

# Barriers to Learning Faced by Students Who are Deaf and Hard of Hearing in Higher Education Institutions in Tanzania

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## Abstract

*This qualitative study explored the barriers to learning faced by students who are deaf and hard of hearing using ten students who are deaf and hard of hearing in higher education. Thematic analysis revealed shortages and questionable quality of the hearing aids, inadequacy of sign language interpreters and unsupportive classrooms as resource barriers limiting effective learning. The study further uncovered overreliance on oral dominated lectures, difficulties in speech reading and lecturers' reluctance to provide lecture notes as pedagogical barriers. Based on these findings, the study recommends teacher education curriculum to incorporate a special course on teaching pedagogies that address diverse needs of students who are deaf in inclusive education settings.*

**Keywords:** communication barrier; deaf, hard of hearing, inclusive education

## Introduction

Disability statistics in Tanzania indicate that there are 536,038 people who are deaf and hard of hearing (D&H). This is about 1.2% of the whole population and that most of them (55%) are illiterate (National Bureau of Statistics [NBS], 2018) and 45% are also illiterate of Kiswahili, English and other languages. Regarding education enrolments, statistics indicate that in 2018, there were 8990 students who were D&H from primary to secondary schools. 7212 (80.2%) and 1778 (19.8%) were enrolled in primary and secondary schools respectively (URT, 2018a). Out of 1778 students who are D&H in secondary schools, 1731 (97.4%) were in ordinary secondary schools (Form One to Form Four), while 47 students (2.6%) were in advanced secondary schools (Form Five and Form Six). This indicates a low transition rate from primary to secondary schools for students who are D&H in Tanzania.

Quite a majority of the students who are D&H in Tanzania and elsewhere, are educated in inclusive education settings classes, taught by regular classroom teachers who are mainly prepared to teach general students (Kisanga, 2017; Kisanga & Richards, 2018). This is contrary to other parts of the world where students who are D&H are taught by regular school teachers assisted by itinerant teachers who provide support in terms of appropriate instructions and consultations in areas such as classrooms accommodations.

The concept *inclusive education* in the context of this study is used to denote the transformation of schools and other centres of learning to cater for the learning needs of all children including those facing learning difficulties such as students who are D&H (UNESCO, 2009). In this regard, placing students who are D&H in regular classrooms without consideration of their needs in terms of resources, environmental modification and appropriate teaching pedagogies does not constitute inclusion in education. In other words, to achieve inclusion in education for students who are D&H “a transformation in the social, cultural, curricular and pedagogical life of the schools as well as its physical organisation” is deemed important (Armstrong, 2016, p.9).

School transformation involves but not limited to society’s attitudes toward students with special education needs. This is because, teachers across education levels have developed a perception that students who are D&H are incapable and a burden (Allothman, 2014; Kisanga, 2017; Kisanga, 2019). This kind of perception seems to limit students’ involvement during the learning and teaching processes because teachers’ attitudes towards students who are D&H influence their behaviours in the learning and teaching process.

It is improbable that a teacher who perceives a student a failure will invest his/her efforts in such a student (Kisanga & Richards, 2018). Therefore, for students who are D&H to benefit from the education provided in the inclusive settings, individual differences have to be taken as an opportunity for teachers to increase learning and participation rather than a barrier to learning (Armstrong, 2016).

### **Increased participation in the learning process of the deaf and hard of hearing students**

Students who are deaf experience difficulties in understanding speech, even with hearing aid, the hard-of-hearing individuals can use hearing aids to understand speech (Heward, 2013). Comparatively, “cochlear implants do not lead to greater

educational participation or inclusion than [what] hearing aids did previously” (Holmstrom & Schonstrom, 2017, p.31).

It has been reported that, increasing participation in the learning process for students who are D&H does not only depend on assistive technology [AT] (hearing technologies) but also it incorporates pedagogical issues (Holmstrom & Schonstrom, 2017). This implies that, availability of AT (hearing aids, cochlear implants, real time captioning; computer technology, video conferencing and sign language interpreters to name but a few) are insufficient in enhancing classroom communication and participation without teachers’ knowledge on the use of AT and appropriate teaching pedagogies (Holmstrom & Schonstrom, 2017).

