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IDENTIFYING THE COMMUNICATION NEEDS OF TEACHERS IN NORTH GORONTALO SPECIAL EDUCATION SCHOOLS FOR STUDENTS WITH HEARING IMPAIRMENTS

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ABSTRACT
Children with special needs, particularly those with hearing impairments, require highly specialized educational environments that adapt to their unique linguistic and physiological profiles. Effective instructional delivery in these settings depends heavily on the communication efficacy of educators. This qualitative case study aimed to identify and describe the comprehensive communication needs of special education teachers in North Gorontalo. Data were gathered through semi-structured interviews, classroom observations, and documentation analysis involving active special education teachers. The thematic content analysis revealed that teachers face severe pedagogical barriers due to the lack of subject-specific standardized sign language codes and a lack of advanced professional training, which often forces lessons into passive, one-way interactions. To address these gaps, educators explicitly identified the need for continuous in-service linguistic training, the collaborative development of technical sign lexicons, and the deployment of digital assistive technologies, alongside functional audiometric equipment. Furthermore, the findings indicate that school-based learning communities (*Kombel*) and structured parental collaboration are vital to reinforcing alternative communication methods and enhancing students' social participation. This study provides an empirical foundation for curriculum planners to design targeted interventions that directly support special education classrooms.

INTRODUCTION

Hearing plays a critical role in the human linguistic acquisition process and overall communication development, serving as the foundational modality for speech and social interaction (Suranata et al., 2017). For students with hearing impairments, the restriction in receiving auditory stimuli fundamentally disrupts their capability to acquire spoken language, master vocabulary, and construct meaningful sentences (DZULKIFLI et al., 2020). In an educational context, this physiological condition poses severe challenges to their learning journey, preventing them from participating fully and equitably in classroom activities (El-Zraigat, 2013). To mitigate these barriers, special education schools are mandated to provide specialized communication support systems that proactively optimize students' residual hearing and foster functional alternative communication (Gürgür et al., 2016).

The success of managing classrooms for students with hearing impairments heavily relies on the instructional quality and communication efficacy of the teachers (Srivastava

et al., 2021). However, educators in special schools consistently face pedagogical and structural barriers when delivering subject matter due to systemic communication gaps (Dzulkifli et al., 2020). One of the most prominent obstacles is the pervasive inconsistency in communication methods used during the teaching-learning process (DZULKIFLI et al., 2020). Teachers frequently struggle to deliver complex conceptual knowledge due to a critical shortage of standardized technical codes or specific sign language vocabularies for specialized fields, which ultimately fragments the instructional process (Dzulkifli et al., 2020).

This operational friction is further compounded by systemic issues regarding teacher readiness and inadequate institutional support (Gürgür et al., 2016). A large number of special education teachers report that they have not received sufficient pre-service or in-service professional training focused on advanced sign language mastery (El-Zraigat, 2013; Suranata et al., 2017). This deficit in fluency severely limits their capability to initiate interactive, two-way communication, causing classroom discourse to drift into passive, one-way lectures (DZULKIFLI et al., 2020). Furthermore, the underutilization of assistive technologies such as speech-to-text systems or interactive digital platforms leaves teachers with outdated methods that fail to capture the multi-sensory potential of modern deaf education (Cano et al., 2018)(Srivastava et al., 2021).

Beyond the academic domain, teachers are also tasked with facilitating the social-emotional development of deaf students within the school ecosystem (Schwab et al., 2019). In many inclusive and special education settings, students with hearing impairments face profound vulnerabilities, including social isolation, low self-esteem, and a lack of meaningful peer group participation (Suranata et al., 2017). While teachers frequently strive to build supportive spaces, a perceptual gap often exists where educators underestimate the actual depth of the social isolation experienced by these students (Schwab et al., 2019). Without well-structured, collaborative support environments that involve peer interaction and external specialists, teachers are left overwhelmed, balancing complex emotional management alongside their instructional duties (Gürgür et al., 2016) (Schwab et al., 2019).

Extensive literature has attempted to map the multifaceted dimensions of deaf education and teacher capacity. Research regarding instructional barriers reveals that teachers face acute communication challenges when introducing abstract concepts, primarily due to the lack of specialized vocabularies in standard sign language (DZULKIFLI et al., 2020; Dzulkifli et al., 2020). Scholars have also emphasized that the resilience and social development of deaf students are highly dependent on early, structured interventional environments and well-trained educators (Suranata et al., 2017). However, standard classrooms frequently fall short in fostering complete social participation, often leaving a wide discrepancy between teacher perceptions and the real lived experiences of deaf students regarding peer acceptance (Schwab et al., 2019). To overcome these instructional gaps, recent technological paradigms recommend the strategic integration of smart assistive learning tools, interactive digital environments, and specialized conversion tools to construct an accessible bridge for deaf communication (Cano et al., 2018; Srivastava et al., 2021). Yet, the successful implementation of these tools remains heavily

constrained by the underlying competency, resource availability, and special services training of the teachers (El-Zraigat, 2013; Gürgür et al., 2016).

