



Factors Contributing to Low Academic Achievement Among Pupils with Hearing Impairment: A Case of Selected Inclusive Primary Schools in Dodoma Municipality, Tanzania

Anathe R. Kimaro¹ & Scholastica E. Kileo²

Institute of Adult Education, Dar es Salaam

Email¹: akimaro@iae.ac.tz / Kirundwa@yahoo.com

Email²: scolakileo@yahoo.com

Abstract: *The aim of this study was to contribute to knowledge about learners' academic achievement by examining factors impeding the academic achievement of pupils with hearing impairments in public inclusive primary schools in Dodoma City, Tanzania. The study used a qualitative approach informed by a case study design. It had a sample size of 67 participants, including 24 inclusive primary school teachers, 6 head teachers, 1 special education officer, and 36 hearing-impaired pupils from six (6) inclusive primary schools in Dodoma municipality. Interview guide and observation checklists were used to collect data. Qualitative data analysis procedures were used to analyse the data. The findings revealed that inappropriate pedagogical approaches, lack of expert teachers and professional development, as well as a lack of learning facilities in inclusive classroom, were key factors responsible for low academic achievement among hearing impairments pupils. In conclusion, curriculum developers could construct curriculum that is flexible and consumable by all types of learners. The study recommends that, in-service training of inclusive classroom teachers should cover new methods of teaching; identification other disabilities in hearing impairments pupils; teaching; preparation and usage of appropriate teaching and learning materials.*

Keywords: *Disability, hearing impairment, inclusive, inclusive education, impairment*

Introduction

Hearing Impairment (HI) is becoming a global public health issue. Globally, roughly 466 million individuals (6.1%) have HI, with approximately 34 million (7%) being children (World Health Organization, 2019). The prevalence of HI among children in Sub-Saharan Africa is estimated to be around 8.6% (almost 18 million children) (Stevens, *et al.*, 2023). Briefly, HI is a general term which refers to both the deaf who have a hearing disorder of 70Db and hard of hearing (HH) who have a hearing disorder between 16 and 69 Db (Paul & Whitelaw, 2011; Stach, 2010). For the purpose of this study, hearing impairment refers to pupils who are hard of hearing and whose disabilities can be minimized through the use of hearing aids.

Hearing loss of any kind in children has been found to significantly influence speech understanding, language development, and social development. Such effects may result in academic challenges such as reading difficulty, bad spelling, and poor writing skills (Martinez & Coursen-Neff, 2017). According to Mulwafu *et al.* (2016), half of children with disabilities, including HI, never start school, and twice as many drop out during the first years. They may also face stigma and a higher risk of violence (Butler, 2012). Drawn from Pembe's (2017) observation, even the few HI pupils in the classroom are not properly integrated academically, socially, or in many other ways. They cannot communicate because they cannot hear what the teacher or other students are saying, nor can they communicate with their classmates in group discussions. In this line of argument, Tungaraza (2015) argues that teaching HI students in integrated classrooms necessitates reliable information and consistent effort from classroom teachers. If teachers do not actively support HI learners in integrated schools and classrooms, their learning will remain troublesome.

Teachers' lack of support in and out of the classroom can have a negative impact on HI students' academic progress, even if they are expected to achieve and contribute to classroom events. For example, Stone-MacDonald (2014) reported that just approximately 1% of the country's 118,000 inclusive classroom teachers hold a certificate or diploma in special education. Likewise, Mbwanbo and Nes (2022) denote that many teachers at inclusive schools lack the skills necessary to interact with children with special needs, including HI pupils (Kapinga, 2012; Tungaraza, 2014), with most teachers only trained to work with mainstream children (Pembe, 2017). Stone-McDonald (2015) discovered that because most teachers are not adequately prepared to fulfil the requirements of students with

disabilities, some teachers end up perceiving students with disabilities as a burden or a nuisance. In the same vein, Tungaraza (2015) noted that there are few teaching and learning facilities to support HI learners in the teaching and learning processes. Because schools are underfunded, there are limited resources available to conduct necessary assessments and interventions (Mangiti 2018; Manchishi, 2015; Possi & Milinga, 2017). More importantly, class sizes are huge, making it difficult to provide adequate instruction (Nordheimer & Brandl, 2015; Mtuli, 2015; Muzata & Mahlo, 2019). Teachers endeavour to serve students with HI, but it is difficult to do so effectively in classes of 45 to 50 pupils (Kodiango & Syomwene, 2016; Kumatongo & Muzata, 2021).

Furthermore, curriculum challenges continue to stymie efforts to meet the needs of pupils with HI in inclusive classrooms hence making it difficult to attain EFA targets. A curriculum that is relevant and fits the requirements of varied groups of learners is crucial to making quality education a reality. Children with HI tend to struggle to meet the curriculum's standards due to reasons such as reading difficulty, an inability to grasp information, and the inability to communicate properly (Rishaelly, 2017). Teachers' ability to adapt and adjust to curricular content to allow students with HI to engage in the learning process are limited (Philipo, 2020). For instance, in Tanzanian inclusive schools, students with HI at all grade levels are subjected to a strict national curriculum and pedagogy with very slight variations by teachers (Tungaraza, 2015). Furthermore, the Ministry of Education, school administrators, and education inspectors place enormous pressure on teachers to fulfil the specified syllabus on time (Pembe, 2017; Tungaraza, 2015). These demands limit instructors' flexibility and ability to adjust to curricular content and methodology to meet the needs of students with HI, particularly in inclusive classrooms (Philipo, 2020). Because of these disadvantages, many students with HI may have very poor rates of attendance, retention, survival, and academic completion. The general purpose of this study is to examine factors contributing to low academic achievement to pupils with HI in inclusive primary schools.

