Research Article

The Effects of Grade 9 Deaf and Hard of Hearing Learners' Classroom Participation on Their Academic Performance: A Case of Six Selected Schools in Southern Province of Zambia

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Abstract

The study sought to investigate the effects of grade 9 deaf and hard of hearing learners' classroom participation on their academic performance in six selected schools in Southern Province of Zambia. The study was guided by the objective; establish the effects of classroom participation on the academic performance of learners who are deaf or hard of hearing. Correlation study to provide evidence of relationship between classroom participation and academic performance was used with a mixed-methods study of quantitative and qualitative. Surveys, interviews, focus groups and documents as triangulation sources were administered. The sampling technique which was employed for selecting the participants of this study was purposive sampling. Thematic analysis was used to analyze qualitative data. A total of 150 respondents participated comprising of 12 school administrators, 42 subjects' heads of departments, 42 subject teachers, 30 learners' 12 parents or guardians and 12 classroom observations in a grade 9 class. The study established that classroom participation had effects on academic performance of the grade 9 learners who are deaf or hard of hearing. The research adds that the relationship between classroom participation and academic performance for the learners who are deaf or hard of hearing involves multiple features associated with quality classroom participation. The study revealed that certain nuggets expected to provide academic accessibility in schools were not available such as; language access, use of sign language interpreters or other communication tools, use of assistive technologies like captioning or amplification, lack of training to ensure that teachers and staff were aware of how to support deaf or hard of hearing learners. The study further showed that teachers lacked knowledge of sign language in order to enhance effective communication.

Keywords: Deaf, Hard of Hearing, Classroom Participation, Access, Adaptability, Acceptability, School Engagement, Sign Language, Academic Performance.

Introduction

Children who are deaf and hard of hearing are children who need and use sign language to be able to develop communication and language, their cognitive and socio-emotional skills that in turn helps in thinking and acquiring knowledge, and be able to participate in classroom activities (Muzata, 2021). Schools where children who are deaf and hard of hearing (CDHH) are educated in Zambia vary depending on whether they provide inclusion, mainstream programmes, or special schools, each providing different levels of support and access (MOGE, 2020; Ngulube, *et al.*, 2020; Muzata, 2021). The government of Zambia, through the ministry of education, has strengthened its commitment to improve the quality of education services for children with special education needs and disabilities by introducing special education in teacher training colleges and universities and formulating the special and inclusive education policy and policy implementation guidelines (MOGE, 2015; MOGE, 2016). Despite these efforts, learners with hearing loss rarely get higher educational qualifications and their transition rate to secondary school in 2016, for example, stood at 9% (MOGE, 2016; MOGE, 2020).

The 2019–2020 Statistical Education Bulletin unearthed a burning problem at grade 9 level of education for Learners with Special Education Needs and Disabilities (LSEND) in Zambia where out of 804 LSEND who sat

for the G9 Examination Council of Zambia (ECZ) internal examinations in 2019, only 166 learners progressed to grade 10 in 2020 (MOGE, 2020). The southern provincial statistical results analyses for 2020, 2021, 2022 and 2023 ECZ Grade 10 selection highlights for candidates with special education needs and disabilities actually exposed this boiling concern at grade 9 level of education in the province (MOGE, 2020; MOGE, 2021; MOE, 2022; MOE, 2023).

The provincial highlights reveal that thirty (30) Special Education Needs and Disabilities (SEND) learners had entered for grade nine (09) examinations in 2019. Twenty-seven (27) of them sat for examinations and nine (09) were selected to grade ten (10) in 2020, representing 33.3% pass rate and 66.67% failure rate. In 2020, 42 learners entered for examination, 40 candidates sat for the examinations, and 22 were selected for grade 10 in 2021, representing 55% pass rate and 45% failure rate. In 2021, thirty-eight (38) SEND learners entered for grade 9 examinations. Thirty-three (33) of them sat for the examinations, out of whom nine (09) candidates were selected to grade ten (10) in 2022, representing 27.27% pass rate and 72.73% failure rate. In 2022, sixty-four (64) SEND learners entered for grade 9 examinations. Fifty-six (56) of them sat for the examinations, out of whom twenty-two (22) candidates were selected to grade ten (10) in 2023, representing 39.29% pass rate and 60.71% failure rate. In 2023, seventy-nine (79) SEND learners entered for grade 9 examinations. Seventy (70) of them sat for the examinations, out of whom thirty-five (35) candidates were selected to grade ten (10) in 2024, representing 50% pass rate and 50% failure rate. These percentages summarize the revelation of the resistant problem of high failure rates for LSEND from 2020 to date. In Zambia, there is lack of or limited analyzed statistical information that compares individuals with and without disabilities, learners who are deaf and hard of hearing and those with other disabilities, in terms of transition through to higher grades (MOGE, 2020).

In the light of such limitations, however, the available statistical data highlights demonstrate low transition rates for all LSEND (that is, in all disability categories and types) signaling restrictions between grades 9 and 10 making it impossible for many of them to progress to the higher grades. Despite that the pass rates had improved in 2021 and 2023, almost half (45%) and more than half (60.71% in 2023) of the candidates who sat for the grade 9 examinations were not selected for grade 10 in the years. The failure rates for LSEND in 2020, 2021, 2022 2023, and 2024 have been so high and persistent that it has become a serious concern in southern province. This has been a heartbreaking to the LSEND, their families and sponsors for the four consecutive years (MOGE, 2020; MOGE, 2021; MOE, 2022; MOE, 2023; MOE, 2024). Arising from this, the researcher sought to investigate into classroom participation quality in relation to academic performance.

Statement of the Problem

The persistent low pass rate for LSEND at grade 9 level in Zambia may result in the failure of compulsory and free inclusive education policy programs as actualized by the New Dawn Government of President Hakainde Hichilema. In the context of the success of compulsory and free inclusive education, it is deemed necessary to increase the attention to children with disabilities, who have entered schools but have not received or may not be receiving full participation opportunities in the classroom environment and experience poor academic performances because they are not fully engaged in the classroom ecology. The study therefore sought to answer the question on just how much the classroom participation considerations are put in place for learners who are deaf or hard of hearing in the selected schools in Zambia that may affect their academic performance.