With regard to classroom environment, it is established that students who are D&H learn better in acoustic classroom environments with noise reduction strategies to prevent interference with hearing from both outside and inside, for example, a sound-proof classroom with a ceiling board and/or acoustic walls, a carpet on the rough surface, rubber on the legs of students’ desks and chairs to control sound within the classroom (Allothman, 2014; Sirimanna, 2016). The acoustic environment enhances the use of hearing aids and improves speech among students who are D&H (Allothman, 2014; Sirimanna, 2016). This suggests that the hearing aids work best in supportive classrooms with acoustic modifications.

### **Teaching approaches for the deaf and hard of hearing students the inclusive settings**

Scholars have advocated for various teaching strategies that can be used to teach students with SEN in the inclusive settings. They include constructivist teaching, peer tutoring, differentiated learning, cooperative teaching, the use of technologies and involvement of sign language interpreters for those who use sign language (Armstrong, 2016; Mitchell, 2014). Constructivist teaching is more appropriate in the inclusive settings because it is a learner-centred approach where a teacher becomes a facilitator and the learner an active agent in the whole process of learning (Armstrong, 2016). The teacher in the constructivist teaching paradigm facilitates learners to construct their own knowledge in the learning process rather than imposing knowledge on the learners (Vygotsky, 1978). In this regard, teachers consider learners’ prior knowledge during the learning and the teaching and learning process.

Peer tutoring is another recommended method of teaching students who are D&H

and others with SEN in the inclusive settings. This approach needs a classroom with learners of different talents and abilities to provide the opportunity for learners who experience learning difficulties to learn from more knowledgeable learners without SEN (Vygotsky, 1978). Mitchell (2014) categorised peer tutoring into three groups: cross-age tutoring, class-wide peer tutoring; and peer tutoring that involves a more knowledgeable learner teaching a less knowledgeable learner.

Differentiated learning has also been found appropriate in teaching students who are D&H in the inclusive education settings as it considers differences among learners in the classrooms in terms of learning pace and styles, abilities, skills and knowledge. Differentiated learning focuses on learning and teaching resources, learning and teaching activities, instructional methods, communication approaches as well as assessment methods that are responsive to the needs of students who are D&H. This learning approach seems to adhere to curriculum modification which demand teachers to modify the core curriculum to meet the needs of students with SEN.

### **Communication approaches for teaching students who are deaf and hard of hearing**

Literature has documented three different approaches for teaching students who D&H, namely: Oral/aural approach, total communication and finally the bilingual-bicultural approach (Heward, 2013). Whereas some scholars believe in the approach that solely emphasises speech (oral/aural) for these students to function in a hearing world, others advocate for sign language and some support a combination of speech and sign language (total communication). The recent debate, however, has inclined towards advocating for the first language for students who are deaf, whether it is sign language or oral communication (Heward, 2013). Thus, teaching students who are D&H requires a consideration of the described three educational approaches.

In Tanzania, there is no standard educational approach of communication for teaching students who are D&H since every school uses a certain approach, depending on the mandate of the organisation which runs the school (Migehe, 2014). As a result, some schools are aural/oral oriented while others are bilingual-bicultural oriented. Additionally, others are oriented toward neither aural/oral nor bilingual-bicultural approaches. Regarding sign language, there has never been any uniformity across schools. Attesting to that, some schools use sign language which is different from the one recognised by the Tanzania Society for the Deaf (Migehe, 2014). This has had negative implications on the communication approaches to students who are D&H when they are in a transition from one education level to

another or when experiencing a new communication approach different from the one used previously.

