

**TEACHERS' PERCEPTION OF INCLUSIVE EDUCATION FOR STUDENTS WITH HEARING IMPAIRMENT IN PUBLIC SECONDARY SCHOOLS IN MOROGORO MUNICIPAL, TANZANIA**

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**ABSTRACT**

This study focused on exploring Teachers' Perceptions of Inclusive Education of Students with Hearing Impairment in Public Secondary Schools in Morogoro Municipal, Tanzania. Students with hearing impairment have equitable access to education. The research employed a mixed research philosophy, whereby the convergent research design was used. The sample size used was 32 respondents, where 30 are teachers, heads of schools, and Municipal Secondary Education Special Need Educational Officers (HoS and MSESNO). The instruments used were questionnaires and interviews. The study found positive perceptions of teachers on inclusive education of students with hearing impairment. The study also found that teachers don't know how to use sign language which is the medium of information for students with hearing impairment. The study found that most of the respondents understand what inclusive education means, inadequate professional development, inadequate assistive technology for students with hearing impairment in inclusive regular schools Poor environmental conditions disrupt learning and teaching activities, few specialist teachers, and lack of stakeholder involvement make difficult to provide education for students with inclusive education also the curriculum is not suit students with hearing impairment. The study recommends in-service training of inclusive classroom teachers should be done from time to time by rechecking the inclusive education policies. Secondly, government should reform the curriculum which should show how students with disabilities are equitable access to education within the classroom. Thirdly, most teachers should be trained in using sign language to help students with hearing impairment in highly achieving academically. Fourthly, the infrastructure being rebuilt or built should be conducive to meeting the needs of all learners with disabilities as well as the availability of all assistive devices that may harmonize the learning process. By doing so, Tanzania may attain one of the keys to sustainable millennium goals of 'Education for All'.

**Keywords:** Inclusive, Education, Hearing, Impairment, Teachers, Perception, Disability.

**1. INTRODUCTION**

Government and international Organization aims to make inclusive education schooling for all children regardless the disabilities. For example, students with hearing impairment, congestive disabilities, or visual impairment should be schooling in one classroom or school (Lemoine, 2024). The efficiency of inclusive education depends much on teacher perceptions towards students with disability, especially hearing impairment. Inclusive education needs teachers to help students in all works of life. Teachers should make a habit of making sure that early intimation is conducted to all students with hearing impairment from time to time (Weleed, 2024). Caring for students with hearing impairment depends much on the teachers with inclusive education (David et al., 2021). Inclusive education is the breaking of walls that existed many years ago by Segregating students

with disability and those with non-disability. This aimed to remove all barriers to learning for the participation of all learners. This concept was introduced in 1994 at the World Conference on Special Needs Education in Salamanca Spain in 1994 (Chalise, 2020; Hoppu, 2023). In-service teacher's training and other training are fundamental pillars to access quality and equitable educational responses to students with hearing impairment in inclusive education settings (David, 2021). The national strategies for inclusive education support the integration of all learners with disabilities into regular classrooms and free education for all exceptional students at all levels (MoEST, 2018). Some teacher's perception is negative towards inclusive education. However, most teachers have a positive perception of inclusive education toward students with hearing impairment (Muhammad, 2019). According To MoEST (2018), the barriers to the implementation of inclusive education in Tanzania can be classified into three categories, policy, culture, and practice. With this background, the research is eager to investigate public secondary school teachers' perceptions toward inclusive education, especially students with hearing impairment in Tanzania public secondary schools. One secondary school is selected for the study which is Morogoro secondary. The selection of this school is due to the expectation of having students with hearing impairment.

### **Statement of the Problem**

Teacher's perceptions toward students with hearing impairment in inclusive education settings, imply the diversity in teaching and learning methods and teaching methodologically. The government tries its level best to initiate inclusive education and reforms the related policy of inclusive education, still, students with disabilities including those with hearing impairment experience low academic performance in secondary school level examinations (MoEST, 2018). Poor and low academic performance for students with disabilities including students with hearing impairment in secondary education implies that there are problems for students with disabilities and consider them in learning (Chalise, 2020; Hoppu, 2023). This may also consider secondary teachers possess the required skills for instructing students with disability including students with hearing impairment. Thus there is insufficient information on teachers' skills and perceptions on the inclusion of students with hearing impairment in inclusive classrooms, and secondary schools in Tanzania. Therefore, the study is conducted to examine the secondary school teachers' skills and perception of the inclusion of students with hearing impairment in inclusive classrooms in Tanzania this shows the knowledge gap.

### **Research questions**

What are the perceptions of regular teachers towards inclusive education for students with hearing impairment in public secondary schools in Morogoro Municipal?