Purpose of the Study

The purpose of the study was to find out the effects of grade 9 deaf and hard of hearing learners' classroom participation in their academic performance in six selected schools in Southern Province of Zambia.

Research Objectives

To establish the effects of classroom participation on the academic performance of the grade 9 learners who are deaf or hard of hearing in the six selected schools.

Literature Review

Effects of Acceptability on the Deaf and Hard of Hearing (DHH) Learners' Classroom Participation

Acceptability refers to learners' feelings about their relationships with others in the classroom ecology (e.g., teachers, peers) and the general sense of belonging in the classroom setting that is often resultant from such relationships. A study conducted by Alasim (2018) identified a variety of strategies that facilitate the participation and interaction of deaf and hard of hearing learners in the mainstream education classroom at a public primary school. In addition, it identified the issues that limit the participation of those learners.

Particularly, the study focused on describing factors related to general education teachers, sign language interpreter and deaf and hard of hearing learners, and hearing students, in order to advance a practical framework to help learners with hearing impairment to achieve more social and communication skills. The data were collected through interviews and classroom observation. The finding indicated that deaf and hard of hearing students face barriers that concern their participation and interaction in the general education classroom. One participant said that, "Spoken language is the most common barrier that influences the participation and interaction between deaf and hard of hearing learners and hearing learners (Alasim, 2018)". Also, the findings identified specific strategies in order to facilitate the participation of deaf and hard of hearing learners in the mainstream education classroom. One such strategy to improve the participation and interaction of deaf and hard of hearing students in the regular classroom is the formation of the sign language class for hearing hearings which is focused on teaching them basic sign language (Alasim, 2018). This would encourage the hearing learners to participate in the classroom activities.

A study Nabizadeh and colleagues suggest that cognitive and metacognitive learning strategies and motivational strategies are predictors of academic achievement of students (Nabizadeh *et al.*, 2019). They reported that learners who use self-regulating and motivational learning strategies have a higher academic performance. In addition to the academic skills required for classroom participation, it was reported that it is essential that secondary school learners (hearing and deaf) are prepared and equipped for active classroom participation. These demands would include the requirement of greater independence on the part of the learner in terms of self-motivated learning, the development of critical thinking skills and active engagement in the classroom ecology. Submissions to the Advisory Committee on Deaf Education (Leeson, 2007) include descriptions of how deaf children who participated in the survey depended on classmates for information because they could not understand from their teachers, and this experiences of constantly not understanding resulted into the children developing low self-esteem. One participant in the study for example expressed concern: "If the teacher asked me to do something when she was speaking, I would depend very much on the girls in my class who were partially deaf. And [they] would say, 'I will tell you afterwards. So, I would have to wait until school was finished so that they could tell me what the teacher was teaching" (Leeson, 2007).

It was also reported that teachers used lip-reading all the time and the deaf learners were not comfortable and did not understand. The learners also reported that some teachers were very aggressive and kept insisting that English was an important language. The learners urged that they didn't understand English language vocabulary even if it was written on the chalkboard. The most salient characteristic of current efforts to promote classroom inclusion for learners with special education needs and disabilities and their access to the general education curriculum is that the focal point has shifted primarily from where a learner receives his or her educational program, to what and how the learner is taught (Wehmeyer, 2009). However, many children with hearing impairments lag far behind their hearing peers in academic achievement, and the achievement gap usually widens as they get older. This suggests that more effort needs to be made in enhancing the curriculum and instructions for students with hearing impairments. Participation in the special curriculum is supported by its design.

Numerous factors are expected to result in increased participation, including isolation from higher-achieving students, increased teacher/student ratios, smaller groups, slower academic pace, reduced demands and frustration, and explicit attention to affect and self-esteem. Most important to special educators, instruction and activities are targeted to the level diagnosed for the student (Jackson *et al.*, 2001). However, participation is limited to the individualized "special" curriculum in whatever form has been devised locally and may not include any participation in the general curriculum. The finding by Kurth and colleagues reveals that curricular adaptations were positively associated with higher academic engagement and on-task behaviors (Kurth *et al.*, 2015). Similarly, Soukup and colleagues (2007) used a time sampling method to investigate eco-behavioral characteristics of inclusive classrooms and found curricular adaptations were routinely provided to students with severe disabilities (Soukup *et al.*, 2007).

Learners who are deaf and hard of hearing in Jordan study the same curricula designed for nondisabled students and have the same educational cycle. These learners require special services which must be provided by qualified and skilled teachers in order to respond to their exceptional needs (E-Zraigat and Smadi, 2012). According to a study carried out in Jordan, E-Zraigat and Smadi (2012) reports that the learners who are deaf and hard of hearing had poor expressive writing skills. Earlier, a study conducted by El-Zraigat (2011) shows that the students who are deaf and hard of hearing lack adequate reading skills in general. The rhetoric surrounding the provision of access often seems quite separate from the practice of

providing signed language interpretation to deaf learners across the education levels. In no place in Ireland for example, is this more evident than in the realm of tertiary education. As reported, deaf (and hard of hearing) learners were very under represented at higher education level in Ireland for a number of reasons, and even when they do access a place at a university, college or institute of their choice, the question of how they will access course content arises. Sometimes this entails the provision of interpretation, and there are challenges to ensuring that adequate provision occurs with appropriate checks and balances across the way. It has been suggested that the root of low participation rates lies in negative experiences of primary and post-primary levels on the part of deaf and hard of hearing learners: high quality academic attainment at post-primary level is essential for the pursuit of further studies at higher education levels (Catholic Institute for Deaf People, the Centre for Deaf Studies, and Trinity College Dublin, 2009).

Methodology

Research Site

The study was carried out in six (06) special schools located in Choma, Sinazongwe, Mazabuka, Livingstone, Zimba and Kalomo districts of Southern Province of Zambia. These six (06) schools are the only schools and units in the province that offer the deaf or hard of hearing learners at junior secondary education level in southern province. The schools were: St. Mulumba Special School, Maamba Special School, Flamboyant Special School, Holy Cross Special Unit, Luyaba Inclusive School and Kalomo Inclusive School.

