European Journal of Special Education Research
ISSN: 2501 - 2428
ISSN-L: 2501 - 2428
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejse.v12i4.6683 Volume 12 | Issue 4 | 2026

AN EVALUATION OF SIGN LANGUAGE AS A MEDIUM OF INSTRUCTION FOR LEARNERS WITH HEARING IMPAIRMENTS IN SELECTED PRIMARY SCHOOLS OF LUSAKA, ZAMBIA

Sarah Bwalya[1],
Georgina Ndopu Nambula[2],
Humphrey Chinyemba Kandimba[3i],
Veronica Namasiku Kalima[1],
Carol Mubiana Mubisi[1],
Maureen Mwalungali[1]
[1]Senior Lecturer,
Department of Education,
Zambia Institute of Special Education (ZAMISE),
Zambia
[2]College Principal,
Department of Practical Skills,
Zambia Institute of Special Education (ZAMISE),
Zambia
[3]Dr, Senior Lecturer,
Department of Education,
Zambia Institute of Special Education (ZAMISE),
Zambia

Abstract:
This qualitative study evaluated the implementation of Sign Language as a medium of instruction for learners with hearing impairments in four selected primary schools in Lusaka, Zambia. Drawing on Vygotsky's Sociocultural Theory and Bruner's Cognitive Development Theory, the study explored how policy frameworks are understood and enacted, how Sign Language is actually used in classroom instruction, what challenges teachers and administrators face, and what interventions they propose. Data were collected through semi-structured interviews with 24 participants (deputy headteachers, senior teachers, INSET coordinators, and classroom teachers) and classroom observations across four special education units. Thematic analysis revealed four overarching themes corresponding to the research objectives: (1) universal policy awareness but no operational guidance or monitoring; (2) predominant use of Signed English and gesture rather than natural Sign Language, leading to fragmented learner comprehension and disengagement; (3) systemic resource deprivation including absence of syllabi, teaching

[i] Correspondence: email kandimbahumphrey@gmail.com

materials, and specialist teachers; and (4) teacher-proposed interventions including intensive ongoing training, structured materials, deaf mentors, and accountability systems. The study concludes that Zambia's progressive legal framework for Sign Language instruction exists in name only, with no discernible implementation strategy, monitoring mechanisms, or resource allocation. Four summarised recommendations are proposed: (1) mandate competency-based teacher training with exit examinations; (2) develop and distribute a standardized resource package; (3) deploy deaf mentors into every deaf education unit; and (4) establish a monitoring and support system with recognition incentives.

Keywords: sign language, hearing impairments, language of instruction, qualitative study, Lusaka, special education, policy implementation gap

1. Background

Sign Language is not a mere gesture system or a visual representation of spoken language; it is a complete, complex, visual-spatial language with its own distinct syntax, morphology, and grammar (Liddell, 2003; Stokoe, 2005). For learners with hearing impairments, access to a natural sign language from an early age is not merely beneficial it is foundational for cognitive development, language acquisition, literacy, and social-emotional wellbeing (Moores, 2001; Marschark & Spencer, 2003; Knoors & Marschark, 2018). When deaf children are denied consistent, fluent sign language input, they experience what linguists term "*language deprivation*," which has cascading negative effects on all domains of learning (Hall, 2017).

The Republic of Zambia has demonstrated international commitment to inclusive education through its ratification of the United Nations Convention on the Rights of Persons with Disabilities (CRPD, 2006), which explicitly recognizes Sign Language as a fundamental right and calls for its promotion in educational settings (Article 24). Domestically, the Zambian Education Act No. 23 of 2011 provides a seemingly clear mandate: "*An educational institution shall use Sign Language as a medium of instruction to any learner who uses Sign Language as the learner's first language or who has a special need for Sign Language*" (Republic of Zambia, 2011, Section 23). Furthermore, the National Literacy Framework (MESVTEE, 2013) and the Language of Instruction Country Profile: Zambia (UNESCO, 2021) reiterate the government's commitment to integrating Sign Language into the curriculum for learners with hearing impairments.

However, policy mandates do not automatically translate into classroom practice. A growing body of anecdotal evidence and preliminary reports suggests that despite these legal provisions, the actual implementation of Sign Language as a medium of instruction in Zambian primary schools remains inconsistent, under-resourced, and poorly monitored (Sinyangwe, 2022; Chibambo & Chakulimba, 2020). Teachers may lack fluency, teaching materials are scarce or nonexistent, and no standardized curriculum for

Sign Language instruction exists at the national level. The consequence, as educators themselves report, is that learners with hearing impairments continue to leave primary school with low literacy, poor numeracy, and limited communicative competence.

This study, therefore, undertakes a qualitative evaluation of the gap between policy and practice. Rather than measuring outcomes or claiming causality, the study seeks to understand the lived experiences of educators who are tasked with implementing Sign Language instruction. By centering the voices of educators through in-depth interviews and classroom observations, this study provides rich, contextualized evidence that can inform policy reform and teacher training.

2. Problem Statement

Despite the existence of a clear legal mandate (Education Act No. 23 of 2011) and supportive policy frameworks (National Literacy Framework, 2013; Language of Instruction Country Profile, 2021) requiring the use of Sign Language as a medium of instruction for learners with hearing impairments in Zambian primary schools, a significant implementation gap persists. Evidence from preliminary reports, educator testimony, and limited empirical studies indicates that many teachers lack competency in Sign Language, structured teaching materials are virtually absent, and no standardized curriculum or monitoring system exists to ensure compliance (Sinyangwe, 2022; Chibambo & Chakulimba, 2020). This implementation failure is not a minor administrative issue; it has profound consequences for learners. Without consistent, fluent Sign Language input, learners with hearing impairments cannot access the curriculum, develop age-appropriate literacy, or participate fully in classroom discourse. The result is a cycle of academic underachievement, limited life opportunities, and continued marginalization.

However, while the broad contours of this problem are known, there is a critical gap in qualitative, in-depth research that documents precisely how this implementation failure manifests in everyday classroom practice. Most existing work on Sign Language in Zambia has been policy-oriented, advocacy-focused, or limited to quantitative surveys that measure awareness but not experience. Missing are the voices of teachers and administrators who struggle daily to implement a policy without resources, training, or support. Missing also are detailed observational accounts of what Sign Language instruction actually looks like in Zambian classrooms, whether natural Sign Language, Signed English, or mere gesture is being used, and with what effect on learners. This study addresses that gap by conducting a qualitative evaluation in four selected primary schools in Lusaka.

3. Research Objectives

1) To examine the policy framework governing Sign Language as a medium of instruction for learners with hearing impairments in selected Lusaka primary schools.
2) To explore current classroom practices in the use of Sign Language as a medium of instruction, including teacher competency, consistency of use, and learner engagement.
3) To identify the key challenges affecting Sign Language implementation in selected schools.
4) To identify teacher-proposed interventions for improving Sign Language as a medium of instruction in selected primary schools.

4. Theoretical Framework

This study is grounded in two complementary theories of learning and development, both of which position language as the central mediator of cognitive growth.

4.1 Vygotsky's Sociocultural Theory

Vygotsky (1978) argued that all higher-order cognitive functions originate in social interaction. Learning occurs within the Zone of Proximal Development (ZPD), the gap between what a learner can do independently and what they can achieve with guidance from a more knowledgeable other (teacher, peer, or adult). The mechanism for this guided learning is scaffolding, where the expert provides structured support that is gradually withdrawn as the learner internalizes new skills and concepts. This study applies Vygotsky's framework to evaluate whether teachers of learners with hearing impairments function as "*more knowledgeable others*" in Sign Language. If teachers lack fluency, the ZPD cannot be accessed, and learners cannot receive the linguistic scaffolding needed to move from concrete to abstract thinking. The study assesses whether classrooms in Lusaka experience communicative breakdown or cognitive development.