Literature Review

Hearing impairment is defined as the inability to hear sounds below 25 dB that can be variable or permanent (Agyire-Tettey *et al.*, 2017). Similarly, Kodiango and Syomwene (2016) define hearing impairment as a total or slight loss of hearing ability, whereas Nordheimer and Brandl (2015) define it as deafness, auditory system malfunction, and hardness of hearing. Disease, accidents, tinnitus, heredity,

ageing, and factory noise are some of the most prevalent causes of hearing loss (Kodiango & Syomwene, 2016; Mpofu & Chimhenga, 2013). It covers the entire range of auditory impairments, encompassing both the deaf person and the individual with a very mild loss. According to Mtuli (2015), there are different types of hearing impairments based on where along the auditory pathway the hearing loss is sustained. The first is conductive hearing, which affects the loudness or intensity of speech. The second is sensorineural hearing impairment, which affects the frequency, intelligibility, and clarity of the sounds a person can hear. Manchishi (2015) further categorizes the causes of hearing impairment into endogenic and exogenic factors. Endogenic factors are caused by a biological cause or process, such as genetic syndromes, metabolic endocrine abnormalities, or blood incompatibility. On the other hand, exogenic factors are caused by accidents or foreign objects that either impede or ruin some element of the auditory apparatus. Exogenic factors also include inappropriate medications, poisons, bacterial illnesses like meningitis, and viral diseases like mumps, rubella, and measles.

According to World Federation for the Deaf statistics, there is an average of 70 million deaf people worldwide, with 80% of these people living in developing countries (World Federation for the Deaf, 2020). According to the World Bank report (2019), people with hearing impairments face several challenges when attending school. Students with hearing impairments are shown to be less likely to attend school regularly, finish school, have basic skills, and have fewer school year possibilities. According to the report, discrimination and prejudice, lack of competent teachers, shortage of educational resources, and lack of disaggregated data research on disability continue to deny people with hearing impairments the right to excellent education around the world. According to World Federation for the Deaf (WFD), the deaf are among the poorest of the poor, with limited access to education. Various challenges prevent learners with hearing impairments from reaching their full potential by impeding their full involvement. These include community stigma, insufficient expert teachers and resource centres, lack of specialized teaching and learning materials and assistive technologies, and people's ignorance or unawareness that disability is not an inability (Philipo, 2020).

Various studies, such as Richburg and Hill (2014) and Moeller and Tomblin (2015), reveal that even minor hearing loss, as low as 15 decibels (dB), can have a major impact on the learner's academic achievement. Although studies have shown that students with HI have the same IQ as other students, some have even greater capacity and are deemed intellectually brilliant (Shields & Lennox, 2017). Hearing

loss has a significant impact on language development and, as a result, academic performance. For example, according to Qi and Mitchell (2012), despite positive development in the education of learners with HI, their achievement continues to lag behind that of their hearing classmates, and many do not gain the information and skills required to realize their full potential.

There are numerous causes for this troubling and long-standing phenomenon. For example, Hermans et al. (2014); Marschark et al. (2013) and Singleton et al. (2015) found that many students with HI are unable to communicate in either a signed or spoken language. It is also important to note that service providers tend to struggle to structure language environments and provide access and opportunities for students with HI to learn. There is also a scarcity of qualified hearing-impaired teachers, as well as research-based teaching methods and instructional materials for hearing-impaired pupils (Greene, 2017; Esther & Rose, 2023). Various studies have revealed that HI students' learning difficulties tend to begin before they reach school age (Salter et al., 2015; Hornby, 2015; Luckner, 2010). Regardless of how learning ability is tested, students with HI continue to achieve a much lower level than their hearing peers. Low levels of achievement have been observed in tasks requiring reasoning, logical thinking and problem-solving (Chuchu & Chichi, 2016). Another study by Noorian et al. (2013) concluded that learners with HI tend to score much worse in mathematics than their classmates with no hearing difficulties.

Manchishi (2015) identified factors that contribute to low achievement in mathematics among students with hearing loss in Zambia and provides methods to improve their performance. The study also looked into measures that can help learners with HI improve their arithmetic skills. The study's findings reveal that hearing loss has a substantial impact on HI students' capacity to learn mathematics due to their inability to comprehend the language of mathematics. Teachers were inadequate, and not all of those who were available were properly qualified, caring, or had a positive attitude toward students with HI. Adequate and appropriate teaching and learning resources are also not provided. Kumatongo and Muzata (2021) assess Zambian lecturers' perceptions of the academic achievement of student teachers with hearing impairments. They find mixed emotions and judged it to be influenced by their incapacity to understand concepts as well as lecturers' failure to handle them effectively.

Attempting to determine psycho-cultural factors influencing the academic achievement of students with hearing loss at Fr. Oudra Special School in Siaya

County, Nyanza Region in Kenya, Mangiti (2018) finds a substantial positive association ($r = 0.907$) between self-esteem and academic achievement, which was statistically significant ($p = 0.037$; $p < 0.05$). This demonstrates that, statistically, when self-esteem increases, the academic performance of learners with HI improves. However, there was a statistically significant ($p = 0.003$; $p < 0.05$) slight positive connection ($r = 0.264$) between self-concept and academic performance. The data suggest a statistically significant ($p = 0.041$; $p < 0.05$) modest negative association ($r = -0.156$) between cultural characteristics and academic achievement.

Looking at factors impacting academic achievement of hearing-challenged students in inclusive education at Moshi Technical Secondary School in Tanzania, Rishaelly (2017) reveals that there was a shortage of specially trained teachers for hearing-impaired students, lack of sign language skills for teachers who teach in inclusive classes, and a shortage of teaching and learning facilities. Rishaelly (ibid) further indicates that teachers were not comfortable teaching inclusive classes due to their inability to use sign language in teaching and learning processes.

Mtuli (2015) analyses the obstacles to teaching and learning for hearing-impaired children enrolled in normal primary and secondary schools in Tanzania. The study reveals that the new system of inclusive education requires more creativity in order to prepare quality education for hearing-impaired secondary school students. Mtuli (ibid) further, reveals that shortage of qualified special education teachers in sign language and lack of in-service training for total communication for the new system of inclusive education are the setbacks to the performance of hearing-impaired students.