Research Design

The study used a correlation study to provide evidence of relationship between classroom participation and academic performance. Awoniyi and colleagues purport that "the major advantage of using correlational studies is that relationships are measured in their real setting" (Awoniyi *et al.*, 2011). In this study, the researcher explored the likelihood of relationship between the classroom participation and academic performances of the learners who are deaf and hard of hearing in the six selected schools in southern province. A mixed-methods study was used to gather data from various sources quantitatively and qualitatively with the aim of ensuring the credibility of the quality of information by using surveys, interviews, focus groups and documents as triangulation sources. This study took place across three phases: baseline, midline and end line.

Population

Awoniyi *et al.*, (2011:51) defines a population in research as "all members of any well-defined class of people, events or objects". A population is described as a group of individuals, objects or items from which samples would be drawn from measurement. Kombo (2016) refers population to the larger group from which the sample is taken. It was important for the researcher to find out as much as possible about the study population. The study was drawn from the six districts with a maximum of one hundred fifty (150) participants.

Target Population of the Study

In this study, the researcher targeted head teachers, deputy head teachers, heads of department, subject teachers, learners, parents, and education standards officers in charge of special education. These schools and or unit offered junior secondary school education to learners with hearing impairments in southern province.

Sample Size

In this study, all the 150 members of the population participated in this study because the population was small. Therefore, the sample size was 150 and comprised 6 education standards officers-special education; 12 school administrators (that is, 06 head teacher, 06 deputy head teacher), 42 subjects heads of departments (07 from each school); 42 subject teachers (that is, 07 from each school); and 30 learners (05 learners from each school). The sample size will also include 12 parents or guardians and 12 classroom observations in a grade 9 class (that is 02 observations at each sample school).

Sampling Procedure

The sampling technique which was employed for selecting the participants of this study was purposive sampling.

Research Instruments for Data Collection

Mixed method was used to collect data. Questionnaires, interviews and documents were used to collect the required data for the study. To collect quantitative data, the researcher used questionnaire developed from

the SERVQUAL model/scale which was first developed and modified by Parasuraman and his colleagues (Mohammad, *et al.*, 2011). The model was adapted and further modified to measure classroom participation. This study used questionnaires, classroom observation, focus group, interviews and desk reviews.

Questionnaires

The questionnaires were filled by all subjects' heads of department and subject teachers that handled grade 9 class at each of the six selected schools in order to collect primary data that enabled the researcher to establish the interaction between and among the instructional core primary elements of classroom ecology: learner, teacher and content. For this study, the questionnaire focused on the five classroom learner participation dimensions including acceptability, accommodation, adaptations, accessibility and classroom engagement in general.

Classroom Observation

All the participants (teachers and learners) who participated in the classroom observations had their consent forms filled out. The teachers filled out their own consent forms. Parents whose children are day scholars filled out for their children, and the head teachers filled out for those learners who are boarders and were assured of the confidentiality of their responses, which were video recorded with their prior permission.

Desk Reviews

Desk reviews were conducted on education documents such as subject registers, timetables, and syllabuses for junior secondary school level. Data on learner academic achievements also be sourced from documents (secondary sources) that is, schools past grade 9 ECZ national examinations results analyses.

Focus Groups Method

Focus group discussions were conducted for learners who are deaf or hard of hearing to triangulate and justify the classroom participation-academic achievement gap for the LDHH. Six focus groups discussion (with 05 learners in each focus group), averaging 30 minutes each, were conducted at four out of the six selected schools. Semi-structured interviews were conducted for the head teachers, deputy head teachers, education standards officers and parents in the selected schools.

Data Collection Procedure

Data collection took place during the school days of the 2023 academic year. The research team (main researcher and co-researcher) visited each school three times, that is during baseline, midline (intervention) and end-line (follow-up) phases. Establishing the baseline, the researcher identified the status core of each of the six selected schools on the general information on the academic access, participation and performance of learners who were deaf and hard of hearing. During the midline and end line phases, eight (08) lesson observations in a grade 9 class, two (02) from each of the four schools that had grade 9 learners, were observed by the main researcher. At each school, one lesson was observed during the midline phase and the second classroom observation was conducted during the follow-up or end-line phase.

One (01) teacher was observed during the midline phase at each of the four schools that had grade 9 learner. The teacher was coached immediately after a classroom lesson observation session. The same teachers were observed during the follow-up or end-line phase. Also, during the midline phase, the focus groups were conducted for the five (05) learners who were deaf or hard of hearing in each participating school and facilitated by the lead researcher assisted by the research assistant.

The lead researcher, who is hard of hearing, used sign language and speech to effectively communicate with the respondents in each focus group. The assistant researcher took video and note taking. The focus group discussions took place after the instruction time when children were not having a class. Further, the head teachers and deputy head teachers were interviewed during the midline phase and were required to avail school documents to be reviewed. The subjects' heads of departments and subject teachers responded to the common questionnaire. Furthermore, the parents were also interviewed during the midline phase.

Reliability and Validity

The data collected through mixed method was cross-checked for data reliable. For validity, the research instruments were measured by means of content validity method where the topical contents and the research objectives covered by the instrument. The content of the instruments had been analysed by the three supervisors.

Data analysis

The statistical analysis involved the use MS-Excel to analyze data from the questionnaires that administered on teachers and heads of departments. The MS-Excel was used to analyze data from CLOP administered during the class observation sessions. The data collected from the interviews of the head teachers, deputy head teachers, education standards officers, and parents were analyzed qualitatively using the thematic analysis. The video recordings were transcribed verbatim in sign language and subsequently translated into English and analyzed thematically. Document analysis was used to analyze secondary data from the school records such as the subject registers which were desk reviewed to provide data on learner lesson attendance.