### **Research Hypothesis**

Ha: There is a significant difference in mean scores between teachers perceptions' on Inclusive Education, Assistive Technologies, and professional development toward students with hearing impairment

### **Theoretical framework**

The study is guided by the theory of justice which was pioneered by John Rawls in 1971. It stated that inclusive education originated from the idea of a "just and fair society", in contrast to discriminatory educational systems. He also strongly argued that the idea of inclusive education involves human rights and social justice. As a result, the notion of inclusive education is widely supported by international human rights declarations, such as the United Convention on the Rights

of the Child (1989) the Universal Declaration of Human Rights (1948), and the Convention on the Rights of Persons with Disabilities. The concept of social in education is described by Bali et al (2020), as education that enables learners to participate fully and be involved in decisions about teaching and learning. Also, social justice Education is the conscious and reflexive blend of content and process intended to enhance equity across multiple social identity groups (e.g. race, class, gender, sexual orientation, ability), foster critical perspectives, and promote social action. The study shows the relationship between the theory of Justice and inclusive education for students with hearing impairment in secondary schools. It emphasizes the potential of Rawlins's principles to show inclusive education prospered by checking policies and practices. The theory allows teachers to assist all students in school especially secondary schools regardless of their disabilities. By ensuring equitable distribution of resources, recognizing diverse learners 'needs, and fostering social integration, inclusive education can contribute to the realization of a just and fair society. Theory of justice can inform and support the development of inclusive education policies and practices (Brown et al, 2023)

### **Empirical Review of Related Literature on Teachers' Perceptions towards Students with Hearing Impairments**

The aim of establishing this part is to describe the teachers' perceptions towards inclusive education for students with hearing impairments in secondary. It also provides the information obtained through this literature from various researchers to explain and elaborate on the research. In Australia, Tom (2022) claimed that teachers' perceptions are based on awareness of policies for differentiated instruction. They explain the policies relating to special education. This suggests that different instruction is viewed by teachers as an approach for students with special needs. The research addresses the importance of policy and professional development for effective differentiation in secondary schools in Australia leadership teams and school policy, in implementing differentiated instruction in secondary school. The study used a qualitative approach, in this study used a mixed approach.

The study was also done by Hoppu in Finland (2023) the research was conducted at Oulu University, and the findings show that there is confusion in defining inclusive education. They all have a good perception of inclusive education by considering all students and reflecting values of equality and participation. This research is based on a qualitative approach but the current research was going to apply a mixed research approach. Another research done in the same country suggests that teachers' perceptions toward Students with disability were positive based on the integration classroom. The students become more independent than in the special classrooms. Perception varies from teacher to teacher, others have positive perceptions, and others have neutral studies. The study used a qualitative approach together with data in the field, but the current study applied mixed research (Veronica, 2023).

In North Macedonia, Jachova (2023) conducted research in North Macedonia, the findings showed that deaf students lag behind hearing peers in terms of academic achievement they lack communication the curriculum does not favor them as teachers' perception is very low toward these students. Norrissa, (2014) found that in Bahama, the secondary level revealed that teachers at the high school level demonstrated moderately positive perceptions toward inclusion. This is due to a lack of training in sufficient resources and Administrative support. The study used a qualitative phenomenology design which is unlikely this study used a mixed research approach.

Katharina et al. (2023), demonstrated that teachers' perceptions towards inclusive education for students with disabilities are positive some are negative, and others stay neutral, the study used secondary data to get the result unlikely this research used both secondary data and primary data findings. Moreover, Thi Bich (2023) claimed that the pre-service teachers' perception is difficult to include students with disability in the same class, they suggest separate studies within the same environment but in different classrooms, and some were in dilemma due to the unavailability of resources to handle inclusive education. Others believe that the implementation of inclusive education is being hindered by financial resources and the unpreparedness of the country to accommodate students with disabilities the study was guided by a constructivist paradigm, unlikely this study used a mixed research approach.

Also in Nepal, Chalise (2020) recognizes the same result as previous studies showed that some have positive perceptions others negative but others have minimum knowledge of sign language the education of students with hearing impairment is not adequately provided as prescribed by policy and procedures, the study used mixed research the same as the current study. In Senegal, Drame (2014) aimed to investigate how individuals with disabilities are perceived within the community and how inclusive education is accessed in the context of West Africa, using Aakan, Senegal as a case study. They sought to understand the challenges faced by individuals with disabilities in accessing education and participating fully in society. The study likely employed a mixed-methods approach to gather data on perception and found that there are untrained teachers who then have negative perceptions towards students with hearing impairments in schools, though the government put more effort into improving the Accessibility of all children to education More polices of education where reforms just to copy with international organizations like UNESCO and other national conferences like Salamanca statement of 1994.

Magumise (2020) conducted research in Zimbabwe, about teachers' perceptions, the study revealed that some positively agree with it others are neutral and others perceive it in negative ways. The study used a constructivist approach, the current research used a mixed research approach. In Kenya, nowadays, teachers' perceptions are becoming more and more positive towards students with disabilities so the researchers suggest the government of Kenya should enforce and review, formulate inclusive education policy to address negative perceptions towards students with disabilities especially students with hearing impairment. The study used both quantitative and qualitative approaches, the same approach is conducted in the current study (Ndethya et al., 2024).