Methods

Researchers created a descriptive qualitative case study design to guide the inquiry. The proposed design comprises the conceptual foundation of the research and data collection and analysis methods that helped to answer the research question, *what are the factors for low academic achievement among HI pupils in inclusive primary schools?* The study's qualitative approach was positioned within the constructivism paradigm, which regards social reality as formed by the individuals experiencing it (Creswell, 2014). Qualitative research, on the other hand, focuses on the interpretations people ascribe to social phenomena they encounter (Savin-Baden & Major, 2013). Because the teaching and learning process of HI pupils in inclusive classrooms is a concrete reality experienced by inclusive primary school teachers, heads of schools, special education officers, and HI pupils, a qualitative approach

aimed at gathering data about the phenomenon from the perspectives of its key participants through direct interaction with them.

According to Fusch and Ness (2015), the descriptive nature of the study is stated in the type of knowledge it seeks to develop, namely addressing the question *what is going on?* It aims to define what occurs now (contemporary phenomena) and under what conditions it exists (the context of the phenomenon). Accurate detection and description of a novel occurrence for HI pupils teaching and learning in inclusive primary schools may help in understanding current practices leading to low achievement and clarifying future demands. As argued by Clancy (2013), to have a firm basis for explaining and changing any educational phenomenon, its accurate description is first necessary. It is notable that descriptive studies are never merely descriptions of the data but imply their interpretation as all descriptions are our descriptions, rather than the description of the case (Lambert & Lambert, 2012). Qualitative approach, however, does not allow generalisation of the research findings and thus the results in this study can only be generalised within the visited inclusive primary schools and other schools with similar contexts.

The research was conducted in Dodoma Municipality in Tanzania. It accommodates one of the biggest universities i.e., University of Dodoma, which produces special education teachers. Dodoma Municipality was chosen because, out of 14 inclusive primary schools in the Dodoma region, 6 (42.8%) are in Dodoma municipality, 6 (42.8%) in Bahi, Kondoa, and Chemba districts, and two (14.2%) in Chamwino district.

The study's target population was inclusive primary school teachers, heads of schools, and HI pupils from all-inclusive public primary schools and a special education officer in Dodoma municipality. Inclusive classroom teachers were selected to form the sample size because they are responsible for teaching HI pupils. Pupils with HI were included because they were the study's target group. Heads of schools were included in the sample because, by virtue of their position, they supervise instructional practices in their respective schools. A special education officer was selected because he was in charge of ensuring pupils with special needs received quality education in inclusive schools. Sixty-seven participants were selected by using the purposive sampling technique. They comprised 24 inclusive primary school teachers, 6 head teachers, 1 education officer, and 36 HI pupils from six inclusive primary schools in Dodoma municipality. Heads of school, special education officers, and inclusive classroom teachers were obtained by using typical case-purposive sampling procedures. In addition, criterion-purposive sampling was

used to select HI pupils from six inclusive primary schools. The purposeful sampling strategy was applied to select all teachers, heads of schools, special education officers, and HI pupils because they were considered the most 'knowledgeable people' about the teaching-learning process of HI pupils in inclusive primary schools.

The study used three data collection instruments: interview guide, open ended questionnaire and observation checklist. Thirty-six (36) open-ended copies of the questionnaire were distributed to HI pupils with the help of subject teachers. Heads of schools, inclusive primary school teachers and special education officer were interviewed. All of them focused on teachers training and professional development, teaching experiences, teaching methods, the classroom environment, and the availability of hearing device for HI pupils. The observation checklist was used to observe classroom activities, seating arrangements, teaching and learning materials, availability of specialized equipment, and other facilities used by teachers to support learning of HI pupils.

For ethical purpose, the identified schools were code as A, B, C etc. The study involved 36 HI pupils aged between 9 and 14 years whose consent was sought through the Heads of schools prior to administration of interviews. The form was given to each of them to sign, with a reassurance that their names and the information they were to give would remain confidential. They were also assured that neither their photographs would be taken by the researchers, nor recorded voices be revealed to any third party.

To analyse the data, Braun et al. (2019) inductive thematic analysis approach was used. To begin, the study separated the predispositions (epoche) from the impediments to academic accomplishment. The researchers transcribed the data in Kiswahili, later on translate the data into English language for wider leadership. This is due to the data distribution language. Thereafter, the researchers reviewed and re-read the participants' material to identify relevant portions of information, which were then classified with codes. The researchers then, clustered commonly used terms and phrases in order to construct themes and later sub themes from the discovered main statements. Finally, the written description gave a rich explanation of the issues under examination, which was backed up with specific narrations and actual quotes from participants.

Findings

Factors leading to low academic achievement

The data for this first research question were collected through interviews with pupils with HI, heads of school, inclusive classroom teachers, and a special educational officer, as well as an observation checklist. Findings are presented in the following sub-themes:

Lack of professional training among teachers

Interview findings from inclusive classroom teachers, heads of schools, and educational officers revealed that most of the inclusive classroom teachers lacked the required competences to teach HI pupils. It was found out that teachers were not equipped with the necessary teaching qualifications, training, and experience required to accommodate HI pupils in the inclusive classroom. During the interview, one of the heads of the school narrated:

It is apparent that hearing impairment pupils are taught in this school by regular classroom teachers who have no experience in teaching HI pupils. As a result, they are often left behind others. They complete their seven-year education life circle without learning what they were supposed to learn. (Interview conducted with one of the Head of Schools, August 2022 in School A Dodoma Municipality).

Sharing her experience on the same, one teacher admitted feeling overwhelmed with regard to teaching HI pupils:

I was really disoriented in handling HI pupils in my class. I have to say that because for the first time, I was assigned to teach a class of three HI pupils with no prior teaching experience. There are no guidelines which could enable me to carry out this task effectively. You're just there, and you have to figure things out almost entirely on your own. (Interview conducted with one of the Teachers, August, 2022 at School A, in Dodoma Municipality).

The challenge in all visited schools is that 18(75%) interviewed teachers were not trained to teach HI pupils in inclusive classrooms. In this regard, another inclusive classroom teacher narrated:

It is critical that all pupils regardless of their differences they study together. The essence is making them feel valued. Nevertheless, regular primary school teachers are not trained to teach HI pupils who are studying in a regular classroom. We will be able to teach them in regular classrooms without struggle if we are trained and provided with tools that will assist

learners, such as hearing aids for learners who cannot hear clearly. (Interview conducted with one of Inclusive Teachers, August, 2022 at School A, in Dodoma Municipality).