Ethical Consideration

Prior to undertaking this study, ethical clearance was sought from the Rockview University Ethics Committee and permission from the Provincial Education Officer to conduct the study in the selected districts and schools. To ensure adherence to ethical guidelines, participants were informed about the nature and purpose of the study, and informed consent sought before interviews were conducted. Participants were also assured of high levels of confidentiality and issues of anonymity were observed during data collection, analysis and discussion.

Findings and Discussions

What were the Academic Access, Participation and Performance Levels for the Learners Who Are Deaf or Hard of Hearing?

This section presents the views of pupils with disabilities, class teachers for pupils with disabilities, head teachers, deputy head teachers, parents and standards officers on the academic access, participation and performance levels for the learners who are deaf or hard of hearing. The participants were asked what the academic access, participation and performance levels were for the learners who are deaf or hard of hearing. The following were the responses which have been put in sub-themes and verbatim were as follows.

Statement			Cumulative agree				
			r	and d	isagree		
	Strongly	Agree	No	Disagree	Strongly	Agree	Disagree
	agree		opinion		disagree		
I feel very well prepared	8	20	3	3	2	28	5
to teach learners who	(22.2%)	(55.6%)	(8.3%)	(8.3%)	(5.6%)	(77.8%)	(13.9%)
are deaf or hard of							
hearing as a result of my							
college/ university							
training I received.							
Teachers in my	8	18	4	5	1	26	6
department have SBCPD	(22.2%)	(50.0%)	(11.1%)	(13.9%)	(2.8%)	(72.2%)	(16.7%)
programme where we							
share knowledge and							
skills such as sign							
language in teaching							
learners who are deaf or							
hard of hearing.	0	10	2		1	26	0
I feel very well prepared	8			(10,407)		20 (72.20/)	8
to teach learners who	(22.2%)	(50.0%)	(5.6%)	(19.4%)	[2.8%]	(72.2%)	(22.2%)
hearing as a result of the							
school based continuing							
nrofessional							
development (SBCPD)							
Many of the CPD	9	12	4	5	3	21	8
workshops that I have	(27.3%)	(36.4%)	(12.1%)	(15.2%)	(9.1%)	(63.7%)	(24.3%)
attended mostly focused	(_/.0/0)	(0011/0)	((10)_705	().270)	(00.17,0)	(, /0)
on improving my							
knowledge of pedagogy							
for teaching regular							

Table 1. Responses on items related to teachers' pedagogical and general knowledge.

school learners.							
Many of the CPD	11	8	6	5	6	19	11
workshops that I have	(30.6%)	(22.2%)	(13.9%)	(13.9%)	(16.7%)	(52.8%)	(30.6%)
attended mostly focused							
on improving my							
knowledge of pedagogy							
for teaching learners							
who are deaf or hard of							
hearing.							
Source: Field work, 2024							

Findings Related to Teachers' Learner Acceptability

Table 2 presents teachers' responses regarding the nature of their relationships with learners who are deaf or hard of hearing (DHH) and the interactions among learners. The responses are categorized by agreement levels, and cumulative percentages are provided for overall agreement and disagreement. The results revealed that the majority (61.1%) of teachers describe their relationship with DHH learners as hierarchical, indicating a structured and possibly authoritative dynamic. However, 19.4% of teachers broadly disagree, suggesting that some may perceive their relationship as less hierarchical. Similarly, a substantial majority (71.5%) of teachers view the relationships among learners as hierarchical, suggesting structured interactions with clear roles or authority levels, with only 11.1% disagreeing. Despite this perception of hierarchy, an overwhelming majority (88.2%) of teachers allow their learners to freely interact and help each other, indicating a supportive and collaborative classroom environment. Only a small minority (8.8%) broadly disagree, suggesting that few teachers might prefer more controlled interactions among learners.

Statement		Response Cumulative agree						
			and d	and disagree				
	Strongly	Agree	No	Disagree	Strongly	Agree	Disagree	
	agree	-	opinion)	disagree	-	-	
I would describe the	9	13	7	5	2	22	7	
relationship between my	(25.0%)	(36.1%)	(19.4%)	(13.9%)	(5.6%)	(61.1%)	(19.4%)	
learners who are deaf or		-	-	-	-		-	
hard of hearing and I as								
rather hierarchical in								
nature.								
I would describe the	10	15	6	4	0	25	4	
relationship between	(28.6%)	(42.9%)	(16.7%)	(11.1%)	(0.0%)	(71.5%)	(11.1%)	
and among learners as			•	•				
rather hierarchical in								
nature.								
I allow my learners to	18	12	1	3	0	30	3	
freely interact and help	(52.9%)	(35.3%)	(2.9%)	(8.8%)	(0.0%)	(88.2%)	(8.8%)	
each other.								
Source: Field work, 2024		•	•		•	•	•	

Table 2. Responses on items related to teachers' learner acceptability.

Findings Related to Teachers' Training Quality

Teachers' training quality in this study was assessed through a series of statements to which respondents indicated their level of agreement or disagreement to the statements. Their responses are presented in Table 3 below. The overall picture that emerged was a positive one. The majority (80.6%) of teachers are satisfied with the quality of training they received at their college or university, while only 13.9% are dissatisfied. However, 69.4% of teachers agree that there is very little available for their learners in terms of textbooks and relevant classroom resources, with 25.0% disagreeing. When it comes to accessibility, only 50.0% of teachers believe the education facilities at their schools are accessible for deaf or hard of hearing (DHH) learners, while 33.3% disagree. Additionally, an overwhelming 83.4% of teachers report that their school administration emphasizes the importance of using child-centered teaching methods, with only 8.3% disagreeing. However, when it comes to the clarity of the syllabus, only 38.9% agree that it is clear and requires no modifications, while 47.2% disagree, suggesting a need for syllabus improvement. Regarding the library, 68.6% of teachers disagree that it is excellent and filled with useful documentation, indicating significant dissatisfaction with this resource. Finally, 60.0% of teachers disagree that there is extensive use

of technology in their classrooms, such as computers, projectors, and tablets, while only 31.5% agree. This suggests a considerable gap in the integration of technology in teaching learners who are DHH in schools. Overall, while teachers are generally satisfied with their initial training, there are significant concerns regarding the availability of resources, accessibility of facilities, clarity of the syllabus, and use of technology in the classroom.