### **Rationale for the study**

There exists empirical evidence that students who are deaf have been underachievers when compared to hearing students for many years (American Speech- Language Hearing Association [ASHA], 2015). As a result, they generally lag far behind their hearing peers in academic achievement and the gap between them widens as they move higher up the educational ladder (ASHA, 2015). For instance, without appropriate accommodation, students with mild-to-moderate hearing loss reportedly perform at one-to-four grade level below their hearing peers whereas those with severe cases gain skills not above the level of third-to-fourth grade (Mpfungu & Chimhenga, 2013). Consequently, few students who are D&H manage to attain Higher Education (HE). A similar experience has been reported in Tanzania (Migehe, 2014; National Examinations Council of Tanzania [NECTA], 2015; 2017). Out of 28 students who are D&H who passed the National Form Four Examinations in 2008, none scored Division I and II passing classification, only four scored Division III and 24 scored Division IV (Migehe, 2014). In 2015, only nine students who are D&H out of 25 who sat for the Certificate of Secondary School Examinations in one of the special schools passed the examinations, with only one student scoring Division III, eight Division IV and 16 failed as they obtained Division zero (NECTA, 2015). The situation was worse in the subsequent year 2016, in which all the students (21) who sat for the same examination in the same school scored Division Zero (NECTA, 2017). Besides the poor academic performance of the students who are D&H in Tanzania, the literature has documented the prevalence of high rate of school dropouts among students who are D&H, compared to the hearing students. It is worth noting that, out of 369 students who are D&H enrolled in secondary school from 2005- 2012, 175 dropped out of school (Migehe, 2014).

The combination of high rate academic underachievement among students who are D&H and the school dropouts calls for an in-depth investigation on the problem with a view to creating favourable conditions especially for students who are D&H. By the way, deafness in itself does not limit the cognitive capabilities of an individual (Kisanga, 2017). As hinted earlier, most teachers in the inclusive educational settings in Tanzania were prepared to teach mainly students without SEN (Kisanga & Richards, 2018). This raises a question on the efficacy of the teaching pedagogies used to teach students who are D&H in an inclusive teaching

and learning setting. It was this background that rationalised the need to conduct the study aimed at investigating the barriers faced by students who are D&H during the course of learning and participating in the inclusive educational settings. Therefore, this study explored the barriers faced by students who are D&H when participating in the process of teaching and learning in higher education. The study was guided by two research questions, which are:

- 1) What resource barriers hinder participation in the teaching and learning process for students who are deaf and hard of hearing in an inclusive setting?
- 2) What pedagogical barriers hinder participation in the teaching and learning process for students who are deaf and hard of hearing in an inclusive setting?

## **Methods**

### **The design**

This was essentially a qualitative case study design. The underlined essence of the study was to explore the barriers to participation in the teaching and learning process faced by students who are deaf and hard of hearing in inclusive education settings in Tanzania. The design allowed the researcher to collect in-depth and detailed information on the barriers to participation in the teaching and learning process of students who are D&H from the respondents that could otherwise not be obtained through other research designs (Bryman, 2016; Yin, 2014).

### **The study area**

The study was conducted in two higher learning institutions (HLIs) in the country, referred to in this paper as Institution A and Institution B. Institution A was a public owned University, whereas Institution B was a private owned institution. Purposive sampling was used to select the two institutions (Yin, 2014). Institution A was involved because it was the first institution that started enrolling students with special educational needs in Tanzania. On the other hand, Institution B offers more programmes in special education needs at bachelor's degree level than any other higher education institution in the country (Kisanga, 2017). The essence of involving the two institutions was to ensure that students who are D&H participate in inclusive education settings at both primary and secondary school levels in the country and later be enrolled in higher learning institutions as students.

### **Population, sample and sampling techniques**

The target population of the study was the students who are D&H in the HLIs. Purposive sampling procedure was used in which all 17 students who were available in the two institutions were involved. However, only 11 out of seventeen students participated in the study, of which five were from Institution A while six were from Institution B. To ensure anonymity, the respondents involved in this study have been referred to as case 1 to case 11. Similarly, the acronyms UG and PG have been used to represent undergraduate and postgraduate students respectively.