Inclusive primary school teacher's opinion on their teaching competency in teaching HI pupils demonstrates that they feel inadequate in the classroom due to lack training. Interviewed teachers revealed that only 6 (25%) of the in-service training sessions they attended covered HI issues. They said that few training sessions they attended included the detection of other disabilities, including hearing impairment. Teachers expected to be trained on issues such as how to use new approaches in teaching pupils with HI and how to prepare, and/or use teaching and learning materials in a HI class. In this case, one teacher said that:

Some of the teachers are not trained to handle HI pupils, making it difficult to make them learn like other pupils. For me to teach them effectively, I need to have adequate knowledge on how to prepare and use visual materials that help them to learn. But since I don't have such knowledge, I cannot prepare and use the equipment. (Interview conducted with one of the Teachers, September, 2022 at School A, in Dodoma Municipality).

This indicates that inclusive primary school teachers lack adequate training on how to teach HI pupils and prepare and use visual materials.

Responding to interview, the Special Education Officer said that:

Sign language is not the only challenge facing teachers with regard to teaching HI pupils in inclusive classrooms. In fact, there are other challenges such as inability of preparing and using of teaching and learning materials, new teaching methodologies, and even use of technology in teaching HI pupils. (Interview conducted with one of the Education Officers, September, 2022 in Dodoma Municipality).

According to the Special Education Officer in-service training among teachers was rarely focused on teaching of HI pupils in inclusive classroom. This comes to suggest that the in-service training programme did not cover identified key areas like current practices in the teaching and learning of the HI pupils, use of technology in teaching HI pupils, selection and usage of teaching methods, and how to teach difficult topics. These are critical if HI pupils are to receive a proper education. When in-service training programmes do not address current demands, teachers are exposed to novel teaching practices. This is reflected in their teaching behaviour: inability to assess HI pupils in their classroom, using inappropriate teaching and assessment methods and limited provision of hands-on learning

activities, inability to contextualize the content [using live events, experiences, examples, and visits to natural sites], use of unsupportive subject-specific language [every subject has its own language, but it is not used judiciously], inability to access and use digital learning materials, and failure to create joyful learning environments for pupils with HI.

Shortage of suitable teaching and learning facilities

Interview findings revealed that schools in Dodoma municipality lacked adequate teaching and learning facilities suitable for HI pupils. Few available teaching and learning facilities lacked assistive devices that are vital for HI pupils. Commenting on this, one of the heads of the school had the following to say:

Teaching and learning instructional materials are limited. Most that are available are not suitable for HI pupils. Ironically, even our inclusive classroom teachers are not prepared to use locally available materials to improvise teaching aids that can meet the learning needs of HI pupils (Interview conducted with one Head of School A, September, 2022 in Dodoma Municipality).

In supporting this, another head of school added that:

All teachers do not know how to modify instructional materials in order to meet the particular needs of HI pupils in their classrooms. HI teachers consider that customization of teaching and learning materials is the duty of HI experts. Furthermore, lack of teaching and learning materials in inclusive classes has revealed a substantial gap between the demands of HI pupils and what these teachers now accomplish in inclusive classrooms. This circumstance makes the quality of schooling for these HI pupils questionable. (Interview conducted with another Head from School B September, 2022 in Dodoma Municipality).

Through observation of classroom teaching, it was discovered that there were no teaching and learning materials apart from lesson notes, lesson plans, and textbooks. Furthermore, it was discovered that the inclusive schools visited did not employ locally available instructional materials such as maps, globes, charts, and photographs. Inclusive schools lacked advanced assistive technological teaching materials and aids and locally available teaching materials, and assistive technology that are critical for deaf learners' educational success.

Use of inappropriate pedagogical approaches

The study findings revealed that the use of inappropriate instructional approaches led to low academic performance among HI pupils. Through questionnaire it was

found that 24 (66.6%) HI reported that their teachers used to speak without writing or showing anything on the chalkboard. During the interview, one HI pupil said:

In class seven, I have considerably more academic challenges than I did in previous classes. In lower classes, I used to get notes written on the chalkboard by the subject teacher. In contrast, some teachers in this class do not write anything on the chalkboard and do not give me their notes. What they do is only to write some questions. (Interview conducted with one of the Pupils from School A, August, 2022 in Dodoma Municipality).

This suggests that teachers' use of inappropriate pedagogical approaches has an effect of academic performance among HI pupils. Likewise, another HI pupil complained that:

I am only learning from my fellow pupils because I cannot understand what many teachers teach in this school...Many talks without considering that I cannot catch or hear some words. They never use the chalkboard. (Interview conducted with another pupils from School B, September, 2022 in Dodoma Municipality).

The study also found that HI pupils had challenge of using lip reading strategy to understand their teachers, as narrated by one HI pupil during an interview:

At home I follow my parents' instructions through lip reading but here many teachers move from one place to another during teaching hence making it difficult to read their lips. This being the case, I have difficulty in grasping what they are teaching. (Interview conducted with one pupil with HI from School A, October, 2022).

The assertion on the barrier to learning through speech-reading confirms that, for the HI pupils to benefit from this approach, it is mandatory that the teacher talk while maintaining eye contact with the HI pupils. Nevertheless, the observation checklist revealed that teachers were too mobile in class and/or looked in different directions. By so doing, teachers were unwittingly making it difficult for HI pupils to follow the lesson. It was also observed that teachers were rarely giving short and brief directions and verbal instruction, repeating information, writing notes on the chalkboard, allowing interaction between HI and regular pupils, and encouraging HI pupils to be active. They neither employed complete communication when teaching nor repeat the questions and responses.

Shortage of hearing devices

The study findings revealed that most 29(80.5%) of HI pupils who participated in this study had no hearing devices while only 7(19.4%) HI pupils said they had these

devices claiming that, their parents or family members bought for them. Hence, parents and relatives entirely assumed this obligation. As most it has been reported by a number of pupils, it is an indication that parents were in a difficult financial position to purchase the necessary gadgets. One pupil with HI reported that:

I don't have any learning device that can help me to hear properly...because my problem is low hearing ability. In this school there is no any hearing aid and I have to buy it for myself. (Interview conducted with one pupil with HI from School A, October, 2022).