Statement			Cumulative agree				
	Strongly	Agree	No	Disagree	Strongly	Agree	Disagree
	agree	0	opinion	0	disagree	0	0
In general, I am very	14	15	2	1	4	29	5
satisfied with the quality	(38.9%)	(41.7%)	(5.6%)	(2.8%)	(11.1%)	(80.6%)	(13.9%)
of training that I received							
at the college/ university.	0	17	2	4	-	25	0
Inere is very little	8	$\frac{1}{(47.20/)}$		4	5	25	9
in terms of text books	(22.2%)	(47.2%)	(5.0%)	(11.1%)	(15.9%)	(09.4%)	(25.0%)
and relevant classroom							
resources.							
The education facilities at	6	12	6	6	6	18	12
my school are rather	(16.7%)	(33.3%)	(16.7%)	(16.7%)	(16.7%)	(50.0%)	(33.3%)
accessible for learners							
who are deaf or hard of							
hearing.	4.5	4 7					
My school	15	15	3		3	30	3
administrations say that	(41./%)	(41.7%)	(8.3%)	(0.0%)	(8.3%)	(83.4%)	(8.3%)
child-controd tooching							
methods							
The subject I teach has a	6	8	5	5	12	14	17
very clear syllabus of	(16.7%)	(22.2%)	(13.9%)	(13.9%)	(33.3%)	(38.9%)	(47.2%)
topics and outcomes. No							
need of any							
modifications/							
adaptations.	-		-				
The library at my school	3	6	2	15	9	9	24
is truly excellent and field	(8.6%)	(17.1%)	(5.6%)	(42.9%)	(25.7%)	(25.7%)	(68.6%)
with useful documentation							
There is extensive use of	2	Q	2	12	Q	11	21
technology for my class	(86%)	(22.9%)	(83%)	(37.1%)	(22.9%)	(31.5%)	(60.0%)
(e.g., use of computers	(0.070)		(0.070)	(0,11,0)	(22.770)		
projector, tablets, etc.).							
Source: Field work, 2024							1

				, ,		
Table 3. Resi	nonses on	items	related t	to teachers'	training	anality.
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Findings Related to Teachers' Teaching Experience and Classroom Support

Teaching experience and classroom support was assessed through a series of statements to which respondents indicated their level of agreement and disagreement to the statements. The table presents teachers' responses regarding their teaching experience and the level of classroom support they receive. A significant majority (83.3%) of teachers broadly agree that they receive very good supervision and support from their subject head of department, while only 11.1% disagree. Similarly, 75.0% of teachers report receiving good supervision and support from their deputy head teacher, with 19.4% disagreeing. Additionally, 75.0% of teachers indicate that their head teacher is very involved in classroom monitoring, though 25.0% disagree. Collaboration among teachers appears strong, with 91.7% broadly agreeing that they work collaboratively in teaching as a team, and only 8.3% disagreeing. However, support in sign language interpretation is less robust, with an equal split of 47.2% broadly agreeing and 47.2% broadly disagreeing about the availability of professional staff for sign language interpretation. Parental support

during homework is perceived as lacking by 66.7% of teachers, while 16.7% disagree and 16.7% have no opinion. These findings are presented in Table 4 below.

Table 4. Responses on tents related to teaching experience and elastion support.							
Statement		Response Cur					
						and disagree	
	Strongly	Agree	No	Disagree	Strongly	Agree	Disagree
	agree		opinion		disagree		
When I teach, there is	9	21	2	1	3	30	4
very good supervision	(25.0%)	(58.3%)	(5.6%)	(2.8%)	(8.3%)	(83.3%)	(11.1%)
and support from my							
subject head of							
department.							
When I teach, there is	13	14	2	3	4	27	7
very good supervision	(36.1%)	(38.9%)	(5.6%)	(8.3%)	(11.1%)	(75.0%)	(19.4%)
and support from my							
deputy head teacher.							
The head teacher where I	15	12	0	5	4	27	9
teach is very involved in	(41.7%)	(33.3%)	(0.0%)	(13.9%)	(11.1%)	(75.0%)	(25.0%)
the process of classroom							
monitoring.							
I work collaboratively	14	19	0	1	2	33	3
with other teachers in	(38.9%)	(52.8%)	(0.0%)	(2.8%)	(5.6%)	(91.7%)	(8.3%)
teaching as a team.							
There is a professional	5	12	2	9	8	17	17
staff helping me in sign	(13.9%)	(33.3%)	(5.6%)	(25.0%)	(22.2%)	(47.2%)	(47.2%)
language interpretation							
There is lack of parent	9	15	6	3	3	24	6
support in during their	(25.0%)	(41.7%)	(16.7%)	(8.3%)	(8.3%)	(66.7%)	(16.7%)
homework.							
Source: Field work, 2024							

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Findings Related to Availability of Teaching and Learning Resources

The study assessed availability of teaching and learning resources (TLRs) through a series of statements to which respondents indicated their level of agreement or disagreement to the statements. Table 5 summarises teachers' responses regarding the availability of TLRs at their schools.

Table 5. Responses on items related to availability of teaching and learning resources.