4.2 Bruner's Cognitive Development Theory

Bruner (1986) proposed three modes of representation: enactive (action and manipulation), iconic (visual images and diagrams), and symbolic (language and abstract symbols). Effective instruction moves learners fluidly through these modes in a spiral curriculum, where concepts are revisited at increasing levels of complexity over time. This study applies Bruner's framework to evaluate whether Sign Language instruction in Lusaka follows a coherent, developmental sequence. Effective instruction requires grounding symbolic Sign Language in enactive and iconic experiences (visual aids,

objects, role-play). The study assesses whether instruction is systematic and cumulative or fragmented, inconsistent, and non-cumulative.

Together, the two theories provide the analytical lens for this study. A fully implemented Sign Language classroom would feature:

1) a fluent teacher who actively scaffolds learner responses (Vygotsky);
2) consistent use of Sign Language for all instructional purposes;
3) a spiral curriculum that builds linguistic concepts over time (Bruner); and
4) integration of enactive and iconic modes to support symbolic development (Bruner).

The absence of any element constitutes an implementation failure with predictable negative consequences for learner outcomes.

5. Literature Review

This literature review is organized according to the four research objectives. Each section reviews relevant international and African literature, identifies specific gaps relating to Zambia, and articulates how this study addresses those gaps.

5.1 Policy Frameworks for Sign Language Instruction

The global policy landscape for Sign Language in education has been shaped decisively by the United Nations Convention on the Rights of Persons with Disabilities (CRPD, 2006). Article 24 of the CRPD requires states parties to "*facilitate the learning of sign language and the promotion of the linguistic identity of the deaf community*" (UN, 2006). Importantly, the CRPD recognizes Sign Language as a language in its own right, not as an accommodation or a therapy. This recognition has been further reinforced by the World Federation of the Deaf's position statement that deaf children have a right to be educated in a natural sign language from the earliest possible age (WFD, 2016).

Many countries have translated this international obligation into domestic law. For example, Sweden's 1981 Sign Language Bill recognized Swedish Sign Language as the first language of deaf children and mandated its use in education (Svartholm, 2010). New Zealand's 2006 New Zealand Sign Language Act similarly gives deaf students the right to be taught in Sign Language (McKee & Manning, 2015). However, even in these progressive contexts, implementation gaps exist. Research in Kenya by Adoyo (2015) found that despite constitutional recognition of Kenyan Sign Language, most teachers in deaf schools lacked fluency, and Signed English (an artificial system) remained dominant. Similarly, in South Africa, research by Storbeck and Magongwa (2018) documented a persistent gap between South African Sign Language policy and classroom practice, with teacher training programs failing to produce fluent signers.

Zambia's policy framework mirrors international commitments. The Education Act No. 23 of 2011 explicitly mandates Sign Language as a medium of instruction for learners who use it as their first language or have a special need for it (Republic of

Zambia, 2011). The National Literacy Framework (2013) recognizes literacy as foundational to all learning and includes Sign Language as a legitimate medium for achieving literacy among learners with hearing impairments (MESVTEE, 2013). The Zambia Education Curriculum Framework (2013) stipulates that teacher education programs must include Sign Language training to enhance pedagogical content knowledge, and it allocates 6 hours and 30 minutes per week to Literacy and Languages, including for learners with hearing impairments (CDC, 2013). Most recently, the Language of Instruction Country Profile: Zambia (UNESCO, 2021) reaffirmed the government's commitment to using learners' home languages, including Sign Language as the primary medium of instruction in early grades.

Despite this robust policy framework, there is a striking absence of empirical research examining how these policies are understood, interpreted, or enacted by educators on the ground. Most existing work on Sign Language in Zambia is either grey literature (NGO reports, advocacy briefs) or policy commentary. The few academic studies, such as Sinyangwe (2022) and Chibambo & Chakulimba (2020), are quantitative surveys that measure awareness of the policy but not its implementation. What is missing is qualitative research that explores educators' lived experiences with the policy, whether they feel supported or abandoned, whether they have received any guidance or training, and whether any monitoring or accountability mechanisms exist (Kandimba, Mandyata, and Simalalo, 2023). This study addresses that gap by conducting in-depth interviews with headteachers, senior teachers, and INSET coordinators to understand how the policy is (or is not) operationalized at the school level.

5.2 Current Classroom Practices in Sign Language Instruction

A substantial body of research establishes the superiority of natural Sign Language over artificial systems like Signed English or Total Communication for the linguistic and cognitive development of deaf learners. Natural sign languages (e.g., American Sign Language, Zambian Sign Language) have their own grammatical structures, including spatial syntax, non-manual markers (facial expressions, head movements), and classifier systems that allow for rich, nuanced expression (Liddell, 2003; Pfau, Steinbach & Woll, 2012). Research by Hoffmeister (2000) and Mayberry (2007) found that deaf children who were exposed to natural sign language from an early age demonstrated stronger literacy skills in written English (or another spoken language) than deaf children who were taught using Signed English or oral methods. This counterintuitive finding that learning a natural sign language first improves reading in a spoken language is explained by the concept of linguistic transfer: a strong first language (any language, signed or spoken) provides the cognitive foundation for second language literacy (Cummins, 2000).

In contrast, Signed English, which artificially imposes English word order onto signs, is not a natural language. It lacks the spatial grammar, classifiers, and non-manual markers that make natural sign language efficient and expressive. Research by Kluwin and Goncher (1996) found that deaf students exposed to Signed English showed delayed

language development compared to those exposed to natural sign language. Liddell (2003) argues that Signed English is cognitively burdensome because it requires the user to simultaneously process two incompatible linguistic systems.

In Africa, research on natural sign languages is growing but remains limited. Dube and Nkomo (2021) conducted a qualitative study in Zimbabwe and found that the use of indigenous Sign Languages (rather than imported Signed English) was associated with greater learner engagement, faster vocabulary acquisition, and improved classroom participation. They argue that the continued use of Signed English in many African deaf schools is a form of linguistic colonialism that denies deaf learners access to a language that is fully accessible to their visual-spatial cognitive strengths. Similarly, research in Ghana by Okyere and Addo (2019) found that teachers who were fluent in Ghanaian Sign Language (a natural sign language) reported higher learner comprehension and fewer classroom management problems than teachers who relied on Signed English or gesture. Critically, no published research has examined what form of Sign Language is actually used in Zambian classrooms. It is unknown whether teachers use natural Zambian Sign Language (which has its own documented grammar and vocabulary, though standardization is incomplete), Signed English (which would impose English syntax onto signs), or mere gesture (which lacks systematic grammar altogether). It is also unknown whether teachers are aware of the differences between these systems or the research evidence supporting natural sign language. This study addresses that gap through direct classroom observation, systematically recording the nature of Sign Language use, and through interviews asking teachers to describe their own understanding and practice.

5.3 Challenges in Implementing Sign Language Instruction

The most consistently documented challenge to effective Sign Language instruction globally is the lack of teacher competency. Napier, Leigh, and Nann (2017) surveyed teacher preparation programs across 15 countries and found that the majority offered only one or two introductory courses in Sign Language, insufficient to develop fluency. Swanwick and Foster (2019) conducted a qualitative study in the United Kingdom and found that even teachers who had completed formal Sign Language training reported low confidence in using Sign Language to teach academic content (as opposed to basic communication). They argue that fluency in conversational Sign Language is not the same as fluency in academic Sign Language—the latter requires specialized vocabulary for mathematics, science, and abstract concepts, as well as pedagogical techniques for explaining complex ideas visually.

In Africa, the situation is more acute. Adoyo (2015) in Kenya found that fewer than 20% of teachers in deaf schools had achieved intermediate or advanced proficiency in Kenyan Sign Language. Most had completed only a brief introductory course. Similar findings are reported in Uganda by Nyst (2015) and in Tanzania by Tsimplaki (2018). The consequence, as these studies document, is that teachers rely on gesture, incomplete

signing, or written language (which is not fully accessible to many deaf learners), leading to communication breakdowns and low academic achievement.

A second major challenge is the absence of structured teaching materials. Marschark and Harris (2020) conducted a global review of deaf education resources and found that even in high-income countries, textbooks, workbooks, and visual aids specifically designed for Sign Language instruction are scarce. In low-income countries, they are virtually nonexistent. Hyde, Punch, and Komesaroff (2010) documented that in many Southeast Asian deaf schools, teachers are forced to create their own materials from scratch, often with no training in materials development, resulting in inconsistent quality and lack of curriculum alignment.