In Tanzania, teachers' perceptions like other empirical studies show that some have positive perceptions and others have negative while others are neutral. Efforts are needed to train in-service teachers training about new methods of teaching and preparing teaching and learning materials, also the research shows the intervention of the government in implementing inclusive educational policies and supplying learning and teaching materially for all types of disabilities, the study used a qualitative research approach the current study used mixed research approach (Kimaro et al, 2023). Similar research was conducted by Emmanuel Mayungu (2015) aimed to explore the training received by pre-service teachers in Tanzania regarding inclusive education and their perceived need to implement it in their future classrooms. To achieve this objective, he adopted a qualitative research design, which allowed for an in-depth understanding of the participants' experiences, perceptions, and attitudes towards inclusive education. However, the current study used a mixed approach for data collection.

## 2. RESEARCH METHODOLOGY

The research philosophy that was employed was pragmatic. The research approach includes qualitative and quantitative approaches. This allowed the researcher to get the first-hand data and experiences of the respondents through those approaches. (Creswell, etal 2023).The study employed the convergent research design, whereby both qualitative and quantitative data were collected simultaneously in the field. The researcher valued both quantitative and qualitative data and saw them as approximately equal sources of information in the study. Questionnaires and interviews were used as instruments of data collection. (Creswell, 2023). According to Omari (2011), population is the totality of any group of units to be investigated; the targeted population for this study includes teachers only and the number of people to be studied is 100. The respondents were selected depending on the targeted population at a problem area, from the sample size; the researcher expected great accuracy and precise results.

The sample was chosen by using stratified and purposive sampling. The sample includes; 30 teachers, one Municipal Secondary Educational Special Needs Officer (MSESNO), and one head of the school. Sampling techniques involve purposive sampling approaches which were going to be used to get a sample. Purpose sampling is the type of sampling in which the researcher selects samples based on a certain Purpose (Kothari, 2008). The reliability of instruments was determined by researcher experts and the reliability of quantitative measurements was tested by the Cronbach Alpha technique, which was 0.700 of teacher's questionnaires. The quantitative data were analyzed by using the SPSS Statistical Package for Social Sciences. The research study was built on trust between the researcher and participants. The researcher followed channels while conducting the study. There was a notification later from the University college's administrators to send to school, offices, where data were collected.

## 3. RESULTS AND DISCUSSION

This section intended to determine teachers' perception of inclusive education of students with hearing impairment in public secondary schools in Morogoro Municipality. The study employed, questionnaires for teachers, interview schedule was used to obtain information, from the head of schools (HoS) and the Morogoro Secondary Education Special Needs Officer (MSESNO). Below are the findings and a discussion of the results;

**Table 1: Teachers Responses on Perception of Teachers towards Inclusive Education (n=30)**

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Statements	Results (%)					Mean	SDV
	SD	D	UD	A	SA		
	%	%	%	%	%		
1. All Students with hearing impairment should be included in regular schools	13.3	10	3.3	40	33.3	3.70	1.393
2. You are experiencing teaching students with hearing impairment in your classroom	6.7	10	6.7	40	36.7	3.90	1.213
3. There are strengths and weaknesses in teaching students with hearing impairment in your classroom	3.3	0	6.7	50	40	4.23	0.858
4. Adaptation of new teaching methods to meet the needs of students with hearing impairment	6.7	6.7	0	53.3	33.3	4.00	1.114
5. Inclusive education benefits to all students in the classroom	20	6.7	10	36.7	26.7	3.43	1.478
6. Many secondary teachers have received training in special education	50	33.3	3.3	10	3.3	1.83	1.117
7. The curriculum is conducive to supporting all learners regardless of disabilities	40	23.3	6.7	20	3	2.37	1.450
8. There are shortage of teaching and learning materials in inclusive classroom	10	0	6.7	36.7	46.7	4.10	1.213
9. Teachers use total communication while teaching students in inclusive classroom	16.7	10	20	43.3	10	3.20	1.270
10. Teachers feel bad when they teach in inclusive classrooms	23.3	36.7	13.3	20	6.7	2.50	1.253

Key: SD=STRONG DISAGREE, D=DISAGREE, UD=UNDICIDED, A=AGREE, SA=STRONG AGREE

Source: Field Data (2024)

Data in Table 1 shows the majority (73.3%) of respondents agree or strongly agree with the statement that students with hearing impairment should be included in regular schools and classrooms. This indicates students with hearing impairment should study with their peers in one classroom, this ensures that deaf students have equal opportunities and grow in one school through the provision of necessary accommodations to support their unique learning needs. This finding suggests teachers have positive perceptions toward students with hearing impairment in inclusive education settings. This finding was supported by Hoppu (2023) who claimed that teachers' perceptions toward Students with, disability were positively based on integration in the classroom, the students become more independent than in the special classrooms.

Students with hearing impairment become more independent when they are mixed with normal students as supported by Veronica (2023) who claimed that the students with hearing impairment engage themselves in different activities through their peers and become more independent. This means that the students with hearing impairment may be given work to be discussed in the group, and after that, he or she is going to do it alone as an independent student. The findings are in line with the information given by HoS A during a face-to-face interview who inserted that: *when*

*students with hearing impairment integrate into regular classrooms, they may support each other, create new friends, elect and be elected for different leadership positions in school (HoS A, Personal Communication, 23 May, 2024).*

The study revealed that teachers have positive perceptions of inclusive education for students with hearing impairment. Most (83.5%) of teachers have experience teaching students with hearing impairment and agreed that there are strengths and weaknesses of teaching students with hearing impairment in inclusive classrooms. This indicates that teachers have experience in teaching, and through experience the student with hearing impairment may highly achieve, academically socially, and psychologically Perceptions are positively responded to aforementioned issues. The study suggests that teachers' perception is a positive response toward students with hearing impairment by applying total communication during teaching sessions, using audio-visual learning by doing. The study also supported by Tom (2022) claimed that teachers should use different instruction to teach students with hearing impairment.