### **Methods of data collection and analysis**

Semi-structured interviews and open-ended questionnaires were used to explore the barriers experienced by the students who are D&H during the teaching and learning process, from their primary education to the HEI level. The ethical issues such as informed consent, anonymity and confidentiality as well as research clearance and other official permits allowing the researcher to carry out the study were considered before and during the process of data collection and analysis. The researcher asked for students' consent to use a sign language interpreter and a voice recorder during the interview. Moreover, the themes and sub-themes from data were generated using thematic analysis as suggested by Braun and Clarke (2006) and Bryman (2016). To arrive at themes and sub-themes, the researcher observed the frequencies of certain concepts among the respondents, focusing on how they were related to the research questions.

### **Trustworthiness of the qualitative research data**

This study adhered to all aspects of trustworthiness in qualitative research, namely: credibility, dependability, transferability and confirmability (Bryman, 2016; Yin, 2014). For example, credibility of the findings was ensured through triangulation of the research methods and the use of member checks. The open-ended questionnaires were used to verify and triangulate the information collected through semi-structured interviews. Moreover, peer-debriefing and verbatim quotations were used to reduce the researcher's bias in the analysis and interpretations and hence ensure conformability. Through peer-debriefing, the researcher managed to incorporate comments from other colleagues in the findings, which optimised reliability, validity and trustworthiness of the research findings. Verbatim quotations not only supported the research findings, but also provided readers with access to the original data.

## **Results**

The findings from the study have revealed that barriers related to communication are the primary barriers to learning that students who are D&H face due to resource-based and pedagogical barriers. In the context of this study, resource barriers were those related to the absence or inadequacy of resources and physical infrastructures. These barriers include the absence of or poor quality hearing aids, shortage of sign-language interpreters and generally unsupportive classrooms and environments.

On the other hand, pedagogical barriers were those related to inappropriate teaching styles that failed to address the needs of students who are D&H; difficulties inherent in learning through speech reading; difficulties in reading the lips of an English language speaker; overreliance on the lecture method without using multimedia in the teaching and learning process and lecturers' reluctance to provide lecture notes. This section summarises the findings on the barriers experienced by students who are D&H. The barriers are categorised into two typologies: resource barriers and pedagogical barriers.

### **Resource barriers**

#### **Absence of or poor quality hearing aids**

The study found that none of the participants involved in this study used hearing aids from their secondary education to HEIs due to previous negative experience with hearing aids in terms of availability and quality. Students reported that, their parents or family members were tasked with the responsibility of providing them with hearing aids and not the school authority. This responsibility was entirely shouldered by parents and relatives and it imposed a significant challenge since most of the parents were too poor or not in a financial position to afford buying the gadgets required, as the following statements exemplify: "There were no tools to assist me with learning during my primary and secondary education. For example, there was not even a single piece of hearing aid in those schools; I had to buy one for myself" (Case 7, Male, UG). A similar opinion was made by another participant: "I could not write notes during the teaching sessions because of my hearing problem. I informed the headmaster, but he told me the school was unable to support me" (Case 4, Female, UG).

The two testimonies indicate the lack of preparation of educational institutions in terms of having the required tools and equipment in Tanzania for students who are D&H and others with SEN. This suggests that the needs of students who are D&H are neither included in the national budget nor included in government list

or educational priorities. The absence of hearing aids in the educational institutions that enrol students who are hard-of-hearing imply social- rather than academic-inclusion, if other means of communication fail to get priority.

Students who are D&H further reported poor quality of hearing aids at their disposal. Indeed, they reported that, the hearing aids provided to them either from their parents' initiatives or charitable organisations were so poor in quality that instead of solving the problem, they even compounded the problems for students as the following account demonstrate:

I do not use hearing aids anymore because they do not help me at all. The first device given to me created discomfort, it created a lot of noise... The second device given to me was also useless. The third device was much better, however, it did not solve my problem because it assisted me to hear the voice but could not detect speech (Case 4, Female, UG).

Another participant supported the above claim by saying “my problem is speech recognition. However, the device given to me captured the voice but could not detect speech” (Case 5, Female, PG).