In Zambia, Chibambo and Chakulimba (2020) conducted a quantitative survey of five special education schools and found that 80% of teachers reported having no Sign Language textbook, 90% reported no standardized syllabus, and 100% reported no access to digital or multimedia Sign Language resources. However, their study was limited to closed-ended questions and did not explore how teachers cope with this scarcity or what specific materials they most urgently need.

A third challenge is the absence of systemic support mechanisms (Kandimba, Kalimaposo, Mandyata, Bwalya, Kabwe, & Kalunga, 2025). Even when policies exist and initial training is provided, without ongoing professional development, coaching, and monitoring, skills degrade and implementation lapses (Ladd & Goswell, 2020). International best practice suggests that effective Sign Language implementation requires:

1) pre-service training leading to fluency;
2) regular in-service workshops and refresher courses;
3) school-based coaching and peer mentoring;
4) access to deaf mentors or native signers; and (5) accountability mechanisms that monitor classroom Sign Language use (Napier et al., 2017).

No research has examined whether any of these support mechanisms exist in Zambia.

While the broad challenges of teacher training gaps, material scarcity, and weak support systems are known from survey research, there is a critical gap in a qualitative, in-depth understanding of how these challenges manifest in daily practice. What specific classroom situations become impossible or ineffective because of low teacher fluency? How do teachers make decisions about what to sign and what to omit? What coping strategies do they develop, and are these strategies educationally sound? How do administrators perceive their role in supporting or monitoring Sign Language use? This study addresses these gaps by conducting extended interviews and observations that capture the texture and detail of educators' daily struggles.

5.4 Teacher-Proposed Interventions for Improving Sign Language Instruction

Research on deaf education has identified several evidence-based interventions that improve Sign Language instruction. Napier, Leigh, and Nann (2017) synthesized findings from 15 countries and identified five key intervention areas:

1) pre-service teacher training leading to fluency,
2) in-service professional development with coaching,
3) development of standardized curricula and materials,
4) deployment of deaf mentors and native signers, and
5) accountability and monitoring systems.

Swanwick and Foster (2019) found that teachers themselves prioritize practical, classroom-based training over theoretical courses, and they value peer observation and feedback loops.

In low-resource contexts, Ladd and Goswell (2020) advocate for community-based teacher training that embeds preparation within deaf communities rather than separate from them. They found that teachers trained in partnership with deaf adults demonstrated higher fluency and more positive attitudes toward Sign Language than those trained exclusively in hearing-led institutions. Similarly, Adoyo (2015) documented successful interventions in Kenya, including the employment of deaf teaching assistants, the development of locally produced Sign Language textbooks, and the establishment of school-based Sign Language clubs that create immersive environments for both teachers and learners.

Notably absent from the literature are qualitative studies that ask teachers directly what interventions they believe would be most effective in their specific contexts. Most intervention research is imposed from above, designed by policymakers or researchers without consulting the educators who must implement it. A small but growing body of participatory research (e.g., Okyere & Addo, 2019, in Ghana) suggests that teachers prioritize:

1) access to fluent deaf mentors who can model correct signing;
2) structured, grade-level appropriate Sign Language textbooks;
3) release time for professional development without loss of pay; and
4) recognition and incentives for Sign Language proficiency.

No published research has explored what interventions Zambian teachers themselves propose for improving Sign Language instruction. While Chibambo and Chakulimba (2020) surveyed resource needs, they did not ask teachers to propose solutions beyond material provision. Sinyangwe (2022) called for "more training" but did not specify the form, duration, or content of that training from the teacher's perspective. This study addresses that gap by asking teachers and administrators directly: What interventions would actually help you? Their answers, presented in the findings below, provide grounded, context-specific recommendations that differ in important ways from top-down policy prescriptions.

6. Methodology

This qualitative study employed a multiple case study design (Yin, 2018) across four purposively selected primary schools in Lusaka, Zambia two dedicated special schools and two mainstream schools with special education units to achieve an in-depth, contextualized understanding of Sign Language instruction as experienced by educators, with data collected from 24 participants (4 deputy headteachers, 4 senior teachers, 4 INSET coordinators, and 12 classroom teachers) selected through purposive sampling based on their direct responsibility for or regular interaction with Sign Language instruction, a sample size determined by data saturation (Guest, Bunce, & Johnson, 2006). Data were gathered using semi-structured interviews organized around the four research objectives (policy understanding, classroom practice, challenges, and proposed interventions) with sample questions including inquiries about legal requirements, typical lessons, coping strategies, and needed support; each 45–75-minute interview was conducted in English (with translation as needed) and audio-recorded with consent. Additionally, each classroom teacher was observed across three separate lessons (36 total observations) using a non-participant protocol focused on the form of Sign Language used (natural, Signed English, or gesture), consistency of use, learner engagement, and scaffolding behaviors, with detailed field notes recorded by a fluent Sign Language user. Data analysis followed Braun and Clarke's (2006) six-phase thematic framework familiarization, generating initial codes (e.g., "policy awareness," "Signed English use," "need for deaf mentors") using NVivo 12, searching for and reviewing themes, defining and naming themes (e.g., "systematic resource deprivation"), and writing the report organized by research objective and theme with verbatim quotes and observational vignettes. Trustworthiness was ensured through credibility (prolonged engagement, triangulation, member checking), transferability (thick description), dependability (audit trail), and confirmability (reflexive journaling) (Lincoln & Guba, 1985). Ethical approval was obtained from the University of Zambia's Humanities and Social Sciences Research Ethics Committee, along with permission from the Lusaka District Education Board and each participating school; all participants provided written informed consent with assurances of confidentiality (pseudonyms for all individuals and schools), anonymity, the right to withdraw without penalty, and explicit guarantees that responses would not be shared with administrators or ministry officials.

7. Presentation of Findings

7.1. Policy Understanding and Implementation

Theme 1.1: Universal Awareness but Superficial Understanding

All 24 participants were aware that Sign Language is legally mandated as a medium of instruction for learners with hearing impairments. However, when probed about specific

policy details, most could only recite broad statements without concrete knowledge of implementation requirements.

A deputy headteacher (School A, Female) stated:

"Yes, we know the law says we must use Sign Language. It is from the Education Act. But the law, it does not tell us how. It says 'shall use', but no one comes to check if we are using. No one gives us materials or training. So we know the law exists, but it is like a paper, it sits there."

An INSET coordinator (School C, Male) expressed similar frustration:

"I attended a workshop one time where they told us about the National Literacy Framework and that Sign Language is included. But that was in 2018. Since then, nothing. No follow-up, no new workshops, no materials. We have the policy but not the practice."

The thematic analysis revealed that participants distinguished between formal policy awareness (knowing that a law or framework exists) and operational policy knowledge (understanding specific implementation steps, monitoring mechanisms, or accountability structures). All participants demonstrated formal awareness, but none could describe any operational knowledge.

Theme 1.2: Complete Absence of Monitoring or Accountability

No participant could identify any monitoring mechanism for Sign Language implementation. When asked whether anyone from the Ministry of Education, District Education Board, or school administration had ever observed their Sign Language use or evaluated its quality, responses were uniformly negative.

A senior teacher (School B, Female) explained:

"The headteacher comes to observe lessons sometimes, but they do not know Sign Language themselves. So, they look at classroom management, learner behavior, lesson plan, but they cannot judge if my signing is correct or not. There is no one who checks that."

A classroom teacher (School D, Male) added:

"I have been teaching here for 12 years. No one, not once, has come from the Ministry to see how we teach Sign Language. They ask for reports on paper: how many learners, what grades, and any problems. But they never come to see."

This absence of monitoring was described by participants as creating a situation where there was no incentive to improve Sign Language skills or to use Sign Language consistently. As one teacher stated candidly:

"If no one is checking, and there is no consequence for using poor Sign Language, why would I spend my own money and time to get better? I have many other pressures."

Theme 1.3: Policy as Moral Justification Rather Than Operational Guide

Several participants used the policy mandate not as a guide for practice but as a justification for requesting resources a strategy that had been largely unsuccessful.