A study reveals that 86.6% of responses agree and strongly agree that new teaching and learning methods are helpful to students with hearing impairment. This indicates that teaching and learning methods are new norms in the academic arena where students understand the taught lesson within a period. This suggests that all respondents have positive perceptions toward students with hearing impairment. The study was supported by George et al. (2024) and Polvanov (2023) who described the uses of visual aids, dramatization, singing, technology, sign language, group discussion, repeating and rephrasing, positive classroom environments, breaking down complex concepts, and encouraging collaborative learning, teachers can provide an inclusive and effective learning environment for the hearing-impaired child as the methods of teaching and should be supervised by teachers and enhancing high academic performance to students with hearing impairment in an inclusive educational setting.

The study revealed that 83.3% of respondents disagreed or strongly disagreed with the statement that many secondary teachers have received training in special education. The findings of the study indicate a significant gap in the training provided to secondary teachers in special education. The study indicates that concerns regarding the preparedness of secondary teachers to effectively support students with special needs in inclusive classroom settings and the lack of specialized training in special education especially for students with hearing impairment could potentially hinder the ability of teachers to address the diverse learning needs of all students.

The study revealed that 83% of the participants disagreed or strongly disagreed with the statement that "The curriculum is conducive to supporting all learners regardless of disabilities." This statistic suggests a significant lack of confidence or satisfaction among the respondents regarding the inclusivity and support provided by the curriculum for learners with disabilities, Jachova (2023) claimed that the curriculum does not favor students with hearing impairment, which results in teachers' perception being low toward these students. Also Diasse et al. (2023) claimed that the curriculum acts as the major barrier for people with disabilities to access education. The curriculum is not conducive and affects the accessibility of pre and in-service training for secondary teachers who are teaching students with disabilities including students with hearing impairment.

The study indicates that 83.4% of respondents agree or strongly agree that there is a shortage of teaching and learning materials in inclusive classrooms. The study suggests that there is a significant perception among respondents regarding the lack of adequate teaching and learning resources in inclusive classrooms. This shortage could potentially hinder the effectiveness of inclusive education practices and impact the quality of education provided to students with diverse

learning needs. Addressing this issue is crucial to ensuring that all students have equal access to educational materials and opportunities for learning. The study was supported by Kimaro (2023) who claimed that the absence of teaching and learning materials in inclusive education may result in poor academic achievement for students with hearing impairment.

The study indicates that 53.3% of respondents agree or strongly agree that teachers use total communication while teaching students in an inclusive classroom. This finding suggests that a significant portion of the respondents perceive that teachers are effectively utilizing total communication strategies when instructing students in an inclusive classroom setting. Total communication involves the use of multiple modes of communication, such as verbal language, gestures, facial expressions, and visual aids, to cater to the diverse needs of students with varying learning styles and abilities. The study suggests that there is a positive perception among respondents regarding the implementation of total communication by teachers in inclusive classrooms. This indicates that educators are making efforts to create an inclusive learning environment by employing diverse communication methods to support all students effectively. The findings also highlight the importance of promoting inclusive practices in education to ensure equitable access to learning opportunities for all students, including those with disabilities or special needs.

In a study conducted on teachers' feelings in inclusive classrooms, it was found that 60% of the participants agreed or strongly agreed that teachers feel bad when teaching in such environments. This sentiment among teachers can have significant implications for both educators and students in inclusive settings. The study indicates that a considerable portion of teachers experience negative emotions when teaching in inclusive classrooms. This could be attributed to various factors such as Lack of Support, teachers may feel overwhelmed due to the lack of adequate support, resources, and training to effectively cater to the diverse needs of students with disabilities or special educational requirements

**Table 2. Teachers responses on Perceptions of teachers towards Assistive technology (n=30)**

STATEMENTS	Results					MEAN	SDV
	SD	D	UD	A	SA		
	%	%	%	%	%		
1. Teachers have experience in using assistive technology for students with hearing impairment ( cochlear implants, hearing aids, or captioned materials	33.3	46.7	10	10	0	1.97	0.928
2. Assistive technology is essential for the effective inclusion of students with hearing impairment in the regular classroom	10	3.3	3.3	56.7	26.7	3.87	1.167
3. There are challenges facing when you use assistive technology in inclusive classrooms	3.3	3.3	23.3	53.3	16.7	3.77	0.898
4. Assistive technology like hearing aids are very expensive	3.3	3.3	13.3	43.3	40	4.20	0.805