The two narrations indicate that some students who are D&H had access to hearing aids, nevertheless, they did not benefit from the devices in teaching and learning process. The hearing aids provided, assisted these students to capture the voice of the speaker but could not detect what was being communicated. The problems with hearing aids that the students experienced were either because of the poor diagnosis provided to the individuals and hence the resultant inaccurate prescription or because of accurate diagnosis but poor-quality hearing aids provided or inaccurate diagnosis coupled with poor-quality hearing aids. It is unlikely that an individual with speech detection problem who undergoes a thorough diagnosis can receive a hearing aid that detects sound but not speech.

### **Unsupportive classroom environment**

The respondents further revealed that the physical structure of their classrooms was too ill-equipped to allow them use their residual hearing either through hearing aids or other assistive devices. This problem was noted in all the educational levels from primary schools to HEIs. In this regard, the students reported that they were being accommodated in classrooms that had no devices for minimising unwanted noises. Such noises interfere with both the learning process and effective utilisation

of assistive gadgets such as hearing aids. Notably, most of the lecture halls in the two institutions had background noises that compromised listening even among the hearing students:

Apart from absence of hearing aids, our classroom environments from primary school to higher education do not support the use of hearing aids. How can hearing aids be effective with this kind of noise? I thought the situation would be different in higher learning institutions compared to my previous experience at primary and secondary schools, unfortunately it is the same. Most of our lecture halls are surrounded by lots of noises, especially from students waiting for their coming lectures outside (Case 1, Male, UG).

The statement above suggests that students who are D&H require more than quality hearing aids for them to benefit from the education provided. This is because without supportive classroom environment, it is unlikely for them to make use of their residual hearing. The findings revealed that students involved in this study experienced noisy classroom environment from their primary school to higher education level. This suggests that, most of the classroom environment in Tanzania need to be transformed to responds to the needs of students who are D&H.

### **Scarcity of sign language interpreters**

The experience of students who are D&H who use sign language reveals that, most of the inclusive schools which enrol students who are D&H lack sign language interpreters, who could facilitate their learning and create an effective participation in the learning and teaching process. In fact, some schools had a disproportional number of interpreters as they were too few to cater for the high number of students in need of their services whereas others did not have even a single interpreter. Case 9 lamented: “without a sign language interpreter attending classes, we are just wasting time because I hear nothing even when I am seated in the front row and worse enough teachers do not use sign language” (Case 9, Male, UG). The availability of sign language interpreters and teachers who are able to use sign language is vital and can make the difference in the teaching and learning process. Such lack of sign language interpreters was reported to affect adversely more students whose teachers did not provide notes, compared to those who received notes after the classroom session. In that scenario, the notes could compensate for what they missed during teaching. Institution B faced the scarcity of sign language interpreters despite the fact that all the students who were D&H in

this institution communicated through sign language unlike those in Institution A who used speech reading for communication. The institution had two sign language interpreters supporting roughly 10 students who were D&H.

Interpreters are so few that in most of the lectures I attend there is no single interpreter. Interpreters are as well not available after class hours and most of our fellow students without HI do not provide any meaningful help because they do not understand the sign language (Case 8, Female, UG).

The statement highlights one of the hindrances to effective use of sign language in the inclusive settings where the majority of students and teachers are unfamiliar with sign language. This helps in explaining how challenging it was to overcome the communication barriers faced by the students who were D&H. After all, even with a suitable number of interpreters at the institutional level, the student is unlikely to have his/her services during and after-school hours or outside the school environment. Retrospectively, there is a need to have a uniform sign language for all academic institutions which enrol students who are D&H in Tanzania.

## **Pedagogical barriers**

### **Difficulties in learning through speech reading**

All the five students involved in this study from Institution A reported that they used speech reading across the educational levels. However, the students could not benefit from the approach in learning and participation in the inclusive settings or could not understand various courses in primary, secondary schools and HEIs due to inappropriate teaching styles that hindered speech reading as narrated by the following participants: “I could follow lessons though lip reading but most of my secondary school teachers rarely looked at me when talking even when I sat right in front of the class” (Case 1, Female, UG). Similar opinion was made by a male participant: “It is very difficult to follow lectures through lip reading because most of the lecturers move from one place to another when lecturing, making it difficult to read their lips” (Case 3, Male, UG). The two statements on the barriers to learning through speech-reading confirm that, for a student to benefit from this approach, it is mandatory that the teacher has to talk while maintaining the eye contact with the student. Nevertheless, many of the teachers were too mobile in class and/or looked in different directions of the class. By so doing, teachers are unwittingly making it difficult for students who are D&H to follow the lesson.