A deputy headteacher (School C, Female) described:

"When I write to the district asking for Sign Language books or training, I always quote the Education Act. I say, 'The law says we must use Sign Language, so please give us resources to follow the law.' But the answer is always the same: no money. So, the policy helps me to argue, but it does not bring resources."

This finding suggests that the policy functions rhetorically rather than operationally—it is cited in advocacy and requests but does not translate into actionable implementation steps.

7.2 Current Classroom Practices in Sign Language Use

Theme 2.1: Predominance of Signed English and Gesture, Not Natural Sign Language

Classroom observations revealed that no teacher used natural Zambian Sign Language consistently throughout a lesson. Instead, three patterns dominated:

1) **Signed English (observed in 22 of 36 lessons):** Teachers produced signs in strict English word order, omitted non-manual markers (facial expressions, head tilts, body shifts), and did not use spatial syntax or classifiers. For example, a teacher signing "The cat is under the table" produced signs for each word sequentially: "CAT" + "IS" + "UNDER" + "TABLE," rather than using spatial layout to show the cat's position relative to the table (a feature of natural sign language).
2) **Gesture and home signs (observed in 10 of 36 lessons):** Teachers used idiosyncratic gestures that were not part of any standardized sign language system. These gestures varied from teacher to teacher and even from lesson to lesson, creating confusion for learners.
3) **Mixed systems (observed in 4 of 36 lessons):** Teachers attempted natural Sign Language features (e.g., using space, classifiers) but inconsistently, reverting to Signed English or gesture when unsure.

One classroom teacher (School A, Female) acknowledged this pattern with evident frustration:

"I know that what I am signing is not true Sign Language. I learned some signs in training, but not the grammar. I do not know how to use space or my face to show meaning. So, I sign word by word, like English. But I know this is not correct. The learners look confused sometimes."

Observation Vignette 1 (School B):
The teacher is explaining a mathematics problem: "If you have 10 apples and you give away 3, how many do you have left?" She signs each word: "IF" + "YOU" + "HAVE" + "TEN" + "APPLE" + "AND" + "YOU" + "GIVE" + "AWAY" + "THREE" + "HOW" + "MANY" + "YOU" + "HAVE" + "LEFT?" The learners watch passively. When called upon, none can answer. The teacher repeats the same Signed English sequence. After three minutes, one learner tentatively signs "SEVEN" but with a questioning facial expression. The teacher nods and moves on. The observer notes that no learner asked for clarification or engaged in the problem-solving process.

Theme 2.2: Inconsistent and Fragmented Sign Language Use
Even when teachers used some signs, they did so inconsistently. Observations documented teachers switching between Sign Language, spoken English, and written notes unpredictably, often within a single lesson. This inconsistency was described by participants as confusing for learners.

A classroom teacher (School C, Male) explained:

"Sometimes I forget a sign. So, I will say the word aloud instead. But the learners with hearing impairments cannot hear me. So, then I try to write it on the board. But some learners have low literacy, so they cannot read. So, then I try to gesture. By the end, I have used four different ways, and I think the learners are more confused than when I started."

Observation Vignette 2 (School D):
"The teacher begins by speaking English while facing the whiteboard (back to learners). A learner with hearing impairment taps the desk. The teacher turns, looks flustered, and then attempts to sign the instruction "OPEN YOUR BOOK TO PAGE 12." She signs "OPEN" + "BOOK" + "PAGE" + "12" but does not use the sign for "YOUR" or directional verbs indicating possession. Several learners look at each other, clearly uncertain. One learner sign "PAGE WHAT?" The teacher repeats "12" with a finger-spelled "TWELVE." The lesson continues with this pattern of fragmented, inconsistent signing".

Theme 2.3: Learner Communicative Competence Varies Widely
Participants reported that learner Sign Language proficiency ranged from basic communicative competence (able to express needs and respond to simple questions) to almost no functional signing. This variation created significant teaching challenges.

A senior teacher (School B, Female) described:

"In my class of 15 learners, about 5 can sign well. They can ask questions, tell stories, explain their answers. But 5 can sign only a little greeting, basic needs. And 5 cannot sign at all. They came to us with no language. So, when I teach, who do I sign for? If I sign too

fast, the weak ones are lost. If I sign too slow, the strong ones are bored and misbehave. There is no curriculum for different levels."

An INSET coordinator (School D, Male) elaborated:

"The problem starts at home. Most parents do not sign. So, the child arrives at school at age 7 or 8 with no language at all, no spoken language, no sign language. Then we have to teach them a first language and teach them academic content at the same time. This is impossible without small classes and specialist teachers. But we have 20 learners and one teacher."

Observation data confirmed that learners with weaker Sign Language skills were frequently left behind. In 28 of 36 observed lessons, at least one learner was observed disengaging (looking away, fidgeting, putting their head on the desk) during instructional Sign Language. These disengagement behaviors were consistently directed at the teacher, not at peers, suggesting that the communication barrier was the cause.

7.3 Challenges in Implementing Sign Language Instruction

Theme 3.1: Severe Shortage of Qualified Teachers

The most frequently cited challenge was the lack of teachers with adequate Sign Language fluency. Of the 12 classroom teachers interviewed, 10 rated their own Sign Language skills as "basic" or "very basic," and none rated themselves as "fluent" or "advanced."

A classroom teacher (School A, Female) stated:

"I did a six-week Sign Language course at ZAMISE. Six weeks. That is nothing. I learned maybe 200 signs. But to teach a full lesson, you need thousands of signs. You need grammar. You need classifiers. You need to explain abstract ideas like 'justice' or 'democracy.' I cannot do that. So, I avoid those topics, or I use written English."

A deputy headteacher (School C, Male) expressed frustration with the hiring system:

"We advertise for a teacher for the deaf unit. Applicants come. They have certificates in special education. But when we ask them to sign a simple sentence, 'What did you do yesterday?' They cannot. Or they sign word by word, like English. But we have no choice. We must hire someone. There are no fluent teachers available."

The consequence of this shortage, as described by multiple participants, was that learners with hearing impairments were effectively being taught by teachers who could not fully communicate with them.

Theme 3.2: Systematic Resource Deprivation

The absence of teaching and learning materials was described by participants as a second major barrier. Specific resource gaps included syllabus, textbooks, visual aids and technology. Participants consistently reported the absence of a formal Sign Language syllabus. Only one participant across all four schools indicated having any syllabus document, while the remaining 23 participants stated they had no syllabus whatsoever. Without this foundational document, teachers described being unable to plan sequential, developmentally appropriate instruction. A senior teacher from School A explained:

> *"We need a Sign Language syllabus. Right now, I do not know what signs to teach in Grade 1 versus Grade 5. I just teach whatever I know. There is no progression."*

An INSET coordinator from School D added:

> *"We have no curriculum, no syllabus, no teacher guide. How can we teach effectively with nothing?"*

Participants reported a severe shortage of Sign Language textbooks. Only three participants (13%) stated they had any Sign Language literacy books, and none reported having grade-level or subject-specific textbooks for areas such as mathematics, science, or social studies. A classroom teacher from School B described the coping strategies this scarcity forced upon her:

> *"I make my own materials. I draw pictures. I cut out magazines. I write signs on paper and paste them on the wall. But this takes hours. I have no time. And I am not trained to make Sign Language materials. So, the quality is poor. I know it is poor. But what else can I do?"*

A classroom teacher from School C elaborated on the academic consequences:

> *"We need textbooks for mathematics, for science, for social studies. Show me the sign for 'photosynthesis.' Show me the sign for 'democracy.' Right now, I avoid these topics because I do not have the signs."*

While most participants (90%) reported having basic Sign Language charts such as the alphabet and numbers, none reported having charts for more advanced linguistic features. Specifically, participants stated that charts for grammar, classifiers, or subject-specific vocabulary were completely absent from their classrooms. A senior teacher from School C explained the limitation this created:

"The only Sign Language dictionary we have is organized by English words. It shows the sign for each English word. So naturally, I sign word by word, like English. I know that real Sign Language uses space and changes word order, but I was never taught that."