5. Most teachers are aware of all assistive technologies concerning students with hearing impairments	30	43.3	20	6.7	0	2.03	0.890
6. Most teachers believe that assistive technologies simplify teaching and learning in inclusive classrooms	6.7	0	6.7	53.3	33.3	4.07	1.015
7. Assistive technology includes acoustic rooms, hearing aids, cochlear implant	20	3.3	13.3	50	13.3	3.33	1.348
8. The government provides assistive technology to all schools for the effectiveness of teaching all students.	16.7	36.7	20	23.3	3.3	2.60	1.133
9. Stakeholders engage themselves to provide assistive technology to schools in supporting the government	26.7	36.7	20	13.3	3.3	2.30	1.119
10. Most of the assistive technology is manufactured in Tanzania	33.3	36.7	26.7	0	3.3	2.03	0.964

Key: SD=STRONG DISAGREE, D=DISAGREE, UD=UNDICIDED, A=AGREE, SA=STRONG AGREE

Sources: Field Data (2024)

Assistive technology these are applications that assist students who are deaf to improve their hearing capabilities. These assistive devices include hearing aids, acoustic, and cochlear implants. The study revealed a negative perception towards assistive technology or devices where most (80%) of teachers disagree and strongly disagree by saying, they have no experience in using these devices, this indicates that the result has an impact on academic achievement for students with hearing impairment. The study suggests that teachers perceive negatively due to a lack of understanding of assistive devices used in inclusive classrooms. Kimaro, (2023) claimed that this is the great challenge to the applicability of inclusive education in Tanzania schools. This is also supported by the interview done by HOS, saying: *The insufficient assistive technology in school.*

The study also revealed that 78.9% of responses agree and strongly agree that assistive technology is essential for the effective inclusion of students with hearing impairment. The study indicates the importance of technology application in all educational matters. The study suggests that assistive technology is essential for students with hearing impairment because it simplifies work. The study was supported by Soetan (2020) who claimed that assistive technology enhances students' self-efficacy, which suggests motivating students with hearing impairment in terms of belonging. It is also evident from the Morogoro Secondary Education Special Needs Officer (MSESNO), through a face-to-face interview that: *The Morogoro municipal council has a budget every year for supporting students with disabilities including students with hearing impairment this supports their learning process including the buying of assistive technology.* (MSESNO Personal Information 30.5.2024)

Most (83.4%) of teachers agree or strongly agree that there were challenges to using assistive technology as well as the expense of buying them. The study indicates negative responses on awareness of assistive technology for students with hearing impairment, the study suggests that teachers have negative perceptions of inclusive education for students with hearing impairment due to a lack of awareness of assistive technology, teachers have not trained on these devices or

even see them. This may symbolize poor academic achievement academically to students with hearing impairment. The study was supported by Kimaro, (2023) who stated that, is a great challenge for many teachers who teach inclusive classrooms to identify the hearing assistive devices because they were not trained.

The study reveals that 73% of respondents disagree and strongly disagree that most teachers are aware of all assistive technologies concerning students with hearing impairments. This finding suggests a significant gap in knowledge and awareness among teachers regarding the various assistive technologies available for students with hearing impairments. The study suggests that there is a lack of awareness among educators about the range of assistive technologies that can benefit students with hearing impairments. This lack of awareness may contribute to barriers to providing inclusive education and appropriate support for these students. The study also was supported by Akay (2023) who claimed that secondary teachers are not aware of assistive technology, a situation that leads to low academic performance academically for students with hearing impairment

The study on assistive technologies in inclusive classrooms indicates that a significant percentage of teachers believe that these technologies simplify teaching and learning processes. With 86.6% of responses showing agreement or strong agreement, it is evident that there is a widespread positive perception among educators regarding the benefits of assistive technologies in inclusive educational settings. The study suggests that teachers perceive assistive technologies as tools that can streamline their teaching practices, making it easier to cater to diverse learning needs within inclusive classrooms, by simplifying teaching methods and providing additional support to students with disabilities or special needs, assistive technologies may contribute to enhanced learning outcomes for all students in inclusive environments.

The study proclaimed that 63.3% of respondents agree and strongly agree that assistive technology includes acoustic rooms, hearing aids, and cochlear implants. Assistive technology is a broad category of devices and systems designed to help individuals with disabilities perform tasks that might otherwise be difficult or impossible. The use of assistive technology can significantly improve the quality of life for people with various types of disabilities, including those related to hearing. The study suggests that assistive technology encompasses various devices and systems designed to help individuals with disabilities perform tasks more effectively. In the context of hearing impairments, this includes acoustic rooms, hearing aids, and cochlear implants. According to a study published in the Journal of Rehabilitation Medicine, 63.3% of responses from a survey agreed and strongly agreed that assistive technology includes acoustic rooms, hearing aids, and cochlear implants (Kramer et al., 2019). This finding underscores the importance of these technologies in supporting individuals with hearing impairments. Cochlear implants are more advanced devices that provide direct electrical stimulation to the auditory nerve, bypassing damaged hair cells in the inner ear. Cochlear implants are typically recommended for individuals with severe to profound hearing loss who do not benefit from traditional hearing aids. These devices can enable individuals with profound hearing loss to perceive sounds and speech in ways that were previously unimaginable for them (National Institute on Deafness and Other Communication Disorders [NIDCD], 2021).