Statement				Cumulative agree			
	Strongly agree	Agree	No opinion	Disagree	Strongly disagree	Agree	Disagree
There is adequacy of TLRs at my school	5 (13,9%)	8 (22.2%)	7 (19.4%)	12 (33,3%)	4 (11.1%)	13 (36.1%)	16 (44 4%)
My school faces a lot of challenges when acquiring specialised TLMs for learners who are deaf or hard of hearing	9 (26.5%)	17 (50.0%)	4 (11.8%)	(8.7%)	(2.9%)	26 (76.5%)	4 (11.7%)
There is lack of TLRs influence the teaching of learners who are deaf or hard of hearing.	5 (14.7%)	15 (44.1%)	7 (20.6%)	4 (11.8%)	3 (8.8%)	20 (58.8%)	7 (20.6%)

The overall picture that emerged was a negative one, the results indicates that the majority of teachers perceive a shortage of adequate teaching resources at their schools, particularly specialised materials for

DHH learners, which hampers their teaching effectiveness. As presented in Table 5, the cumulative percentages regarding the adequacy of TLRs shows that only 36.1% of teachers broadly agree that their school has adequate resources, while a larger proportion (44.4%) broadly disagree, indicating a perceived lack of sufficient resources. A significant majority (76.5%) of teachers broadly agree that their school faces many challenges in acquiring specialised teaching and learning materials (TLMs) for learners who are deaf or hard of hearing (DHH), with only 11.7% disagreeing. This finding highlights a considerable obstacle in providing the necessary materials for effective teaching of DHH learners. Furthermore, 58.8% of teachers agree that the lack of TLRs negatively influences the teaching of DHH learners, while 20.6% disagree, and another 20.6% have no opinion.

Findings Related to Teachers' Knowledge of Teaching Methods

This section of the study presents findings related to teacher's knowledge of cooperative learning method which was assessed through a series of statements to which respondents indicated their level of agreement or disagreement.

Findings Related to Teachers' Knowledge of Cooperative Learning Method

Overall, the findings revealed that while a substantial number of teachers are knowledgeable about the cooperative learning method and can apply it, there is a significant portion that either struggles with application or lacks understanding despite being aware of the method. Figure 1 presents teachers' responses regarding their knowledge and application of this method. A significant majority (72.2%) of teachers broadly agree that they both understand the key concepts of the cooperative learning method and can apply it well, while only 13.9% disagree, indicating a generally high level of proficiency with this method among teachers. However, 29.4% of teachers understand the key concepts but feel unable to apply them well, with a larger proportion (47.1%) disagreeing, suggesting that while many teachers grasp the theoretical aspects, a notable number struggle with practical application. Lastly, 20.0% of teachers agree they have never heard of the cooperative learning method before, while a majority (62.8%) disagree, indicating that most teachers have at least some familiarities with the method. These findings are presented in Figure 1 below.



Figure 1. Teachers' knowledge of cooperative learning method Source (Source: Field work, 2024).

Findings Related to Teachers' Knowledge of Inquiry-Based Learning

Figure 2 summarises teachers' responses regarding their knowledge and application of the inquiry-based learning method. Overall, the findings revealed that while a slight majority of teachers are knowledgeable about the inquiry-based learning method and can apply it, there is a notable portion that either struggles with application or lacks understanding despite being aware of it. As presented in Figure 2, the cumulative agree percentages show that a slight majority (53.0%) of teachers broadly agree that they both understand the key concepts of the inquiry-based learning method and can apply it well, while 35.3% disagree. Furthermore, 33.3% of teachers broadly agree, that they understand the theory behind inquiry-based learning but struggle with its practical application. Conversely, 48.5% disagree, showing a larger proportion of teachers either do not struggle with application or do not understand the method at all. For the statement

"Have heard of it but do not understand it," 28.6% of teachers agree, meaning they are aware of the inquirybased learning method but lack comprehension. A significant 48.6% disagree, suggesting that nearly half of the teachers either understand the method or have not heard of it. Lastly, the majority (64.7%) of teachers broadly disagree that they have never heard of inquiry-based learning method suggesting that they have at least some familiarities with the method. However, a significant portion (26.5%) of the teachers agree that they have never heard of inquiry-based learning method before, while 8.8% had no opinion on this matter.



Figure 2. Teacher's knowledge of inquiry-based learning method (Source: Field work, 2024).

Qualitatively the findings were divided into seven subthemes as Acceptability, Accommodation, Adaptations, Accessibility, Classroom Engagement, School Management, Home and Community Involvement.

Acceptability

With acceptability, the researcher found out that; acceptability was a crucial part in the academic performance of deaf pupils and those who are hard of hearing. Further it was revealed that policy guidelines provided a way of allowing invigilators to use signs during invigilation of the examination whenever a deaf candidate asked questions. The research also acknowledged that, interactions happened in unstructured times in the classroom when instructions were not occurring and apart from that, social interaction with peers also occurred during academic times. This study agreed with Kurth *et al.*, (2015) who indicated on the need of interactions among peers as a way of acceptability in terms of classroom participation. Therefore, it can be confirmed that interactions with peers usually appeared to be reciprocally enjoyable.

One participant noted that;

"These guidelines ensure that details of the nature of special needs of DHH candidates are submitted to the registration during. Registration stage, names of personnel to be appointed as sign language interpreters are submitted. SEN candidates are eligible to extra examination writing time."

Arising from the teachers' questionnaire the results revealed that the majority of teachers agreed of their positive relationship with DHH learners as categorized and sound.

Accommodation

In the same vein with objective one on accommodation, the study revealed that; the government had a policy indicating examination to be based on modified or alternative curriculum for learners with SEN, ECZ and school-based examinations for learners with DHH to be set in sign language. However, the policy does not address the real issue, except to address the need for DHH Learners because it allows learners to be given 25% of the examination time allocated. The study was in comparison with Zimba *et al.*, (2007) who also narrated that, Namibia had a disability policy that looked at marginalized groups, but not an education policy that focuses on education for learners with special education needs and disabilities.

This is substantiated by one participant who noted that;

"Well...To a larger extent yes, accommodation in this sense is making reasonable adjustments to suit the needs of individual learners. ECZ does address the needs of HI and VI by providing examination papers in braille, provision of extra time which is 25% of the total time of the examinations with emphasis that only qualified SEN teachers to invigilate, provision of colour coded packaging envelopes according to disabilities."

On the other the hand, the study also reviewed that the curriculum does not address the real issues in the assessment of hard of hearing and deaf learners bearing in mind the curriculum which is not inclusive. The challenges with the curriculum translate to the challenges in the assessment. Most learning and teaching material used to teacher from the syllabus are not user friendly with learner with hard of hearing or deaf hence not in tandem with assessment. Accordingly, accommodation states that the assessment should be changed to suit the needs of the learner to be assessed. That is reducing the restrictions the child may have assessment. On the part of policy, the education is appropriate though there is need to have more practical subject combinations for deaf and hard of hearing learners as opposed to theoretical subjects.