A deputy headteacher from School A noted that even the available charts were insufficient for learners beyond the most basic level:

"We have alphabet charts. We have number charts. But nothing on how to structure a sentence in Sign Language. Nothing for classifiers. Nothing for science vocabulary. The learners outgrow these charts after Grade 1, but we have nothing to replace them with."

No participant reported access to any form of assistive technology to support Sign Language instruction. This included tablets with Sign Language applications, video resources demonstrating correct signing, interactive software, or even basic recording equipment for self-assessment. An INSET coordinator from School B expressed frustration at this gap:

"Many of us have smartphones now. Why is there no app with Zambian Sign Language? An app where I can search a word and see a video of the sign. Even better, an app with lessons Day 1, Day 2, so I can learn on my own time. The government should partner with someone to make this. It would not cost that much."

A classroom teacher from School D added:

"We have no videos to show the learners. No software. No tablets. Nothing. In other countries, deaf learners use tablets with Sign Language apps. Here, we have paper and a chalkboard. That is all."

A classroom teacher (School B, Female) described the coping strategies required:

"I make my own materials. I draw pictures. I cut out magazines. I write signs on paper and paste them on the wall. But this takes hours. I have no time. And I am not trained to make Sign Language materials. So, the quality is poor. I know it is poor. But what else can I do?"

An INSET coordinator (School D, Male) added:

"We have been asking for Sign Language textbooks for five years. We write letters to the district, to the Ministry, to NGOs. Sometimes they send a few books, but they are for the wrong grade, or they use Signed English, or they are old and falling apart. We have no curriculum, no syllabus, no teacher guide. How can we teach effectively with nothing?"

Theme 3.3: Over-Reliance on Signed English and Its Negative Effects

Participants who had some awareness of the difference between natural Sign Language and Signed English acknowledged that their training and materials pushed them toward Signed English, which they suspected was less effective.

A senior teacher (School C, Female) explained:

> *"The only Sign Language dictionary we have is organized by English words. It shows the sign for each English word. So naturally, I sign word by word, like English. I know that real Sign Language uses space and changes word order, but I was never taught that. And the learners they try to sign back to me in English word order, but it is slow and unnatural."*

A classroom teacher (School A, Male) described a specific example of Signed English causing confusion:

> *"I was teaching the sentence 'The boy is running fast.' In Signed English, I signed each word: 'BOY' + 'IS' + 'RUNNING' + 'FAST.' The learners signed it back to me the same way. But later, when I asked them to show me 'the boy ran fast yesterday' (past tense), they added the sign 'YESTERDAY' but kept the same word order. They did not change the verb. They do not understand time markers because in Signed English, time is just a separate word, not part of the verb. They are confused about grammar."*

This quote illustrates a key finding: Signed English does not simply provide a different surface form; it actively teaches learners an incorrect grammatical system that then interferes with their ability to learn natural Sign Language later.

Theme 3.4: Lack of Professional Development and Support Systems

Participants uniformly reported that initial training (if received at all) was not followed by ongoing professional development, coaching, or peer support.

An INSET coordinator (School B, Female) stated:

> *"I am supposed to coordinate in-service training for teachers. But I have no budget, no materials, no external trainers. I try to organize peer learning teachers who know a few more signs, sharing with those who know fewer. But this is the blind leading the blind. We need real experts, people who are deaf and fluent, to come and train us. But that never happens."*

A deputy headteacher (School D, Male) added:

"We requested a deaf mentor a fluent signer who could come once a week and work with our teachers. The district said there is no money. So, we continue with our poor signing, and the learners continue to be confused."

Participants described a cycle of incompetence: teachers lack fluency → they produce poor Sign Language → learners acquire poor Sign Language → no one monitors or provides feedback → teachers have no incentive to improve → the cycle continues with the next cohort of learners.

7.4 Teacher-Proposed Interventions for Improving Sign Language Instruction

Theme 4.1: Intensive, Ongoing, Practical Teacher Training

Participants unanimously called for more training, but they specified that training must be intensive, ongoing, and practical, not the one-off workshops they had previously experienced.

A classroom teacher (School B, Female) stated:

"We need training that is not just one week. One week, you learn some signs, then you go back to school, and after one month, you have forgotten. We need training that continues—maybe every term, maybe every month. And it must be practical. We need to practice signing with each other, with deaf people, not just sit in a classroom and watch someone sign."

An INSET coordinator (School D, Male) added:

"The six-week course at ZAMISE is not enough. I did it. I learned maybe 300 signs. But to teach Grade 7 mathematics, I need thousands. And I need grammar. I need to know how to show 'if X happens, then Y will happen' using my face and my body. That is not taught. So, my proposal: make Sign Language training two years, not six weeks. And test us at the end. If you do not pass, you cannot teach deaf learners."

A deputy headteacher (School C, Female) emphasized the need for release time and incentives:

"Teachers are tired. They have large classes, many responsibilities. If you say 'come for training on Saturday,' they will not come. Or they will come but be exhausted. The Ministry must give schools money for substitutes so teachers can attend training during school hours. And there should be a salary incentive for teachers who become fluent. Otherwise, why would they do the extra work?"

Theme 4.2: Provision of Structured, Grade-Level Appropriate Materials

Participants were emphatic that training alone is insufficient without accompanying materials. They specified exactly what materials they need.

A senior teacher (School A, Female) described:

"We need a Sign Language syllabus. Right now, I do not know what signs to teach in Grade 1 versus Grade 5. I just teach whatever I know. There is no progression. So, first, give us a syllabus that says: by the end of Grade 1, learners should know 100 signs, including greetings, family, and classroom objects. By the end of Grade 2, add 150 signs, including time words and question forms. And so on. Without that, every teacher is guessing."

A classroom teacher (School C, Male) added:

"We need textbooks with pictures of signs. Not just the alphabet—that is for babies. We need textbooks for mathematics, for science, for social studies. Show me the sign for 'photosynthesis.' Show me the sign for 'democracy.' Show me how to sign a word problem in mathematics. Right now, I avoid these topics because I do not have the signs."

An INSET coordinator (School B, Female) proposed digital resources:

"Many of us have smartphones now. Why is there no app with Zambian Sign Language? An app where I can search a word and see a video of the sign. Even better, an app with lessons Day 1, Day 2—so I can learn on my own time. The government should partner with someone to make this. It would not cost that much."

Theme 4.3: Deaf Mentors and Native Signers in Schools

Participants consistently requested access to deaf mentors, fluent native signers who could model correct Sign Language and provide ongoing coaching.

A deputy headteacher (School A, Male) stated:

"What we need most is a deaf person in the school. A deaf adult who signs fluently. They could co-teach with our hearing teachers. They could show us what correct Sign Language looks like. They could work with the learners as a language model. Right now, our learners see only poor signing from us, their teachers. They learn poor signing. Then they grow up and become poor signers. The cycle continues. Breaking the cycle requires a fluent model."

A classroom teacher (School D, Female) elaborated:

"I learned more Sign Language in one hour with a deaf visitor than in six weeks of training. Because the deaf person signed naturally, with her face, her body, her space. I could see

how the language really works. But that visitor came once and never returned. We need a deaf person on staff, every day, in every school with a deaf unit."

A senior teacher (School B, Male) acknowledged financial constraints but proposed a creative solution:

"If the government cannot pay full salaries for deaf mentors, what about volunteers? What about deaf university students who need work experience? What about retired deaf adults? There are many deaf Zambians who are fluent. Bring them into the schools, even for a few hours a week. Something is better than nothing."

Theme 4.4: Monitoring, Accountability, and Recognition

Participants acknowledged that without accountability, even the best training and materials would have a limited impact. They proposed specific monitoring mechanisms. A deputy headteacher (School C, Female) stated:

"There must be consequences. Right now, no one checks my Sign Language. I could sign nonsense all day, and no one would know or care. So, the Ministry must send people to observe people who themselves are fluent in Sign Language. They should write a report. If a teacher is not competent, they should be required to take additional training. If, after training, they still cannot sign, they should not teach deaf learners."

A classroom teacher (School A, Male) added a more positive incentive:

"But also, recognition. If I become fluent in Sign Language, that should be recognized. A certificate. A higher salary grade. A title—'Sign Language Specialist Teacher.' Then teachers would want to improve. Right now, there is no reward for being good at Sign Language, and no punishment for being bad. So why would anyone try?"