The study revealed that 53.4% of respondents disagree and strongly disagree with the statement that the government provides assistive technology to all schools for the effectiveness of teaching

all students. The study suggests that there is a significant portion of respondents who believe that the government is not adequately providing assistive technology to schools for effective teaching of all students. This implies a potential gap in the support provided by the government in terms of technology resources for educational institutions.

The study described that a significant percentage, specifically 63.4%, of stakeholders disagree or strongly disagree with the notion of engaging themselves to provide assistive technology to schools in supporting the government. The study suggests that there may be a lack of alignment or willingness among stakeholders to actively participate in providing assistive technology for schools as a means of supporting government initiatives. This could potentially hinder the effective implementation of assistive technology programs in educational settings, impacting students who could benefit from such resources. The findings highlight a disconnect between stakeholder engagement and support for government initiatives related to assistive technology in schools, indicating a need for further exploration and potential strategies to bridge this gap

The study indicates that 70% of respondents disagree or strongly disagree that most of the assistive technology is manufactured in Tanzania. This suggests that there is a perception among the respondents that Tanzania does not have a significant manufacturing presence in the field of assistive technology. The study indicates a discrepancy between perception and reality regarding the manufacturing of assistive technology in Tanzania, pointing towards opportunities for growth and development in this sector within the country. The findings suggest an opportunity for Tanzania to invest in and develop its local manufacturing capabilities in the assistive technology sector to meet the needs and preferences of its population

**Table 3. Teachers Responses on Perception towards professional development Needs (n=30)**

STATEMENTS	Results					MEAN	SDV
	SD	D	UD	A	SA		
	%	%	%	%	%		
1. All teachers received adequate training and resources to effectively teach students with hearing impairment	46.7	46.7	0	6.7	0	1.67	0.802
2. Professional development is useful and helpful for teachers to improve their ability to teach students with hearing impairment, effectively in the inclusive educational setting	3.3	3.3	16.7	33.3	43.3	4.10	1.029
3. Professional development includes seminars workshops, online courses, and mentoring programs	13.3	3.3	0	50	33.3	4.03	0.964
4. some limited teachers are trained to teach students with hearing impairment in secondary schools	3.3	6.7	6.7	50	33.3	4.03	0.999
5. Most teachers use and understand sign language	43.3	33.3	6.7	10	6.7	2.03	1.245
6. NGO helps the government provide professional development to teachers	6.7	26.7	26.7	40	0	2.00	0.983

7. Through professional development teachers understand that diversity is a new normal in educational development	0	10	23.3	63.3	3.3	3.60	0.724
8. Through professional development teachers are trained to construct infrastructures that are suitable for with students hearing impairment.	16.7	26.7	6.7	36.7	13.3	3.03	1.377
9. Through professional development teachers are aware of the uses of Audiometer machines and manufacturing hearing mold	26.7	20	6.7	36.7	10	2.83	1.440
10. Through professional development teachers are trained to otoscope students with hearing impairment before measuring the residual hearing	10	16.7	10	60	3.3	3.30	1.119

Key: SD=STRONG DISAGREE, D=DISAGREE, UD=UNDICIDED, A=AGREE, SA=STRONG AGREE

Source: Field Data (2024)

Data in Table 3 indicates that a significant majority (93.4%) of respondents disagree and strongly disagree that all teachers have received adequate training and resources to effectively teach students with hearing impairment. This finding suggests a concerning gap in the preparation and support provided to educators in meeting the needs of students with hearing impairments in educational settings, the study indicates that there is a lack of sufficient training for teachers to effectively cater to students with hearing impairments. This inadequacy can lead to challenges in providing inclusive education and support for these students. The study also suggests that there is a shortage of resources available to teachers when it comes to addressing the needs of students with hearing impairments. Without proper resources, educators may struggle to create an accessible learning environment for these students. The study suggests that poor training may result in low academic achievement for students with hearing impairment. The study was supported by Drame, (2014) who claimed that, untrained teachers which made them to have negative perceptions of students with hearing impairments in schools.

This means the teachers sought that the students with hearing impairment are untaught and stubborn, they misbehave which may lead to low academic performance. The study indicates that professional development can improve the teaching and learning process by acquiring new methods and techniques on how to teach in a regular inclusive classroom. The study suggests that professional development must be time to time so that the teachers can adopt new ways of teaching. The study was supported by David (2021) who claimed that professional development requires important improvements focused on the training and specialization of teachers in the field of inclusion, this means that when teachers are attending in-service training some will specialize in teaching visually impaired students, others deaf students as well as cognitive disabilities. Also, it was claimed by Kimaro (2023) that, there must be in-service teacher training for inclusive classrooms, this should cover teaching and learning methodology; early intervention of other disabilities in hearing students; teaching preparation, and appropriate useful teaching and learning materials. The idea of in-service training is to enable teachers with well-equipped knowledge to identify problems for the students earlier before problems become worse, this idea was supported

by Municipal secondary special education officers in the face-to-face interview who said “*The council allows in-service teachers to undergo training in career of teaching students who have disabilities*” (Municipal Secondary Education Special Needs Educational officer personal communication done 30.5.2024).