Another HI pupil narrated:

It is extremely hard to write any notes during the teaching process because I cannot hear properly. I can only hear when the teacher speaks loudly. My class teacher and head of school are aware of my problem. However, I have not received any assistance. In my studies, I only depend on my parents who are not capable of getting me the hearing devices. At the same time, the school does not have money to buy the devices for me. (Interview conducted with another pupil with HI from School B, October, 2022).

In the first testimonial, the findings are likely to suggest that the pupil's problem is not well understood among responsible authorities while for the second testimonial it shows that the class teacher and head of school are aware of the pupil's problem. Basing on the two testimonials, on the one hand, the findings suggest that the teachers are not paying attention to understand the problem and address, but one they are aware of the pupil's problems but not assisting them to address their problems. This entails lack of support to furnish the necessary equipment for inclusive classrooms to suit the learners' needs. This implies that the demands of HI pupils are not addressed at different levels, both in the school annual budget and national budget list or educational priorities. Arguably, when other modes of communication are not prioritized, the absence of hearing aids in inclusive schools enrolling HI pupils implies social inclusion rather than academic inclusion.

Through the questionnaire, it was revealed that 32 HI pupils (88.8%) had low quality hearing aids at their disposal. Indeed, they reported that the hearing aids donated to them by their parents' initiatives or charity organizations were of poor quality to the extent that instead of addressing the problem, they exacerbated it as the following account demonstrates:

I no longer wear hearing aids because they do not help me at all. The first device I was given caused me agony as it used to cause and made a lot of noise. The second device that was delivered to me was likewise ineffective. The third device was far superior; however, it did not resolve my issue

because it supported me in hearing the voice but could not recognize speech. (Interview conducted with a pupil with HI from School B, October, 2022).

Another HI pupil reported:

"My problem is speech recognition, but the equipment I was given can only catch the voice but unable to distinguish words." (Interview conducted with another pupil with HI from School B, October, 2022).

The finding implies that while some HI pupils have access to hearing aids, they do not benefit from them during the teaching and learning process. The hearing aids provided enable the pupils to hear the speaker's voice but not what is being communicated. It is doubtful that a person with a speech detection difficulty who has a complete diagnosis will be able to acquire a hearing aid that detects sound but not speech.

Lack of supportive classroom environment and timetabling

Poor sitting arrangement, poor position of a teacher from pupils, absence of noise reduction device inside the classroom, poor location of the class, and overcrowded classrooms were also identified as factors for low academic performance among HI pupils. It was discovered that only one of the six inclusive classroom teachers had a proper classroom layout. In this classroom, at least the desk placements were done appropriately to allow HI pupils to see the teacher and be close to the chalkboard. For example, there was a semi-circle table that allowed HI pupils to see each other as well as the teacher. However, in the remaining 5 observed inclusive classrooms, the desks were arranged in such a way that HI pupils could not see the teachers or the chalkboard. HI pupils were unable to view their teacher or other pupils in these five observed classrooms.

Through questionnaire 23(63.8%) with HI also reported that the physical structure of their classes was insufficient to allow them to use their residual hearing through hearing aids or other assistive equipment. This issue was identified in classrooms visited. In this regard, pupils complained that they were accommodated in classrooms that lacked noise-cancelling devices. Such disturbances disrupted both the learning process and the effective use of assistive devices such as hearing aids. Notably, background disturbances in all the visited 6 classrooms hampered listening even among hearing pupils. One HI pupils narrated:

Aside from the lack of hearing aids, our classroom environments do not encourage the use of hearing aids. With this level of noise, how can hearing aids be effective? I expected the situation to be different in primary schools

compared to my past experience in pre-primary school, but it is not. (Interview conducted with another pupil with HI from School A, December, 2022).

The above remark implies that HI pupils require more than decent hearing aids to profit from the curriculum delivered. This is because they are unlikely to use their residual hearing in the absence of a supportive teaching atmosphere. The findings revealed that HI pupils in this study encountered a noisy classroom environment. This is because the classroom door was always open and the windows were not sufficiently insulated, sounds from outside could be heard, disrupting the learning environment for HI pupils. This suggests that the majority of inclusive classroom environments need to be modified to meet the demands of HI pupils.

Furthermore, time available/allocated for completing the curriculum was also another challenge. Teachers and heads of school also mentioned that primary school syllabi were overloaded hence; teachers were rushing to complete the syllabi and hence they had little time to deal with HI problems. During interview, one teacher said that:

I have a lot to cover in this syllabus. Let alone other activities like going through pupils' exercise books. All these make it difficult for me to consider the problems faced by HI pupils or even design an individualized program to help them. So I can sincerely say that I don't have much time to help them individually because my priority is to cover the syllabus (Interview conducted with one of the teachers from School B, December, 2022).

The above assertion shows HI pupils are sometimes overlooked since teachers were rushing to cover the syllabi. Teachers preferred to cover syllabus over using much of their time to help HI pupils.

Further analysis revealed that HI pupils did not sit comfortably in class because space was too limited and some did not have enough chairs. During interview, the education officer noted:

Overcrowding is one of the major difficulties that most of our inclusive primary school's face. This is because it affects even the teacher's capacity to reach all pupils when they require a tailored curriculum due to lack of space. (Interview conducted with Education Officer, November, 2022).

In the same vein, an inclusive classroom teacher added that:

If pupils are more than ninety in the class, it becomes very difficult for the teacher to attend individual problems like HI pupils are facing. This is because we don't have enough time to do so. Hence, the gap is going to get

bigger and bigger, between HI pupils and the rest of the pupils. (Interview conducted with an inclusive Classroom Teacher from School B, January, 2023). The respondent continued saying:

...It just goes without saying, if you have a big class of eighty to one hundred pupils and you have somebody with special needs like HI pupils, either those pupils are going to lose out or the rest of the class are going to, you know someone's losing out, because you can't get to everything. (Interview conducted with the same inclusive classroom Teacher from School B, January, 2023).