An INSET coordinator (School D, Female) proposed peer observation and feedback:

"We do not need the Ministry to do everything. We can help each other. If each term, teachers observe each other's lessons and give feedback on Sign Language use, that would help. But we need training on how to give good feedback. And we need time in the schedule for this. Right now, we are too busy."

Theme 4.5: Parent and Community Involvement

Several participants noted that interventions cannot be limited to schools; parents and the broader community must also be engaged.

A senior teacher (School C, Female) explained:

"The child comes to school at age 7 with no language because the parents do not sign. So, we are already behind. We need to teach parents Sign Language. Offer evening classes. Send videos to their phones. If parents learn even basic signs, the child practices at home. Without that, the child only signs at school, for a few hours, with a teacher who is not fluent. That is not enough."

A deputy headteacher (School A, Male) added:

"We also need the community to see Sign Language as a real language. There is stigma. Some parents hide their deaf child because they are ashamed. Some people think Sign Language is just gestures, not a real language. The government should run awareness campaigns on television, on the radio, and in churches. Show that Sign Language is beautiful and valid. Change attitudes, and then parents will want to learn."

8. Discussion of Findings

8.1 The Policy-Implementation Chasm

The finding that educators are universally aware of the Sign Language mandate but have received no operational guidance, training, or monitoring confirms and extends the international literature on policy implementation gaps. Adoyo (2015) documented a similar phenomenon in Kenya, where the constitutional recognition of Kenyan Sign Language had not translated into classroom practice due to a lack of implementation frameworks. Storbeck and Magongwa (2018) found the same in South Africa, describing policies as "paper tigers" that lack enforcement mechanisms.

However, this study contributes a new insight: Zambian educators have learned to use the policy rhetorically (to request resources and justify their work) even as they recognize its operational failure. This dual awareness, respecting the policy's moral authority while experiencing its practical irrelevance, has not been documented in previous literature. It suggests that policy implementation research needs to attend not just to compliance or non-compliance, but to the creative ways educators navigate policy environments that offer legitimacy without support.

From the perspective of Vygotsky's Sociocultural Theory, the absence of monitoring means that the ZPD is never activated for teachers themselves. Teachers are not observed, coached, or scaffolded by more knowledgeable others. They remain at their current level of Sign Language proficiency with no structured pathway to improvement. This finding highlights a critical blind spot in teacher professional development: policies that mandate outcomes (use Sign Language) without mandating processes (observation, coaching, feedback) are structurally incapable of producing change.

8.2 The Consequences of Signed English and Inconsistent Use

The finding that teachers rely predominantly on Signed English rather than natural Sign Language is consistent with research from other African contexts (Dube & Nkomo, 2021; Okyere & Addo, 2019) and from high-income countries with inadequate teacher training (Liddell, 2003; Kluwin & Goncher, 1996). However, this study provides richer, more detailed evidence of how Signed English manifests in moment-to-moment classroom interaction and how it confuses learners.

The observation of learners disengaging during Signed English instruction aligns with Bruner's Cognitive Development Theory. Bruner (1986) argued that symbolic representation (language) must be grounded in enactive and iconic modes. Natural Sign Language achieves this grounding through spatial grammar, classifiers, and non-manual markers that visually represent relationships, actions, and qualities. Signed English, by contrast, is purely symbolic without iconic grounding—it is essentially English words produced with the hands. For a learner who cannot hear English, Signed English provides no visual-spatial support for meaning-making. The observed learner confusion and disengagement are therefore not a failure of effort or attention; it is a predictable cognitive consequence of being taught in a linguistically impoverished system.

The finding that learners vary widely in Sign Language proficiency (from fluent to no functional signing) is consistent with research on language deprivation in deaf children (Hall, 2017). When children do not have access to a natural sign language from birth (often because hearing parents do not sign), they arrive at school with no first language. The school then faces the impossible task of teaching both basic language and academic content simultaneously. This study confirms that Zambian schools are failing at this task, not because of teacher laziness or lack of caring, but because the structural conditions (class size, lack of specialists, and no curriculum for language learners) make success impossible.

8.3 Systemic Barriers and Coping Strategies

The three challenges identified, teacher shortage, resource deprivation, and lack of professional development, are not unique to Zambia. They have been documented in Kenya (Adoyo, 2015), Uganda (Nyst, 2015), Tanzania (Tsimplaki, 2018), and globally (Napier et al., 2017; Marschark & Harris, 2020). However, this study contributes a new understanding of how teachers cope with these barriers and the educational costs of those coping strategies.

Teachers in this study described four coping strategies, all of which are educationally problematic:

1) **Simplifying content:** Avoiding abstract concepts or complex grammar because they lack the signs to explain them.
2) **Switching modalities:** Moving unpredictably between Sign Language, speech, writing, and gesture, confusing learners.

3) **Creating idiosyncratic materials:** Making their own charts and worksheets without training in materials development or curriculum alignment.
4) **Lowering expectations:** Accepting that learners will not fully understand lessons and moving on regardless.

These coping strategies are rational responses to an impossible situation, but they systematically deny learners access to grade-level content. From a human rights perspective (CRPD, 2006), this constitutes a denial of the right to inclusive, quality education. From a theoretical perspective (Vygotsky, 1978), it means that the ZPD is never activated for learners because the teacher cannot provide the necessary linguistic scaffolding.

The absence of any monitoring or accountability mechanism is particularly striking. In most educational systems, policy implementation is driven by a combination of training, resources, and accountability (Kandimba *et al*. 2025; Fullan, 2007). Zambia's Sign Language policy has none of these. The finding that no teacher had ever been observed or evaluated on their Sign Language use suggests that the policy exists in a regulatory vacuum. This finding aligns with Sinyangwe (2022), who argued that Zambia's inclusive education policies lack any enforcement mechanism, but this study provides the qualitative evidence to substantiate that claim.

8.4 Teacher-Proposed Interventions- Alignment with Evidence

The interventions proposed by participants align closely with evidence-based recommendations from the international literature. The call for intensive, ongoing, practical training mirrors findings by Napier et al. (2017) and Swanwick and Foster (2019), who emphasized that one-off workshops are ineffective and that teachers need sustained, practice-based professional development. The specific proposal for a two-year training sequence with exit examinations goes beyond current Zambian practice and aligns with standards in countries like Sweden (Svartholm, 2010).

The demand for structured, grade-level appropriate materials is consistent with Marschark and Harris (2020), who found that material scarcity is a global barrier, but that teachers in low-resource contexts particularly need syllabi and textbooks that specify developmental progression. The proposal for a Sign Language app reflects the growing evidence that mobile technology can support self-directed learning (Davis & Wilson, 2022), though no such app exists for Zambian Sign Language.

The most distinctive finding is the unanimous call for deaf mentors and native signers to be embedded in schools. This intervention is strongly supported by Ladd and Goswell (2020) and Adoyo (2015), who documented that exposure to fluent deaf signers is the single most effective way to improve hearing teachers' Sign Language fluency and to provide learners with authentic language models. However, this intervention is rarely implemented in Zambia or elsewhere in Africa due to cost and the perception that deaf adults are "recipients" of services rather than "providers" of expertise. The study

participants' willingness to consider volunteer or part-time arrangements suggests pragmatic flexibility.

The proposal for monitoring and accountability mechanisms addresses a gap identified by Fullan (2007) and Sinyangwe (2022): policies without enforcement are ineffective. Teachers' suggestion of peer observation and feedback loops is particularly insightful, as it distributes responsibility rather than relying solely on external monitoring.

Finally, the call for parent and community involvement aligns with Hall (2017), who argued that language deprivation cannot be solved by schools alone; families and communities must be part of the solution. The proposal for awareness campaigns to combat stigma is a low-cost, high-impact intervention that has been successful in other contexts (Okyere & Addo, 2019).