### **Difficulties in reading the lips of the English language speaker**

Apart from difficulties in speech-reading resulting from inappropriate teaching styles, students who use speech-reading also reported the challenges of understanding the English language speaker through speech-reading. These students started to experience this communication barrier at their secondary school level because of the sudden transition from Kiswahili to English language as a medium of instruction. In primary schools, these students learnt through Kiswahili language, thus they were used to lip-read speech in that language. At secondary school, the language of instruction changed to English, and the two languages vary in terms of pronunciation and spelling. Whereas words in Kiswahili are written as they are pronounced, in English there is often no association between the sound and the attendant letter. The following participant highlighted the problem: “It was so difficult for me to understand how to pronounce different English words through lip-reading in secondary school” (Case 1, Female, UG). Some respondents explained another challenge of learning through lip-reading in inclusive setting as voiced by the following participant:

One of the major barriers I experienced at secondary school was to understand my teachers through lip-reading because my eyes were used to reading the lips of the Kiswahili speakers whose pronunciation differs remarkably from that of English language (Case 10, Female, UG).

The two comments imply there was lack of preparation in the adaptation of the English language as a medium of instruction among students in secondary schools. Consequently, an abrupt shift from Kiswahili to English as the medium of instruction resulted in the difficulties these students experienced. However, this drastic transition did not only affect students who are D&H and use lip-reading but also the hearing students.

### **Lecturers’ reluctance to provide lecture notes**

The findings from this case study have revealed that in a response to the challenges attributed to the hearing aids and learning through speech-reading, students tend to resort depending on notes. However, the lecturers were not ready to provide their lecture notes either in hard or soft copies to the students. As a matter of fact, very few lecturers were reported to be supportive in assisting students who are D&H and others with SEN:

We could also learn through lecture notes as we used to do during secondary schools, where most of our teachers provided us with notes after teaching. Sadly, most of the lecturers in this University do not provide us with their lecture notes (Case 3, Male, UG).

In other words, the teaching approaches used at the lower levels of education, especially the tendency of providing notes to students, are essential for students experiencing the learning difficulties, particularly the students who are D&H.

### **The use of oral-dominated lecture without multimedia projection**

The analysis of the findings revealed that, the students who are D&H learn through vision, for example, from a lecturer who uses multimedia projectors or who writes notes on the board during teaching as opposed to the one who talks without writing or displaying anything on the board. However, some of the lecturers were found lecturing without writing on the board or using multimedia projectors, this limited the participation of most of the students who are D&H as they failed to follow and understand different courses effectively. The following narration elaborates further:

In this university, I experience many academic problems compared to those I faced while at advanced secondary school. In high school, I used to benefit from the summaries written by the teacher on the board during teaching. Conversely, here some lecturers do not write anything on the board during teaching and they do not provide their notes to us (Case 2, Male, UG).

The foregoing account implies that some students who are D&H in HEIs experience numerous academic challenges at higher level than they did previously in secondary schools due to variations of the teaching methodologies. From the experience of Case 2, the teaching approaches in lower levels of education appear to favour the students who are D&H than the teaching styles used in HEIs.

### **Discussion**

This study has revealed resource and pedagogical barriers as the major hindrances to the learning and participation among deaf and hard of hearing students. The resource barriers revealed in this study include: absence of and poor quality hearing aids, shortage of sign-language interpreters and generally unsupportive

classrooms and environments. Conversely, pedagogical barriers involve: the difficulties inherent in learning through speech-reading; difficulties in reading lips of an English language speaker; overreliance on the pure lecture method without using multimedia projectors and lecturers' reluctance to provide lecture notes.

