strategy implementation. Participants noted that lack of reliable captioning and transcription services sometimes hindered their comprehension, particularly during multimedia presentations. The participant said:

Sometimes, the lecturers do not consistently use captioning or transcription services, which make it difficult for me to fully grasp the content presented in videos or audio materials (S4).

The excerpt above highlights the critical role of captioning and transcription in ensuring equal access to multimedia learning resources for students with hearing impairments. The inconsistency in using these services creates barriers to comprehension and engagement, undermining the principles of inclusive education. The implication is that institutions must prioritize the integration of accessible media practices by mandating the use of captions and transcripts for all audio-visual content and providing training and tools to support lecturers in doing so effectively. This finding aligns with Semunyu and Rushahu (2023), who argue that inconsistent application of inclusive practices can create barriers for LwHI. Furthermore, Mwakyeja (2013) highlights that insufficient training for educators can lead to a reliance on traditional methods that do not accommodate diverse learning needs.

Conclusions and implication of the study findings

The assessment of lecturers' teaching strategies for learners with hearing impairment (LwHI) in Tanzanian higher learning institutions reveals crucial implications related to the research objectives. The study found that while some diverse strategies are employed, many lecturers predominantly use verbal communication, which limits the effectiveness of instruction for LwHI. This highlights the urgent need for targeted training and professional development for educators to adopt more inclusive practices. Additionally, students' perceptions indicate feelings of marginalization, emphasizing the necessity for more visual aids and interactive learning opportunities. These findings suggest that bridging the gap between teaching strategies and the actual needs of LwHI is vital for enhancing their academic experiences.

This study significantly contributes to existing knowledge by providing empirical data on the effectiveness of teaching strategies for LwHI in Tanzanian higher education, which is an underexplored area. The insights gained advocate for integrating inclusive teaching approaches and underscore the importance of professional development for lecturers. Theoretical insights drawn from the data can inform models of inclusive education tailored to the

unique challenges faced by LwHI. Educational institutions can foster a more equitable learning environment and ultimately improve outcomes for learners with hearing impairments and inform future policies and practices in Tanzanian higher learning institutions.

To enhance good access to teaching strategies for LwHI the study recommends the following: there should be ongoing training sessions for lecturers and staff to raise awareness about learners with hearing impairment, teaching strategies and installation of assistive listening devices. Moreover, encouragement for peer collaboration amongst students with hearing impairment and those without impairment in terms of group discussions and interactive activities that enhance their learning experience. Further, it is recommended that the department collect feedback from students and lecturers about teaching strategies employed for evaluation and improvement purposes to meet the learning needs of LwHI. Additionally, it is recommended that the collaboration between technical staff (sign language interpreters, audiologists) and lecturers be enhanced to improve the teaching and learning process for LwHI to facilitate communication, guide accommodations, and ensure a coordinated approach to supporting students with hearing impairments. Finally, it is recommended to encourage lecturers to adopt flexible teaching approaches that can be individualized to accommodate different learning styles and communication methods.

References

- Akpan, V. I., Igwe, U. A., Mpamah, I. B. I., & Okoro, C. O. (2020). Social constructivism: Implications on teaching and learning. *British Journal of Education*, 8(8), 49-56.
- Amineh, R. J., & Asl, H. D. (2015). Review of constructivism and social constructivism. *Journal of Social Sciences, Literature and Languages*, 1(1), 9-16.
- Arif, A., Rani, S., & Siddique, Q. (2024). Teaching Approaches to Enhance Social Interaction for Students with Hearing-Impaired at Higher Education Level in Lahore. *Annals of Human and Social Sciences*, 5(2), 413-425.
- Atcherson, S. R., Franklin, C. A., & Smith-Olinde, L. (2015). *Hearing Assistive and Access technology*. Plural Publishing.
- Banks, J. (2019). Are we ready: Faculty Perceptions of Postsecondary Students with Learning Disabilities at a Historically Black University? *Journal of Diversity in Higher Education*, 12(4), 297.
- Beard, L., Blake, L., & Strassle, C. (2019). Teaching Strategies for Students with Hearing Loss in Higher Education: Perspectives of Deaf College Students. *Journal of Postsecondary Education and Disability*, 32(2), 149-164.