The size of the classroom and the number of pupils in the class has an effect on monitoring and helping HI pupils. Teachers are called to help HI pupils so that they can acquire confidence in their learning. Overcrowding makes it difficult for teachers to identify and assist HI pupils who may be experiencing difficulties in a class. Due to overpopulation and a lack of space, most learners with HI are disregarded. It is critical that all pupils are accommodated in teaching-learning environments.

Discussion

The main objective of this study was to assess factors contributing to low academic achievement among HI pupils in inclusive primary schools and then validate the exploratory factors of low academic achievement statistically as a subsidiary objective. Inappropriate pedagogical approaches, lack of expert teachers, professional development and lack of learning facilities in inclusive classroom were revealed as the key factors to low academic achievement among HI pupils. The findings indicated that lack of expert teachers is due to a lack of professional development programmes for regular primary school teachers. This situation makes it difficult for inclusive classroom teachers with HI pupils to select appropriate teaching and assessment methods, and prepare lesson plans that could cater to the needs of all pupils. Professional development programmes for all regular teachers that teach HI pupils are crucial. This finding is consistent with earlier studies that have found that teachers who are more qualified understand their students' activities better in inclusive classroom than those who are less or not qualified (see Mpofu & Chimhenga, 2013; Migea, 2014; Holmstrom & Schonstrom, 2017; Kisanga & Richards, 2018). In light of this, Mitchell (2014) and Wadesango et al. (2014), who regard teachers as the most valuable human resource available, advocate for their assistance in promoting inclusive practices in all schools. In order to ensure successful inclusive classroom implementation, says Lynch et al. (2011), teachers must be taught and retrained, for example, through in-service training. As

beneficial as it may be, good teacher training should not be only focused on academic information, but should also include skill learning. According to McConkey and Bradley (2017), balanced teacher training is the only way to go because regular students and special need learners learn at their own paces (as do ordinary learners), and without taking this into account, all good efforts to promote inclusive schools can be wasted. As a result, McConkey and Bradley (ibid) advocate that regular teacher training programmes be revised in order to empower teachers to be better equipped with the necessary abilities that can assist them assess the learning needs of each and every learner.

Similarly, the study revealed that use of inappropriate pedagogical approach was due to lack of professional training. Teachers lacked expert and professional development training on pedagogy suitable for HI pupils in an inclusive classroom such as integration of technology in teaching HI pupils. This integration necessitates instructors' ability to successfully use technology in any subject they teach. As a result, professional development is required for teachers to master technology and find new ways to incorporate it. According to the findings, the existing system does not support inclusive classroom teachers with HI pupils, leaving many teachers with little or no expertise with technology. This finding is aligned with findings reported by Tungaraza (2014); Manchishi (2015); Mtuli (2015); Rishaelly (2017); and Agyre-Tettey et al. (2017) as they argued that through in-service training, teachers improve classroom management, utilization of relevant teaching methods, and student achievement. Therefore, the study suggests that it should be mandatory for every inclusive primary school teacher with HI pupils to attend at least one in-service training every year, particularly on teaching and learning strategies, selection of teaching and learning facilities and classroom setting and time tabling for HI pupils.

With regard to availability of hearing devices, the data indicate that HI pupils were given outdated hearing aids that lacked unique capabilities to separate speech sound from background noise. Similar findings on the scarcity or poor quality of hearing aids have been found in Pakistan (Shahminan, 2012), Saudi Arabia (Alothman, 2014), Zimbabwe (Mpofu & Chimhenga, 2013), and Tanzania (Kisanga and Richards, 2018; Migehe, 2014). HI pupils also reported being accommodated in an unsupportive classroom atmosphere, which hampered the use of hearing aids. When these children were housed in a noisy location, the undesired noise was amplified over the teachers' voices, rendering the hearing aids ineffective. This suggests that an unsupportive school environment is a barrier to even high-quality

hearing aids. The findings on an unsupportive classroom environment for HI pupils are supported by other experts from around the world (for example, Mnangu, 2016; Lodge and Lynch, 2014; Husniati *et al.*, 2020).

Conclusion

Based on study findings, the study concludes that inadequate teaching and learning facilities, along with teachers' training and professional development, are the key factors that influence HI pupils' academic achievement. These factors have implications for the applicability of inclusive education, where a lack of proper facilities for helping pupils with different categories of impairment has been noted to be a significant factor that impedes the process. Generally, the findings of this study have proved inadequate hearing facilities among pupils with HI in selected schools. This has become a great challenge to the applicability of inclusive education in Tanzanian schools. In light of research findings, it has been revealed that the majority of pupils with hearing difficulties are not capable of accessing hearing devices due to low purchasing power from their parents. Yet, the school administration is not capable of assisting these learners either. This suggests that inadequacy is a big challenge that should be taken with special attention by the government, policymakers, and as well as inclusive education practitioners. To address this inadequacy of facilities, something should be done to recheck how inclusive education is provided in most Tanzanian schools and come up with mechanisms that can be employed to enhance inclusive education as well as help the learners acquire the required knowledge and skills through this kind of education.

Recommendation for Practice

To ensure the quality provision of inclusive education, education practitioners and policymakers should revise the policies about inclusive education, along with supporting the learners with the required facilities and a good learning environment. Based on these findings, the study recommends the following: First, in-service training of inclusive classroom teachers should cover all important areas current in inclusive practice in the teaching of HI pupils, as well as rechecking the policies about inclusive education. Second, the study recommends the types of in-service activities needed by teachers of HI pupils to include: new methods of teaching; identification of other disabilities in HI pupils; teaching; preparation and usage of teaching and learning materials. To ensure the quality provision of inclusive education, education practitioners and policymakers should revise the policies about inclusive education, along with supporting the learners with the required

facilities and a good learning environment. Based on these findings, the study recommends the following: first, in-service training of inclusive classroom teachers should cover all important areas current in inclusive practice in the teaching of HI pupils, as well as rechecking the policies about inclusive education. Second, the study recommends the types of in-service activities needed by teachers of HI pupils to include: new methods of teaching; identification of other disabilities in HI pupils; teaching; preparation and usage of teaching and learning materials. Third, there should be close government intervention in the implementation of inclusive education, specifically in the provision of support in teaching and learning facilities, not only to pupils with hearing impairments but also to other special groups in Tanzanian schools. Fourth, the study recommends further research be done on other areas in the same field of inclusive education, particularly studying the challenges that affect other special groups as well, such as sight impairment as well as physical impairment. Therefore, initiatives from both the government and other donors to support inclusive education in terms of facilities and other related materials for learners are highly needed to help pupils with different impairments accomplish their goals. With the inclusive nature of this kind of education, a large number of people with special needs can be reached, bringing about equity and equality for all. If inclusive education is effectively implemented, it could help Tanzania attain one of the key Sustainable Millennium Goals of “Education for All.”