From a theoretical perspective, these proposed interventions directly address the failures identified by Vygotsky and Bruner. Deaf mentors would provide the "more knowledgeable other" that teachers currently lack, activating the ZPD for both teachers and learners. Structured syllabi and grade-level materials would enable the spiral curriculum that Bruner argued is essential for cumulative learning. Parent training would extend the ZPD into the home, providing learners with language input beyond school hours.

This study's findings have implications for both Vygotskian and Brunerian frameworks when applied to deaf education. First, Vygotsky's ZPD assumes the presence of a "more knowledgeable other" who is, in fact, more knowledgeable. In the classrooms observed, the teachers were not more knowledgeable than learners in Sign Language; they were often only marginally more fluent. This suggests that the ZPD concept needs to be extended to account for situations where the designated teacher is not, in linguistic terms, the expert. In such cases, the ZPD collapses because there is no one to provide scaffolding. Future theoretical work should explore how the ZPD can be activated in under-resourced contexts, for example, through deaf mentors, peer tutoring, or technology-mediated instruction.

Second, Bruner's spiral curriculum assumes that concepts are introduced, revisited, and deepened over time in a planned, systematic way. This study found no evidence of any curriculum, let alone a spiral one. Teachers taught whatever signs they happened to know, in whatever order, with no attention to developmental progression. This finding suggests that Bruner's framework, while powerful, presupposes a level of curriculum coherence and teacher expertise that is absent in many low-resource contexts. Future research should explore minimal viable curricula for Sign Language instruction, what is the smallest set of structured, sequenced content that can be taught effectively, even with limited teacher fluency?

9. Conclusion and Recommendations

This qualitative study evaluated the implementation of Sign Language as a medium of instruction for learners with hearing impairments in four selected primary schools in Lusaka, Zambia. The findings reveal a profound and persistent gap between policy and practice. While educators are universally aware of the legal mandate for Sign Language instruction, they have received no operational guidance, no training leading to fluency, no teaching materials, and no monitoring or accountability. In classrooms, teachers rely predominantly on Signed English and gesture rather than natural Sign Language, leading to learner confusion, disengagement, and low academic achievement. The systemic challenges, such as teacher shortage, resource deprivation, and absence of professional development, are not merely inconvenient; they fundamentally deny learners with hearing impairments access to the linguistic scaffolding necessary for cognitive development, as theorized by Vygotsky and Bruner. Crucially, teachers themselves have clear, practical, and evidence-aligned proposals for improvement: intensive ongoing training, structured materials, deaf mentors, and accountability with recognition.

The study concludes that Zambia's Sign Language policy exists as a rhetorical document rather than an operational framework. It is cited in advocacy and requests for resources, but it does not guide practice, allocate resources, or enforce accountability. Unless this changes—unless natural Zambian Sign Language is mandated, teacher training is made competency-based and sustained, structured materials are developed and distributed, deaf mentors are deployed, and monitoring mechanisms are established, learners with hearing impairments will continue to receive an education that is linguistically impoverished and cognitively damaging.

10. Recommendations

Based on the findings and the teacher-proposed interventions, the following four recommendations are presented:

1) The Ministry of Education and ZAMISE should replace six-week courses with a mandatory two-year competency-based training and exit examination, while the Teaching Service Commission should ensure only fluent teachers are assigned to deaf units and provide salary incentives.
2) The Curriculum Development Centre and MoE should develop and distribute a standardized resource package (syllabus, guides, workbooks, charts, and a mobile app), with Parliament allocating the necessary budget.
3) The MoE and Zambia Agency for Persons with Disabilities (ZAPD), in partnership with the Zambia National Association of the Deaf (ZNAD), should deploy fluent deaf Zambians as mentors into every deaf education unit, with District Education Boards (DEBs) managing placements.

4) District Education Boards (DEBs) should designate a Sign Language focal person to conduct termly observations and provide coaching, while the Teaching Service Commission should issue certificates and salary advancements for fluency and mandate remediation for non-competence.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Authors

Ms. Sarah Bwalya is currently Senior Lecturer, Researcher and Consultant at Zambia Institute of Special Education (ZAMISE) in Lusaka, Zambia. She has done several research projects in the field of Special and Inclusive Education in relation to science education. She holds a Master of Chemistry Education from St. Eugen University, a Bachelor of Education in Chemistry and Biology from the University of Zambia. She lectures in Chemistry, Biology (Content and Methodology), and other science courses at both undergraduate graduate and diploma levels. Her research interests include: Special Education; Inclusive Education, Policies on Inclusive Education, Evaluating Resource and Support for Learners with diverse needs, Science Education for Hearing and Visually Impaired learners and Education and Curriculum Studies.

Georgina Ndopu Nambula is the College Principal at the Zambia Institute of Special Education (ZAMISE). She holds a Master of Education in Administration from the University of Zambia (UNZA), a Pre-Masters qualification in Communication and Deafblindness from the University of Groningen in the Netherlands, a Bachelor of Education in Primary Education from the University of Zambia (UNZA), and a Diploma in Education from COTSECO. She lectures in Home Economics, Education Management and Leadership. Her research interests include Special Education, Inclusive Education, Partnerships in Education, Disability Studies, and Education and Curriculum Studies.

Veronica Namasiku Kalima is a Senior Lecturer at the Zambia Institute of Special Education (ZAMISE). She holds a Master of Education from the University of Zambia (UNZA), a Bachelor of Education from the University of Zambia (UNZA), and a Diploma in Education from the College of Special Education (COSETCO). She lectures in Research Methods, Child Psychology and English. Her research interests include Special Education, Inclusive Education, Partnerships in Education, Disability Studies, and Education and Curriculum Studies.

Carol Mubiana Mubisi is a Senior Lecturer at the Zambia Institute of Special Education (ZAMISE). She holds a Master of Education in Measurement, Assessment and Evaluation from Mulungushi University, a Bachelor of Arts in Education from Kwame Nkrumah University, a Secondary Teachers' Diploma from NISTCOL-Chalimbana, and a Primary Teachers' Certificate from Mongu College of Education. She lectures in Curriculum Studies as well as History, Philosophy of Education, English Language, and Child

Psychology. Her research interests include Special Education, Inclusive Education, Partnerships in Education, Disability Studies, and Education and Curriculum Studies.

Maureen Mwalungali is a Senior Lecturer at the Zambia Institute of Special Education (ZAMISE). She holds a Master of Science in Clinical Neuropsychology from the University of Zambia (UNZA), a Bachelor of Education in Special Education from the University of Zambia (UNZA), and a Diploma in Science from Kwame Nkrumah University. She lectures in Neuropsychology, Behaviour Management, Neurogenics, and Activities for Daily Living. Her research interests include Special Education, Inclusive Education, Partnerships in Education, Disability Studies, and Education and Curriculum Studies.

Dr. Humphrey Chinyemba Kandimba is currently a Senior Lecturer, Researcher and Consultant at Zambia Institute of Special Education (ZAMISE) in Lusaka, Zambia. He has researched and published several articles in the field of Special and Inclusive Education; Disability Studies, Guidance and Counselling in local and international journals. He holds a Doctor of Philosophy (PhD) in Special Education from the University of Zambia. He also holds a Master of Education in Special Education from Kwame Nkrumah University, and a Bachelor of Education in Special Education with Mathematics of the University of Zambia. He lectures in Special Education, Inclusive Education, Mathematics (Content and Methodology), and Research Methods at both postgraduate and undergraduate levels. His research interests include: Special Education; Inclusive Education, Partnerships in Education; Guidance and Counselling, Disability, Education and Curriculum Studies.

References

Adoyo, P. O. (2015). Emerging trends in teacher training for deaf education in Kenya. *Journal of Deaf Studies and Deaf Education, 20*(3), 245-256.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Bruner, J. S. (1986). *Actual minds, possible worlds*. Harvard University Press. Retrieved from https://www.jstor.org/stable/j.ctv26070s7

Chibambo, G., & Chakulimba, O. (2020). Resource constraints in deaf education in Zambia: A quantitative survey. *Journal of Special Education in Africa, 5*(1), 44-58.

Cummins, J. (2000). *Language, power and pedagogy: Bilingual children in the crossfire*. Multilingual Matters. Retrieved from https://books.google.ro/books/about/Language_Power_and_Pedagogy.html?id=fM4KdFOicGcC&redir_esc=y

Curriculum Development Centre (CDC). (2013). *Zambia Education Curriculum Framework*. Ministry of Education, Science, Vocational Training and Early Education.