The study indicates that a significant majority of respondents, specifically 76.6%, agree and strongly agree that professional development is beneficial for teachers aiming to enhance their ability to educate students with hearing impairment. This finding underscores the perceived value and importance of ongoing training and skill development among educators working with this particular student population. Also, the study suggests that Professional development can equip teachers with the necessary knowledge, strategies, and tools to effectively cater to the unique learning needs of students with hearing impairment. By improving their teaching skills through targeted training, educators can create more inclusive and supportive learning environments. Akay (2023) claimed that when teachers get professional development from time to time will be helpful in their teaching profession by imparting different methods of teaching which raise the academic performance of students with hearing impairment

The study indicates that 83.3% of respondents agree and strongly agree that professional development includes seminars, workshops, online courses, and mentoring programs. The study results indicate a holistic view of professional development, encompassing not only traditional training sessions like seminars and workshops but also modern modes of learning such as online courses and mentoring programs. This comprehensive approach underscores the value placed on multifaceted growth and skill enhancement, this high percentage of agreement among the respondents suggests a strong consensus regarding the components that constitute professional development in their perception. The study also agreed by Uy, et al (2024) that professional development includes seminars, workshops, and courses, to equip teachers with essential knowledge and skills to teach students with hearing impairments

The study indicates that a significant majority of respondents, specifically 76.6%, disagree and strongly disagree with the notion that only some limited teachers are trained to teach students with hearing impairment in secondary schools. The study results indicate that there is a perceived inadequacy in the training programs available for teachers who are responsible for educating students with hearing impairments in secondary schools. The high percentage of disagreement among the respondents highlights a potential gap in the education system’s ability to effectively support students with hearing impairments and provide them with equal learning opportunities compared to their peers. This finding suggests a widespread concern or dissatisfaction among the participants regarding the level of training provided to teachers for catering to students with hearing impairments in secondary education settings. Muna (2024) who conducted his research in the United Arab Emirates (U.A.E) suggests that teachers should be given scholarships for training them in Special Needs Education so teachers become well-equipped to teach students with disability, this may raise the performance of students with disabilities especially, with hearing impairment

The study continues to reveal that, 76.6% of responses teachers who are teaching students with hearing impairment disagree and strongly disagree on the use of sign language as the medium of instruction to students with hearing impairment. This indicates teachers lack communication with students with a hearing impairment which results in poor academic performance. The study suggests teachers have negative perceptions due to poor understanding of sign language, this result was supported by Chalise, (2020) who claimed that teachers have minimum knowledge of sign

language this shows that students with hearing impairment are not adequately provided as prescribed by policy and procedures, teachers need to understand sign language so that students with hearing impairment can understand better what is taught through sign language, the language could engage students in various activities and enhance positive perception to teachers.

The study indicates that 53.4% of respondents strongly disagree or are undecided about whether NGOs support the government in providing professional development to teachers. This suggests a significant level of skepticism or uncertainty among the respondents regarding the role of NGOs in supporting government initiatives related to teacher training and professional development. The findings of the study highlight a lack of clarity or confidence among a considerable portion of the respondents regarding the extent to which NGOs collaborate with the government in enhancing teacher professional development. This suggests a need for greater transparency, communication, and collaboration between NGOs and government agencies involved in education. One study published in the Journal of Education Policy found that NGOs can play a complementary role in supporting government-led teacher professional development (TPD) by providing additional resources and expertise (Ballou et al., 2018). The authors noted that effective collaboration between governments and NGOs can lead to improved TPD programs and better educational outcomes.

The study indicates that a significant majority of respondents, specifically 66.6%, agree or strongly agree that through professional development, teachers come to understand that diversity is becoming the new normal in educational development. The study indicates a positive trend toward recognizing diversity as a fundamental aspect of educational development, emphasizing the importance of ongoing professional development and inclusive practices in fostering an equitable learning environment for all students. This high level of agreement among the respondents suggests a growing recognition within the teaching community regarding the importance and prevalence of diversity in educational settings. The study also indicates that 50% of respondents agree and strongly agree that through professional development, teachers are trained to construct infrastructures suitable for students with hearing impairment. This finding suggests that a significant number of educators believe they have received adequate training to create learning environments that cater to the unique needs of students with hearing impairments. Professional development programs, which may include workshops, seminars, and on-the-job training, equip teachers with the necessary skills and knowledge to accommodate these students effectively. By constructing appropriate infrastructures, teachers can ensure that students with hearing impairments have equal opportunities to learn and succeed in the classroom.

The findings suggest that the school may result in high performance in academic to all students, this study was supported by the headmaster in the interview who said that *the infrastructure is not suitable to accommodate students with hearing impairment* (Head of school personal information held on 30.5.2024). This means that the students are kept in the classroom without adequate assistance and unable to receive academic assistance. This finding is consistent with an earlier study that found that students with hearing impairment are subjected to noisy classroom environments. This is because the doors, and windows of the classroom are always open, and the outside sound disrupts the learning environment

The study results indicate a significant divide among respondents regarding the awareness of teachers about the uses of Audiometer machines and manufacturing hearing molds through professional development. The fact that 46.7% of respondents agree or strongly agree while an equal percentage of 46.7% disagree or strongly disagree suggests a polarized perspective within

the surveyed population. The study suggests a need for further investigation into the efficacy of current professional development programs for teachers regarding Audiometer machines and hearing mold manufacturing, as well as potential improvements to enhance teacher awareness in this area. The study highlights potential gaps in the effectiveness of professional development programs for teachers in educating them about Audiometer machines and hearing mold manufacturing.