- Berk, L. E. (1994). Vygotsky's theory: The Importance of Make-believe, Play. *Young Children*, 50(1), 30-39.
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652-661.
- Cavinato, A. G., Hunter, R. A., Ott, L. S., & Robinson, J. K. (2021). Promoting student interaction, engagement, and success in an online environment. *Anal Bioanal Chem* 413, 1513–1520 (2021). <https://doi.org/10.1007/s00216-021-03178-x>
- Chekwaze, J. & Juma, Z. R. (2024). Inclusive education and the dynamics in students with hearing impairments in Tanzania: From teachers' and Students' Perspectives on the Use of Sign Language. *Journal of Research Innovation and Implications in Education*, 8(4), 172–182. <https://doi.org/10.59765/jtyfg7452.1>.
- Creswell, W. J., & Creswell, D. J. (2023). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Sage Publications.
- Emong, P., & Eron, L. (2016). Disability inclusion in higher education in Uganda: Status and strategies. *African journal of disability*, 5(1), 1-11.
- Eun, Y. S. (2020). Constructivism: National Identity and Foreign Policy. *The SAGE Handbook of Asian Foreign Policy*. London: SAGE, 30-50.
- Farhan, W., & Razmak, J. (2022). A comparative Study of an Assistive e-learning Interface among Students with and without Visual and Hearing Impairments. *Disability and Rehabilitation: Assistive Technology*, 17(4), 431-441.
- Farrell, M. (2008). *Educating Special Children*. Routledge.
- Gambari, I. A., James, M., & Olumirin, C. C. (2013). Effectiveness of video-based cooperative learning strategy on high, medium and low academic achievers. In *The African Symposium: An Online Journal of the African Educational Research Network* (Vol. 13, No. 2, pp. 77-85).
- Hadi, F. N., Wahyuni, D. S., & Sulistyawati, H. (2019). Teacher's Strategies in Teaching English for the Hearing-Impaired Students. *English Education*, 7(2), 264-271.
- Hallahan, D. P., & Kauffman, M. J. (2006). *Exceptional Learners*. Pearson.
- Haule, M. J. (2015). Open Educational Resources Utilization in Tanzanian Higher Learning Institutions. *Business Education Journal*, 1(1).
- Heward, W. L. (2010). *Exceptional Children*. 10th ed. Pearson.
- Hornby, G. (2014). *Inclusive Special Education*. Springer.
- Howell, C., & Lazarus, S. (2003). Access and Participation for Students with Disabilities in South African Higher Education: Challenging Accepted Truths and Recognizing New Possibilities. *Perspectives in Education*, 21(3), 59-74.

- Iglehart, F. (2020). The Impact of Classroom Acoustics on Learners with Hearing Impairment. *Journal of Inclusive Education*, 18(2), 45-58.
- Jiseve, K. K. (2023). From the Hands to the Eye: The Role of Kenya Sign Language in Realization of the Right to Access to Justice for the Deaf Community in Kenya (Doctoral dissertation, University of Nairobi).
- Kaingo, R. M. (2023). Inclusion of students with hearing impairment in universities in Dodoma City, Tanzania (Doctoral dissertation, Kyambogo University [unpublished work]).
- Kigotho, L. W. (2016). Barriers faced by Students with Hearing Impairment in the Inclusive Learning Environment: A Case of the University of Nairobi (Doctoral dissertation, University of Nairobi).
- Kisanga, S. E. (2017). Educational Barriers of Students with Sensory Impairment and their Coping Strategies in Tanzanian Higher Education Institutions (Doctoral dissertation, Nottingham Trent University).
- Kisanga, S. E. (2019). Barriers to Learning faced by Students who are Deaf and Hard of Hearing in Higher Education Institutions in Tanzania. *Papers in Education and Development*, 37(2).
- Kochung, E. J. (2011). Role of Higher Education in Promoting Inclusive Education: Kenyan Perspective. *Journal of Emerging Trends in Educational Research and Policy Studies*, 2(3), 144-149.
- Kottmann, A., Vossensteyn, J. J., Kolster, R., Veidemann, A., Blasko, Z., Biagi, F., & Sánchez-Barrioluengo, M. (2019). Social inclusion policies in higher education: Evidence from the EU. *Report. Publications Office of the European Union, Luxembourg*.
- Lambrechts, A. A., Cavallaro, M., & Lepori, B. (2024). The European Universities initiative: between status hierarchies and inclusion. *Higher Education*, 88(4), 1227-1247.
- Loeding, B. L. (2011). Assistive Technology for Deafness and Hearing Impairments: Assistive Technology. *Principles and Applications for Communication Disorders and Special Education*, 4, 325-365.
- Marschark, M., & Hauser, C.P., (2011). *How Deaf Children Learn: What Parents and Teachers Need to Know*, 1ST Edition. Oxford University Press.
- Marschark, M., & Hauser, P. (2018). Communication Strategies and Accessibility Issues for Deaf and Hard-of-Hearing Students in American Higher Education. *American Annals of the Deaf*, 163(5), 437-455.
- Migheha, G. J. (2014). *An analysis of academic performance of students with hearing impairment in Tanzania secondary schools* (Master's thesis, Open University of Tanzania).
- Miller, R. (1996). *The Developmentally Appropriate Classroom in Early Education*. Derrmar Publisher:

- Mitchell, D., & Sutherland, D. (2020). *What really works in special and inclusive education: Using evidence-based teaching strategies?* Routledge.
- Mkama, I. (2023). Bilingual Deaf Education: Enhancing Literacy among Deaf Learners in Secondary Education in Tanzania: *Special Issue on Inclusive & Special Education –African Journals Online*, 41(1) 86-96.
- Mkama, I. (2024). *Introduction to Linguistics of Tanzanian Sign Language*. Tridax Africa Company Limited. Mkongo, J. I. (2019). *Inclusion/Integration of Children with Hearing Impairment in Pre-Primary Education in Tanzania*. Ludwig - Maximilians - Universität.
- Mtuli, T. C. (2015). *Assessing the challenges of teaching and learning of hearing-impaired students enrolled in regular primary and secondary schools* (Doctoral dissertation, The Open University of Tanzania).
- Mwakyeja, B. M. (2013). *Teaching students with visual impairments in inclusive classrooms: A case study of one secondary school in Tanzania* (Master's thesis, University of Oslo, Norway).
- Ndlovu, S., & Moyo, M. (2018). Challenges Faced by Students with Hearing Impairments in Accessing Higher Education in South Africa. *South African Journal of Higher Education*, 32(1), 232-249.
- Nsereko, H. (2010). Multimodal communication in the instruction of learners with hearing impairment: teachers' perceptions and application in inclusive classes (Master's thesis, University of Oslo, Norway).
- Patrick, C. (2017). Strategies used in teaching written English language to learners with hearing impairment: A case of Njia Special School in Meru County, Kenya. *International Journal of Education and Research*, 5(12), 1-14.
- Philip, E. M. (2021). Improving English Comprehension Ability among Students with Hearing Impairment in Inclusive Classroom: A Collaborative Instructional Approach (Doctoral Thesis, University of Dodoma).
- Philip, E. M. (2022). Teaching Models Used and Challenges Experienced in Secondary School Classes with Special Needs Learners in Tanzania. *East African Journal of Education and Social Sciences* 3(6)129-137. DOI: <https://doi.org/10.46606/eajess2022v03i06.0244>.
- Philip, E. M. (2023). The Contribution of Sign Language Interpreters to Academic Achievement of Deaf Students: A Case Study of Archbishop Mihayo University College of Tabora. *International Journal of Science and Research*, 12(11) 81-91.
- Philip, E.M. (2024). Realization of access, equity, diversity and inclusion in inclusive education: What are the missing gaps in Tanzania? *European Journal of Contemporary Education and E-Learning*, 2(1), 53-65.
- Quinto-Pozos, D. (2011). Teaching American Sign Language to hearing adult learners. *Annual Review of Applied Linguistics*, 31, 137-158.

- Rehman, N. U., Aftab, M. J., & Ali, H. H. (2024). Role of technology integration in educational settings for students with hearing impairment. *Bulletin of Education and Research*, 46(1), 87-105.
- Samweli, L. (2023). Inclusive Education in Tanzania: *Assessing Teachers' Knowledge, Challenges, and Strategies in Managing Children with Disabilities in Public Primary Schools*. (Master Dissertation, the University of Dodoma).
- Semunyu, Y. F., & Rushahu, B. (2023). Challenges and coping mechanisms in sign language interpretation at the University of Dar es Salaam. *African Journal Online* 41(1) 127-142.
- Seni, A. J. (2022). Bottlenecks to inclusive higher education for students with disabilities during the COVID-19 pandemic in Tanzania. *Journal of Issues and Practice in Education*, 14(2), 108-134.
- Shartieli, N. E. (2013). Discourse strategies of lecturers in higher education classroom interaction: a case at the University of Dar Es Salaam, Tanzania (Doctoral dissertation, Stellenbosch: Stellenbosch University).
- Taherdoost, H. (2022). Designing a questionnaire for a research paper: A comprehensive guide to designing and develop an effective questionnaire. *Asian Journal of Managerial Science*, 11(1), 8–16. <https://doi.org/10.51983/ajms-2022.11.1.3087>
- Tungaraza, F. D. (2014). Training teachers in special needs education in Tanzania: A long and challenging ordeal to inclusion. *Huria: Journal of the Open University of Tanzania*, 16, 49-60.
- United Nations. (2006). *Convention on the Rights of Persons with Disabilities*. United Nations.
- URT. (2009). *National Strategy on Inclusive Education (2009-2017)*. Government Printer.
- URT. (2010). *Persons with Disabilities Act of 2010*. Government Printer.
- URT. (2017). *Education Sector Development Program*. Government Printer.
- Vygotsky, L., & Cole, M. (2018). Lev Vygotsky: Learning and social constructivism. *Learning Theories for Early Years Practice*. SAGE Publications Inc., 68-73.
- Williams, L. (2024). Unlocking Accessibility: Captions, Transcripts, and Audio Descriptions. Retrieved from [www.https://openlibrary-repo.ecampusontario.ca](https://openlibrary-repo.ecampusontario.ca)
- Wilmshurst, L., & Brue, W.A. (2005). *A Parent Guide to Special Education*. American Management Association.
- Wynne, S. M (2010). *Early Childhood Special Education General Curriculum Teacher Certification Exam*. XAMoline Inc.
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