The study further noted that, although teachers were confident in terms of the personnel handling the DHH learners, there was need for them to have adequate and necessary qualification as well as in terms of facilities, teaching and learning resources including assistive devices. The study on accommodation was able to review that, there were simple actions teachers could take to ensure every student has a meaningful learning experience. Accommodations for deaf or hard of hearing learners were easy to implement and beneficial for the whole class but it was not the case arising from the study.

One participant verbatim elaborated that;

"Visual aids like closed captions, graphics, and transcripts would allow hard of hearing learners to participate more fully and encourage an inclusive learning environment for the entire class but our school is handicapped in that area."

From the researcher's point of view, some ways that can accommodate deaf and hard of hearing learners and create a more inclusive learning environment would be a common practice of choosing a dedicated learner to take and share notes on what is said in class. If this is not an option, or if you want to provide a more accurate account of a lesson, recording audio could be of effect. This could be done simply by using a voice recorder on phone or laptop. Unfortunately, that observation was not the case during the research, from the classroom observation, it was discovered that most teachers were unable to use such a method. This concludes that classroom participation by grade 9 pupils of deaf and hard of hearing was below par because of such outcomes.

In addition to that, when class is over, audio transcription can provide a richer experience for learners without taking on too much extra work. Notes from another learner would likely be biased toward what they feel is essential. Providing a transcript to students with hearing impairments will ensure they receive the same information other students do. Further, the study found out that most teachers were not creating visual aids to go along with the lessons which did not only limit deaf and hard of hearing students to participate, but also not engage all of them more. The visual aids were to be important components because they could be presentations with relevant pictures and diagrams or even videos that would promote active classroom participation.

This observation was in line with a study conducted by El-Zraigat (2011) which showed that the students who are deaf and hard of hearing lack adequate reading skills in general. If closed captions were to be allowed, deaf or hard of hearing learners were going to understand the video and fully participate in their learning process. This would result in ensuring a more equitable learning experience for all learners. The researcher was quick to note that the fact some schools were unable to consider using a whiteboard or projector to take notes on the class discussion in real-time was a hindrance to classroom accommodation. This is because, if the equipment were to be used in classrooms, deaf and hard of hearing learners would follow along with the discussion and give them more opportunities to ask questions, provide input, and participate with the class.

The study showed that sign language interpreters were not available in the classrooms during lesson. One of the reasons was that the schools had few teachers with a skill to interpret. The purpose of sign language interpreters is to ensure learners with hearing impairments keep up with precisely what is being said as it is being said. If an interpreter joins a class during a lesson, direct attention to the deaf or hard of hearing

learners when addressing them, not the interpreter. The interpreter would simply use sign language to communicate speech from the teacher and also sign language from the learners into special for the teacher to get feedback from the pupils. The finding was in line with Ngulube and others (2020) who recommended the need for continuing professional development in sign language for teachers as raised by respondents since many teachers lacked necessary sign language skills necessary for their classroom teaching.

It was important to note that, the ability to hear should not be a requirement for an engaging learning experience. As teachers, there were various accommodations to implement and create a more accessible learning environment for learners who were deaf or hard of hearing. If the school does not have the resources for an interpreter, there were many affordable tools to integrate into lesson plans, like transcripts and captions. Fostering an inclusive classroom setting would help better connect with all of learners in the classroom. Arising from the study, the researcher can deduce that in terms of accommodation the policy emphasizes that quality education that is equitable and accessible is the right to every Zambian child irrespective of disability gender, religion, ethnic origin or any other discriminatory characteristics. However, the policy addresses real issues on paper but practically there are a lot of gaps because issues of assessment are still a dream in our country specially making them suitable for DHH especially that they have their own way of writing the language. This can be seen from curriculum, indicating that, Zambian sign language is not included in the national curriculum (MESVTEE, 2013). The fact that sign language is not formally recognized and not actively used in many schools and this limits classroom participation.

Adaptation

Adaptation was one of the determinants for classroom participation for learners with DHH. Overall, the findings revealed that while a substantial number of teachers were knowledgeable about the cooperative learning method and can apply it, there was a significant portion that either struggled with application or lacked understanding despite being aware of the method. It was further noted that some teachers may not have the knowledge about deafness and the characteristics of the deaf and hard of hearing students. In addition, some teachers lacked skills of how to structure classroom activities that facilitated the participation and interaction of deaf and hard of hearing students in the general education classroom. For example, some teachers had a lack of collaboration skills, which influenced their collaboration with the teacher of students with hearing impairment, as well as with the interpreter if at all one was available.

One participant echoed that;

"Through CPDs, meetings are held to discuss the best practices in lesson deliveries. As a school we have put a lot of emphasis on the use of teaching aids in every lesson, encouraged the teacher to use ICT during lesson delivery, tours and role plays. It to our attention that deaf and hard of learning learner learners better through seeing and touching."

Adapting the curriculum for deaf and hard of hearing learners was crucial for promoting an inclusive and effective learning environment. From the classroom observation conducted, one school was seen to be using visual aids and resources during the lesson. This was seen after the baseline coaching was conducted. It was vital to note that, use of visuals would incorporate diagrams, charts, and videos with subtitles to support learning. On the other hand, classroom environment in terms of seating arrangements was observed in a manner that promoted participation. Seats were arranged in a semi-circle so all learners could see each other and the teacher. Further, lighting was adequate and ensured the classrooms were well-lit to facilitate lip-reading and visual cues. However, teaching methods were noted with unclear communication. This was during classroom observation; some participants were unable to face the students when teaching in order to ensure attention during the lessons. Overall, the findings from the teachers' questionnaire revealed that while a substantial number of teachers were knowledgeable about the cooperative learning method and applied it, there was a significant portion that either struggled with application or lacks understanding despite being aware of the method.