Regarding the poor quality hearing aids reported in this study, the findings suggest that the students were given obsolete hearing aids which lacked special features that help in distinguishing speech sound from the background noise (Heward, 2013). Similar findings on either the shortage of hearing aids or poor-quality hearing aids were also reported in Pakistan (Shahminan, 2012), Saudi Arabia (Alothman, 2014), Zimbabwe (Mpofu & Chimhenga, 2013) and Tanzania (Kisanga, 2019; Migehe, 2014). Students who are D&H also reported to be accommodated in unsupportive classroom environment which hindered the use of hearing aids. When these students are accommodated in a noisy environment, the unwanted noise tended to be amplified over the teachers' voice, making the hearing aids inefficient (Wadesango, Eliphanos & Gudyanga, 2014). This further implies that unsupportive classroom environment is a hindrance even to quality hearing aids. The findings on unsupportive classroom environment to students who are D&H are supported by the findings documented by other scholars in different parts of the world (see for example, Alothman, 2014; Shahminan, 2012; Wadesango et al., 2014).

The finding that the lecturers were reluctant to provide notes could be associated with the fact that students who are D&H are provided with note-takers in HEIs who assist them with note-taking during lectures. However, some note-takers are also students who have to bear their own academic responsibilities. As aptly remarked, note-takers are sometimes unreliable, especially during tests and examinations when they focus on their own academic tasks (Kisanga, 2019). Moreover, the notes taken directly from a lecturer differ from those received via a third party in terms of originality unless students get electronic note-takers. The implication is that the teaching notes from a third party are limited to an individual's level of understanding, as well as his or her listening and writing skills.

Regarding the role of teaching notes to students who are D&H, Mpofu and Chimhenga (2013) claim that the teaching notes are important in facilitating the learning and participation of these students even when they do not face any challenges with speech-reading and/or sign-language interpreters, because it is unrealistic for students who are D&H to take notes while lip-reading or paying attention to an interpreter. In this regard, the notes provided prior to teaching helps

students concentrate on either speech-reading or sign language during the teaching and learning process.

The findings on the difficulties experienced in reading the lips of the English language speaker and overreliance on the pure lecture method without using multimedia projectors or writing on the board are consistent with previous findings from Soorenian (2011) and Kisanga and Richards (2018). Soorenian (2011) reported that some international students who were D&H in English higher education faced difficulties in learning through lip-reading because they were used to lip-read in their own languages. This suggests a challenge in lip-reading using a language other than one's own language.

### **Conclusions and Implications**

This study has established that the communication hurdle is the main barrier to effective learning and participation of students who are D&H in their educational endeavours. Inferably, it is evident from these findings that what is practised in the inclusive classes in Tanzania might be very far from the real sense of the concept of inclusive education as defined by various sources. It is rather a social inclusion where these students get access to interact and socialise with their fellow hearing peers than the academic inclusion. Inclusive education in its real sense focuses on increasing the learning and participation, reducing the barriers to learning, as well as various forms of exclusion (URT, 2018b).

Looked from other dimensions, enhancing the learning and participation of the students who are D&H, educational approaches to teaching students who are D&H need to be incorporated in the teacher education curriculum. Apart from that, these students need to be familiarised with more than one mode of communication. The justification for the claim is that sign language has been found to exclude the students who are D&H from the inclusive education settings. Furthermore, the challenges of hearing aids reported in this study need the attention of educational stakeholders and audiologists. These actors are obliged to find a sustainable solution that will ultimately enable these students to benefit fully from the use of hearing aids available at their disposal.

This suggests the necessity of improving the acoustic environment for the students who are D&H to enhance their ability to receive and process linguistic information in the educational settings. In addition, they also need an accurate and thorough diagnosis prior to any particularised prescription of any hearing aid. Similarly,

the government should allocate a separate budget for special resources such as hearing aids with a view to ensuring their availability and quality to students at all levels of learning. Regarding the pedagogical barriers reported, the Ministry of Education Science and Technology (MoEST) should train and allocate at least one teacher in each inclusive school to work as a Special Education Needs Coordinator (SENCo) whose role, among others, will be assisting teachers on pedagogical issues. Lastly, all teachers and/or lecturers in the inclusive schools and HEIs should perceive teaching students with SEN as their sole responsibility with or without training on inclusion.

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