References

- Agyire-Tettey, E. E., Cobbina, M., & Hamenoo, E. S. (2017). Academic challenges of students with hearing impairment (SHIs) in Ghana. *Disability, CBR & Inclusive Development*, 28(3), 127-150. Available at: <https://doi.org/10.5463/dcid.v28i3.646>
- Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic analysis. In P. Liamputtong (Ed.), *Handbook of Research Methods in Health Social Sciences* (pp. 843-860). Springer. https://doi.org/10.1007/978-981-10-5251-4_103
- Chuchu, T., & Chuchu, V. (2016). The impact of inclusive education on learners with disabilities in high schools of Harare, Zimbabwe. *J. Soc. Dev. Sci.* 7, 88–96. doi: 10.22610/jsds.v7i2.1310.

- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks: Sage Publications.
- Esther M.F & Rose H.K. (2023). Hearing impairment: Barrier to social participation for secondary school students in Meru district-Arusha. *Asian Journal of Education and Social Studies*, 43(2) 22-29.
- Fusch P. I., & Ness L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20, 1408–1416.
- Greene, B. L. (2017). *Teachers' attitudes toward inclusive classrooms*. Doctoral Dissertation, Walden University.
- Hermans D., Wauters L., De Klerk A., & Knoors H. (2014). Quality of instruction in bilingual schools for deaf children: Through the children's eyes and the camera's lens. In Marschark M., Tang G., Knoors H. (Eds.), *Bilingualism and Bilingual Deaf Education*, 272-291. New York, NY: Oxford University Press.
- Holmstrom, I., & Schonstrom, K. (2017). Resources for deaf and hard-of-hearing students in mainstream schools in Sweden. *A Survey*, *Deafness & Education International*, 19(1), 29-39.
- Husniati, A., Budayasa, I. K., Juniati, D., & Le Lant, C. (2020). Analysis of deaf students understanding math concepts in the topic of geometry (rectangle shape): A case study. *Journal for the Education of Gifted Young Scientists*, 8(3), 1213-1229.
- Kapinga. O. (2012). *Professional development among educator pursuing a bachelor of education program in special education in Tanzania: A study of motives and perceived outcomes*. Unpublished thesis. Abo Academy University Press. Abo, Finland.
- Kisanga, S.E., & Richards, G. (2018). Teaching pedagogies in Tanzanian inclusive educational settings: Do they respond to diverse needs? *Voices from students with visual impairment*. *British Journal of Visual Impairment*, 36(3), 216–226.
- Kodiango, W. O., & Syomwene, A. (2016). Challenges faced by the hearing-impaired learners in composition writing and in answering comprehension questions in English language lessons. *European Journal of Education Studies*, 2(10), 1– 13.

- Kumatongo, B. & Muzata, K.K. (2021). Lecturers and students with hearing impairments' own perceptions on academic performance: A case study of Kitwe College of Education, Zambia. *Isagoge: Journal of Humanities and Social Sciences*, 1(1), 47-66.
- Lambert V. A., & Lambert C. E. (2012). Qualitative descriptive research: An acceptable design. *Pacific Rim International Journal of Nursing Research*, 16, 255–256.
- Lodge, L., & Lynch, K. (2014). Teachers' views on providing for children with special needs in inclusive classrooms. A Papua New Guinea Case Study. Waikato University, Hamilton.
- Luckner F. (2010). Preparing teachers of students who are deaf and hard of hearing. In *Oxford Handbook of Deaf Studies, Language, and Education*. 2, 41-56.
- Lyakurwa, E., & Tungaraza, D.F (2013). Pre-service teachers' attitudes towards inclusive education in Tanzania. *Journal of Culture, Social and Development*, 2, 11-17.
- Lynch, P., S. McCall, G. Douglas, M. McLinden, & Bayo, A (2011). Inclusive educational practices in Uganda: Evidencing practice of itinerant teachers who work with children with visual impairment in local mainstream schools. *International Journal of Inclusive Education* 15(10): 1119–1134.
- Manchishi, S. (2015). Factors contributing to low achievement levels in mathematics among hearing impaired learners: A Case of selected schools of Lusaka, Zambia. Unpublished dissertation. The University of Zambia.
- Mangiti, C. A. (2018). Effects of psycho-cultural factors on the academic performance of learners with hearing impairment at Fr. Oudraa Special Secondary School in Siaya County, Kenya. *Journal of Popular Education in Africa*. 2(3), 43-56.
- Martínez, E., & Coursen-Neff, Z. (2017). I had a dream to finish school: Barriers to secondary education in Tanzania. Human Rights Watch.
- Mbwambo, B.A & Nes, K. (2022). Teachers' attitudes towards inclusive education in regular primary schools in Tanzania. *Direct Research Journal of Education and Vocational Studies*, 4(6), 174-178.