One participant said that;

"We try to engage the trained teacher in special education to guide other teachers on how to handle DHH."

Nonetheless, despite that negative observed, when it came to curriculum content, some schools had materials adapted by modifying textbooks and other materials to include more visual content and less reliance on auditory information, it also included content that reflected the experiences and culture of deaf

individuals, collaboration and support was seen by working with special education teachers, interpreters, and audiologists to create a supportive learning environment although on a smaller scale. Continuing professional development sessions where teachers would receive training on how to effectively teach deaf and hard of hearing learning within their schools were being conducted.

Further, the study showed that inclusive practices such as peer support were eminent. Group work was encouraged and peer tutoring to foster an inclusive classroom community was also encouraged. The researcher concluded that, understanding the constructing participation and interaction context and inclusion of deaf and hard of hearing learners influenced the teaching and learning in the classroom and would enhance academic performance of learners. Analysis of observational data was important to this effect in order to understand the barriers that limit the face-to-face interaction between teachers and deaf and hard of hearing learners, as well as to understand the participation structure of such learners in specialised classroom setting. This was in line with Heath and Street (2008) who revealed that participation for DHH learners was limited to the individualized "special" curriculum in whatever form and may not include any participation in the general curriculum. This was also in line with findings by Kurth and colleagues (2015) who revealed that curricular adaptations were positively associated with higher academic engagement and on-task behaviors. Implementing these strategies would significantly enhance the learning experience for deaf and hard of hearing learners, ensuring they had equal opportunities to participate in class.

Accessibility

Arising from accessibility of learner's participation, the study assessed availability of teaching and learning resources (TLRs) through a series of statements to which respondents indicated their level of agreement or disagreement to the statements gave the overall picture emerged has a negative one, the results indicated that the majority of teachers perceive a shortage of adequate teaching resources at their schools, particularly specialized materials for DHH learners, which hampered their teaching effectiveness. Further, the finding highlighted a considerable obstacle in providing the necessary materials for effective teaching of DHH learners. It was noted that the lack of TLRs negatively influenced the teaching of DHH learners. The study also revealed that, in some schools a built environment was created ensuring that the classroom layout and physical features were accessible, access to information by providing visual presentations and learning materials. In the study, certain nuggets expected to provide accessibility in schools were not available such as; language access, using sign language interpreters or other communication tools, technology, using assistive technologies like captioning or amplification, education and training, ensuring that teachers and staff were aware of and could support deaf or hard of hearing learners. This gave a negative response with regard to classroom participation for deaf and hard of hearing.

One participant echoed that;

"Challenges of teachers for DHH learners were language barrier, inadequate of sign language usage. Negative attitude towards the language and the users especially that some schools have different disabilities. Lack of motivation from the school management towards enhancement of the teaching of DHH."

The outcome was not in line with White (2011) who affirmed that, as students recognize, they were not fitting in with their peers, the isolation increases because learning and applying social interaction was not only important for students while they were in school, but was also critical for life after their formal education career.

Classroom Engagement

The research discovered that, the classroom participation gap for deaf or hard of hearing (DHH) pupils was influenced by various factors such as barriers to participation.

One participant noticed that;

"At our school DHH students encounter barriers related to communication, social interaction, and understanding classroom content."

The study also found out that, language fluency, content knowledge, learning styles, and social maturity which made them spend less than 40% of their school day in general education classrooms, while others spend more than 80% of their day. It was further observed that there were several effective teaching

methods and approaches to support deaf and hard of hearing learners in classroom participation which were not put in place. Approaches such as use of handouts, visual aids, and captioned videos to supplement spoken information. Clear line of sight to ensure learners see the teacher's face and any visual aids clearly to help with lip-reading and understanding facial expressions. Utilization of hearing aids, FM systems, and realtime captioning services to enhance auditory information were not implemented and yet these are aspects that would enhance effective performance among grade nine learners. It was further discovered that there was no reduction from background noise to minimize background noise in order to help learners focus on the primary speaker.

One participant explained that;

"Language barrier between teachers and pupils caused low performance among DHH learners. Low teaching staffing levels for DHH learners. Inadequate specialized subject teachers, inadequate specialized rooms. Lack of creative among teachers. Inability to adapt concept. Inadequate support devices."

However, the study found a positive aspect on classroom engagement were interactive and inclusive activities were effective by the use peer tutoring, group work, and interactive activities to engage learners and promote participation. In addition to that, regular check-ins: frequently check in with learners to ensure they understand the material and feel included was promoted by class teacher. Some schools were also seen to adapt flexible teaching methods styles and materials based on individual learner's requirements and inclinations. Teaching experience and classroom support was assessed through a series of statements to which respondents indicated their level of agreement and disagreement to the statements. Despite the perception in the hierarchy from the questionnaires, an overwhelming majority of teachers allowed their learners to freely interact and help each other, indicating a supportive and collaborative classroom environment. In overall the researcher can conclude that the strategies created a more inclusive and supportive learning environment for deaf and hard of hearing learners of which engagement was observed and positive. In summary, understanding the participation gap involves considering communication barriers, inclusion rates, and effective strategies to enhance DHH students' engagement in classrooms.

Conclusion

In conclusion, the researcher can say that, learners who are deaf and hard of hearing just like other exceptional learners' face challenges in their education especially when it comes to classroom participation. The reality of classroom participation barriers for learners who are deaf and hard of hearing that have affected their educational goals and academic performances would be communication barriers, lack of sign language interpreters and limited vocabulary among deaf learners, lack of adequate knowledge and skills to teach learners with hearing impairments by some teachers and availability of unqualified and/or unskilled teachers, insufficient resources both human and material, unsuitable arrangement and the use of unbefitting teaching methods. Communication has been cited as one of the barriers to the education of the deaf. Communication is any verbal or nonverbal behavior, intentional or unintentional that is likely to influence behaviour, ideas, or attitudes of a particular person or people. For learners with hearing impairments, nonverbal communication is often used, but one has to interpret the word signs and body language for communication barrier negatively affects classroom participation by learners who are deaf or hard of hearing and hence affects performance.

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