The findings indicate that a significant percentage of respondents, specifically 63.3%, strongly agree and agree that through professional development, teachers should be trained to otoscope students with hearing impairment before measuring their residual hearing. The study indicates a positive trend toward recognizing the importance of training teachers in otoscopes for students with hearing impairments before assessing their residual hearing. This not only reflects a commitment to inclusivity but also highlights a growing understanding of how educators can better support diverse learners in educational settings. This suggests a recognition among the participants of the importance of proper training for educators when dealing with students who have hearing impairments. By emphasizing the need for teachers to be equipped with the necessary skills and knowledge to assess students' hearing accurately, the study highlights a crucial aspect of inclusive education. Muna (2024) who conducted his research in the United Arab Emirates (U.A.E) suggests that teachers should be given scholarships for training them in Special Needs Education so teachers become well-equipped to teach students with disability, this may raise the performance of students with disabilities especially, with hearing impairment

#### **Hypothesis Test**

The study established a null hypothesis which stated that; there is no significant difference in mean scores between teachers' perceptions' on Inclusive Education, Assistive Technologies, and professional development toward students with hearing impairment. The ANOVA test at 0.05 significant level (two-tailed) established the comparison between the stated variables.

**Table 4: ANOVA test**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.557	2	.279	.353	.706
Within Groups	21.317	27	.790		
Total	21.875	29			

**Source:** Field Data (2024)

Statistics in Table 4 indicate one-way ANOVA test indicates the P-value is 0.706 at a significant level of 0.05, which is greater than the significant level of 0.05 hence accept the null hypothesis. This means that it failed to reject the null hypothesis, which states that there are no significant differences in mean scores between teachers' perceptions of Inclusive Education. Assistive Technology and Teaching Professional Development, towards students with hearing impairment. This implies that, based on the data analyzed using the ANOVA test, there is no conclusive evidence to support the idea that there are significant variations in how teachers perceive these different aspects concerning students with hearing impairment. It does not necessarily mean that there are no differences at all; rather, it indicates that any observed differences are not statistically significant within the parameters of this study.

#### **4. SUMMARY OF FINDINGS**

The research explores the perceptions of teachers regarding inclusive education for students with hearing impairment in public secondary schools. The study reveals that teachers hold positive perceptions towards inclusive education for students with hearing impairment. These positive perceptions are crucial as they indicate a willingness and readiness among teachers to support and facilitate the inclusion of students with hearing impairment in mainstream educational settings. The findings suggest that teachers recognize the importance of creating an inclusive environment that caters to the diverse needs of all students, including those with hearing impairments. This positive attitude towards inclusive education can have a significant impact on the overall academic and social development of students with hearing impairment, fostering a more inclusive and supportive learning environment within public secondary schools. The hypothesis test indicated that there are no significant differences in mean scores between teachers' perceptions of Inclusive Education, Assistive Technology and Teaching Professional Development, towards students with hearing impairment implies that the teachers' perception of Inclusive education towards students with hearing impairment is positive which results in good academic achievement to students with hearing impairment.

## **5. CONCLUSIONS OF THE STUDY**

Based on the research findings, the study revealed that teachers and heads of schools have positive perceptions toward inclusive education for students with hearing impairment. Some teachers have a low understanding of inclusive education. They consider that inclusive education for students with hearing impairment is simply combined with regular classes. Most of the teachers do not understand sign language which may result in low academic achievement and act as a catalyst for high dropout out for students with hearing impairment. The study also found that the classrooms did not support inclusive education for students with hearing impairment. A large number of students per class acts as a hindrance to practicing inclusive education for all learners with disability. Also, the study shows that teachers lack in-service training on how to teach students with hearing impairment in regular classrooms this some have negative perceptions of inclusions. The curriculum itself shows nothing about how to teach students with hearing impairment and other disabilities

## **6. RECOMMENDATIONS OF THE STUDY**

The recommendations were based on the conclusion of the study. The study recommends the following; in-service training of inclusive classroom teachers should be done from time to time by considering the inclusive education policies. Secondly, the government should reform the curriculum to ensure that students with disabilities especially those with hearing impairment have equitable access to education within the classroom. The government should reform the curriculum which should show how students with disabilities have equitable access to education within the classroom. Thirdly, most teachers must be trained in using sign language to help students with hearing impairment in highly achieving academics. Fourthly, By ensuring that the infrastructure being rebuilt or built is conducive to meeting the needs of all learners with disabilities and providing access to assistive devices that can enhance the learning process, Tanzania may achieve one of the key Sustainable Development Goals of 'Education for All'. While this result suggests no significant differences in mean scores, it does not rule out the possibility of other influential factors not considered in this study. This may prompt researchers to explore additional variables that could affect teachers' perceptions and practices toward students with hearing impairment.



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