- McConkey, H., & Bradley, F. (2017). Implementation of inclusive education in mainstream schools in Nkangala Region, Mpumalanga Province. Tshwane University of Technology, Pretoria.
- Migehe, J. D. (2014). An analysis of academic performance of students with hearing impairment in Tanzania secondary schools. Unpublished thesis. The Open University of Tanzania, Tanzania. <http://repository.out.ac.tz/651>.
- Minja, B.M., & Machemba, M. (1996). Prevalence of otitis media, hearing impairment and cerumen impaction among school children in rural and urban Dar es Salaam, Tanzania, *Int. J. Pediatr. Otorhinolaryngol.* 37 (1) 29–34.
- Mitchell, D. (2014). What really works in special and inclusive education: Using evidence-based teaching strategies? London: Routledge.
- Mnangu, L. (2016). Teaching students with special needs in inclusive settings. Boston: Pearson Education.
- Moeller, M.P., & Tomblin, J.B. (2015). An introduction to the outcomes of children with hearing loss study. *Ear and Hearing*, 36, 4-13.
- Mpofu, J., & Chimhenga, S. (2013). Challenges faced by hearing impaired pupils in learning: A case study of King George VI memorial school. *IOSR Journal of Research & Method in Education IOSRJRME*, 2(1), 69–74. Available at: <https://doi.org/10.9790/7388-0216974>.
- Mtuli, T. C. (2015). Assessing the challenges of teaching and learning of hearing-impaired students enrolled in regular primary and secondary schools in Tanzania. The Open University of Tanzania.
- Mulwafu, W., Kuper, H., & Ensink, R.J.H., (2016). Prevalence and causes of hearing impairment in Africa, *Trop. Med. Int. Health* 21 (2) 158–165.
- Muzata, K., & Mahlo, D. (2019). Deaf education in Zambia: Lessons from the 2013 curriculum implementation. *UNESWA Journal of Education*, 2(1), 289-305.
- Noorian, M., Maleki, S. A., & Abolhassani, M. (2013). Comparing of mathematical students of deaf and normal types. *International Research Journal of Applied and Basic Sciences*, 7(6), 367-370.

- Nordheimer, S., & Brandl, M. (2015). Students with hearing impairment: Challenges facing the identification of mathematical giftedness. Paper presented at the CERME 9 - Ninth Congress of the European Society for Research in Mathematics education, Charles University in Prague, Faculty of Education; ERME, Feb 2015, Prague, Czech Republic.
- Osei, A.O. Larnyo, P.A., Azaglo, A., Sedro, T.M., & Torgbenu, E.L. (2018). Screening for hearing loss among school going children, *Int. J. Pediatr. Otorhinolaryngol.* 111, 7–12.
- Paul, P., & Whitelaw, G. (2011). *Hearing and Deafness: An introduction to health and education professionals*. Boston: Jones and Bartlett Publishers.
- Pembe, A. (2017). Improving writing ability in children with susceptible writing difficulties: A child-centred approach. Unpublished thesis. The University of Dodoma.
- Philipo E. (2020). Improving English comprehension ability among students with hearing impairment in the inclusive classroom: a collaborative instructional approach. Unpublished thesis. University of Dodoma.
- Possi, M. K., & Milinga, J. R. (2017). Special and inclusive education in Tanzania: Reminiscing the past, building the future. *Educational process: International Journal*, 6(4), 55-73.
- Qi, S., & Mitchell, R. E. (2012). Large-scaled academic achievement testing of deaf and hard-of-hearing students: Past, present, and future. *Journal of Deaf Studies and Deaf Education*, 17, 1–18. doi.org/10.1093/deafed/enr028.
- Richburg C., & Hill A. L. (2014). Minimal hearing loss: Implications and management options for educational settings. *SIG 9 Perspectives on Hearing and Hearing Disorders in Childhood*, 24, 40–53.
- Rishaelly, C. E. (2017). Factors influencing academic performance of hearing-impaired students in inclusive education: A case of Moshi Technical Secondary School. Unpublished thesis. Open University of Tanzania.
- Salter, J., Pearson, S., & Swanwick, R. (2015). Teaching assistant perspectives of deaf students' learning experiences in mainstream secondary classroom. *Proceeding Paper*. University of Leeds.
- Savin-Baden, M., & Howell M. C. (2013). *Qualitative Research: The Essential Guide to Theory and Practice*. Oxon, UK: Routledge.

- Shields, M., & Lennox, M. (2017). Strategies to address educational needs of students who are deaf or hard of hearing. *TEACH Journal of Christian Education*, 11(2), 4-8. <http://dx.doi.org/10.55254/1835-1492.1357>.
- Singleton, J.L, Martin A., & Morgan, G. (2015). Ethics, deaf-friendly research, and good practice when studying sign languages. In: Orfanidou E, Woll B, Morgan G, (Eds). *Research Methods in Sign Language Studies: A Practical Guide*. Malden, MA: John Wiley & Sons; pp. 7–20.
- Stach, B. (2010). *Clinical audiology: An introduction*. Clifton Park, NY: Delmar Cengage Learning. The Ministry of Education. Amman, Jordan.
- Stevens, G., Flaxman, S., Brunskill, E., Mascarenhas, M., Mathers, C.D., & Finucane, P. (2023). Global and regional hearing impairment prevalence: An analysis of 42 studies in 29 countries, *Eur. J. Public Health* 23 (1) 146–152.
- Stone-MacDonald, A. (2014). Identification and labels for young Tanzanian children: An examination of labels for children with intellectual disabilities using the capability. *Journal of the Division on Autism and Developmental Disabilities Council for Exceptional Children*, 2(1), 202-217.
- Tungaraza, F. D. (2015). The arduous march toward inclusive education in Tanzania: Head teachers' and teachers' perspectives. *Africa Today*, 61(2), 108-123.
- Tungaraza, F.D. (2014). Training teachers in special needs education in Tanzania: A long and challenging ordeal to inclusion. *Journal of the Open University of Tanzania*, 16, 49-60.
- UN. (2019). *United Nations disability and development Report; realizing the sustainable development goals by, for and with persons with disabilities*. United Nations New York.
- Wadesango, N., Eliphanos, H., & Gudyanga, A. (2014). Challenges faced by students with hearing impairment in Bulawayo Urban Regular Schools. *Mediterranean Journal of Social Sciences*, 5(9), 445-451.
- World Bank (2019). *Every Learner Matters: Unpacking the learning crisis for children with disabilities*. Washington, D.C.: World Bank Group.
- Yin, R. K. (2014). *Case study research and applications: Design and methods*. Sage.