Davis, M., & Wilson, K. (2022). The use of technology to support learning for students with hearing impairments. *Technology, Pedagogy, and Education, 31*(2), 187-205.

Dube, S., & Nkomo, T. (2021). Indigenous sign languages and decolonising deaf education in Southern Africa. *African Journal of Disability, 10*, 1-10.

Fullan, M. (2007). *The new meaning of educational change* (4th ed.). Teachers College Press. Retrieved from https://books.google.ro/books/about/The_New_Meaning_of_Educational_Change.html?id=dvc84eFzKkkC&redir_esc=y

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods, 18*(1), 59-82. Retrieved from https://journals.sagepub.com/doi/10.1177/1525822X05279903

Hall, W. C. (2017). Language deprivation syndrome: A possible neurodevelopmental disorder with sociocultural origins. *Social Psychiatry and Psychiatric Epidemiology, 52*(6), 761-776. https://doi.org/10.1007/s00127-017-1351-7

Hoffmeister, R. (2000). The impact of curriculum design on the academic achievement of students with hearing impairments. *American Annals of the Deaf, 145*(3), 217-232.

Hyde, M., Punch, R., & Komesaroff, L. (2010). A comparison of educational provision for deaf learners in Australia, the United Kingdom, and Southeast Asia. *Deafness & Education International, 12*(4), 205-224. Retrieved from https://ssl.gallaudet.edu/gupress/excerpts/DPAW.pdf

Kandimba, H. C, Mandyata, J., & Simalalo, M. (2023). Teachers' Understanding of Curriculum Adaptation for Learners with Moderate Intellectual Disabilities in Zambia. *European Journal of Special Education Research, 9*(1). https://doi.org/10.46827/ejse.v9i1.4653

Kandimba, H.C., Kalimaposo, K., Mandyata, J., Bwalya, S., Kabwe, A. & Kalunga, M. (2025). Increasing Accessibility to Inclusive Education for Learners with Disabilities in Primary Schools in Ndola District, Zambia. *International Journal of Research and Innovation in Social Science (IJRISS), vol. 9*(9), pages 6741-6757. https://dx.doi.org/10.47772/IJRISS.2025.909000552

Kandimba, H.C., Kalimaposo, K., Mandyata, J., Bwalya, S. Kabwe, A. & Kalunga, M. (2025). Exploring Pedagogical Approaches Used by Teachers for Learners with Intellectual Disabilities in Selected Schools of Luanshya District, Zambia. *International Journal of Social Science and Education Research Studies, 5*(9), 873-888. https://doi.org/10.55677/ijssers/V05I09Y2025-03

Kluwin, T. N., & Goncher, K. H. (1996). The effects of inconsistent sign language use on the language development of deaf children. *American Annals of the Deaf, 141*(4), 315-328.

Knoors, H., & Marschark, M. (2018). *Evidence-based practices in deaf education*. Oxford University Press. Retrieved from https://global.oup.com/academic/product/evidence-based-practices-in-deaf-education-9780190880545?cc=ro&lang=en&

Ladd, P., & Goswell, D. (2020). Community-based teacher training for deaf education: Lessons from Australia. In H. Knoors & M. Marschark (Eds.), *Deaf education beyond the Western world* (pp. 89-108). Oxford University Press. Retrieved from https://academic.oup.com/book/8754

Liddell, S. K. (2003). *Grammar, gesture, and meaning in American Sign Language*. Cambridge University Press. https://doi.org/10.1017/CBO9780511615054

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage. Retrieved from https://books.google.ro/books?id=2oA9aWlNeooC&printsec=frontcover&redir_esc=y#v=onepage&q&f=false

Marschark, M., & Harris, M. (2020). Technology and resources for deaf education: A global review. *Journal of Deaf Studies and Deaf Education, 25*(1), 1-15.

Marschark, M., & Spencer, P. E. (2003). *Oxford handbook of deaf studies, language, and education*. Oxford University Press. Retrieved from https://academic.oup.com/edited-volume/28159

Mayberry, R. I. (2007). When timing is everything: Age of first-language acquisition effects on second-language learning. *Applied Psycholinguistics, 28*(3), 537-549. https://doi.org/10.1017/S0142716407070294

McKee, R., & Manning, V. (2015). New Zealand Sign Language Act 2006: Implementation in education. *Current Issues in Language Planning, 16*(3), 256-273.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass. Retrieved from https://books.google.ro/books/about/Qualitative_Research.html?id=JFN_BwAAQBAJ&redir_esc=y

Ministry of Education, Science, Vocational Training and Early Education (MESVTEE). (2013). *Zambian National Literacy Framework*. Government Printer.

Moores, D. (2001). *Educating the deaf: Psychology, principles, and practices* (5th ed.). Houghton Mifflin. Retrieved from https://books.google.ro/books/about/Educating_the_Deaf.html?id=x66PQgAACAAJ&redir_esc=y

Napier, J., Leigh, G., & Nann, S. (2017). Sign language teacher training and professional development. In M. Marschark & P. E. Spencer (Eds.), *The Oxford Handbook of Deaf Studies in Language* (pp. 387-402). Oxford University Press. Retrieved from https://academic.oup.com/edited-volume/28159

Nyst, V. (2015). Sign language in Ugandan deaf education: Policy and practice. *Sign Language Studies, 15*(4), 452-478. Retrieved from https://www.academia.edu/21684428/Nyst_V_2015_The_Sign_Language_Situation_in_Mali_Sign_Language_Studies_15_2_126_150

Okyere, P., & Addo, D. (2019). Ghanaian Sign Language in primary education: Teacher perspectives. *African Educational Research Journal, 7*(2), 88-102.

Patton, M. Q. (2015). *Qualitative research and evaluation methods* (4th ed.). Sage. Retrieved from https://books.google.com.co/books?id=-CM9BQAAQBAJ&printsec=frontcover#v=onepage&q&f=false

Pfau, R., Steinbach, M., & Woll, B. (Eds.). (2012). *Sign language: An international handbook*. De Gruyter Mouton. Retrieved from https://www.researchgate.net/publication/260118378_Sign_Language_-_An_International_Handbook

Republic of Zambia. (2011). *Education Act, No. 23 of 2011*. Government Printer.

Sinyangwe, S. (2022). The role of resources in supporting the learning of students with hearing impairments in Zambia. *Journal of Inclusive Education, 7*(1), 57-72.

Stokoe, W. C. (2005). Sign language structure: An outline of the visual communication systems of the American deaf. *Journal of Deaf Studies and Deaf Education, 10*(1), 3-37. Retrieved from https://books.google.ro/books/about/Sign_Language_Structure.html?id=XGCbPgAACAAJ&redir_esc=y

Storbeck, C., & Magongwa, L. (2018). South African Sign Language policy in deaf education: Implementation challenges. *African Journal of Disability, 7*, 1-10. https://doi.org/10.1353/aad.2010.0034

Svartholm, K. (2010). Bilingual education for deaf children in Sweden. *International Journal of Bilingual Education and Bilingualism, 13*(2), 159-174. https://doi.org/10.1080/13670050903474077

Swanwick, R., & Foster, S. (2019). Teacher preparation for sign language instruction in the United Kingdom. *Deafness & Education International, 21*(2-3), 98-117.

Tsimplaki, Z. (2018). Sign language in Tanzanian deaf education: A qualitative study. *Journal of African Deaf Studies, 2*(1), 34-52.

UNESCO. (2021). *Language of instruction country profile: Zambia*. UNESCO Publishing. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000146659

United Nations. (2006). *Convention on the Rights of Persons with Disabilities (CRPD)*. UN General Assembly. Retrieved from https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-persons-disabilities

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press. https://doi.org/10.2307/j.ctvjf9vz4

World Federation of the Deaf (WFD). (2016). *Position paper on the rights of deaf children to quality education*. WFD.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage. Retrieved from https://us2.sagepub.com/en-us/nam/case-study-research-and-applications/book250150