While prior studies have widely discussed the general constraints of deaf education (El-Zraigat, 2013; Suranata et al., 2017), there remains a critical gap in mapping how subject-specific sign limitations (DZULKIFLI et al., 2020), low teacher fluency (Gürgür et al., 2016), and inadequate technology adoption (Srivastava et al., 2021) intersect to create a deficit in classroom communication. Many schools continue to rely on generalized curriculum approaches without a systematic identification of what teachers actually require to bridge these communication divides (Dzulkifli et al., 2020). Conducting this study is essential because it shifts the focus from a purely student-centered deficiency model to an institution-centered assessment of teacher needs. By dissecting these precise professional barriers, this study provides an empirical foundation for local governments, school administrators, and curriculum planners to design targeted sign-language training programs, integrate standardized technical signs, and deploy appropriate assistive technologies that directly address the classroom realities faced by educators (El-Zraigat, 2013; Gürgür et al., 2016; Srivastava et al., 2021).

This study aims to identify and describe the comprehensive communication needs of teachers in special education schools for students with hearing impairments. Specifically, this research is guided by the following research questions:

1. What are the primary communication challenges faced by teachers when delivering specialized subject matter to students with hearing impairments?
2. What specific specialized training, subject-specific sign codes, and assistive technologies do teachers identify as necessary for effective classroom instruction?
3. How can educational institutions better structure collaborative professional support to enhance teachers' communication competencies and improve students' social participation?

METHOD AND ANALYSIS

Research Design

This study employs a qualitative methodology with an in-depth case study approach to capture a detailed and comprehensive understanding of complex human experiences, institutional behaviors, and field interactions (Feuer & Makarov, 2024; Racines, 2024). The case study design was selected because it allows for a rigorous exploration of a bounded system specifically, the communication needs of educators within a distinct school environment by integrating multiple non-standardized and contextually adaptable sources of empirical data (Petty et al., 2012; Racines, 2024). This approach facilitates an interpretative and flexible framework necessary to investigate the operational, real-life challenges faced by educators teaching students with hearing impairments, where pre-defined quantitative hypotheses are insufficient to capture pedagogical nuances (Feuer & Makarov, 2024).

Research Subjects and Context

The context of this investigation is situated within special education schools (SLB) in North Gorontalo. To construct a deep, context-specific analysis, the subjects were selected using a purposive sampling strategy based on explicit professional criteria (Balakrishnan &

Forsyth, 2019). The research subjects comprised several active special education teachers who are directly responsible for managing classrooms and delivering specialized subject matter to students with hearing impairments. The inclusion of these specific educators ensures data saturation, as they represent the primary actors navigating daily classroom communication barriers and using adaptive instructional methods within the designated institutional setting (Balakrishnan & Forsyth, 2019; Im et al., 2023).

Data Collection Techniques

To build a holistic and trustworthy understanding of the phenomenon, data collection was conducted over an extended period using three interactive qualitative technique truthful interpretation of the teachers' communication requirements was achieved. es: semi-structured interviews, non-participant field observations, and documentation analysis (Ancker et al., 2021; Feuer & Makarov, 2024).

1. In-depth Interviews: Conducted with the participating teachers to capture their explicit lived experiences, pedagogical insights, and personal perceptions regarding sign language barriers and technological deficits.
2. Classroom Observations: Focused on recording actual teacher-student interactions, the consistency of communication modes, and the real-time utilization of assistive devices during lessons.
3. Documentation Review: Enpassed the examination of lesson plans, available sign-language reference guides, and school resource records to triangulate and validate the verbal reports provided by the subjects.

Data Analysis Procedure

The non-quantitative empirical data gathered from the field were analyzed systematically using an inductive qualitative content analysis approach to let key themes and patterns emerge organically from the texts (de Faria-Schützer et al., 2021). The analytical process followed a multi-step sequence:

1. Data Reduction: The raw interview transcripts, extensive field notes, and institutional documents were rigorously compiled, organized, and focused. Unrelated details were omitted, and the text was broken down into smaller, meaningful segments through open coding to isolate distinct communication challenges and institutional needs.
2. Data Presentation: The refined codes and conceptual categories were clustered systematically and presented in structured narrative texts and descriptive matrix displays. This synthesis allows for an accessible cross-case evaluation of themes, such as sign-language training deficits and the operational barriers of subject-specific instruction.
3. Conclusion Drawing and Verification: Provisional patterns and meanings emerged from the data displays and were checked against established special education theories and empirical frameworks to ensure conceptual alignment. These conclusions were continuously verified throughout the analytical cycle until a stable, rigorous, and

RESULTS AND DISCUSSION

Primary Communication Challenges in Delivering Specialized Subject Matter

The field data reveals that special education teachers in North Gorontalo face acute pedagogical and structural communication barriers when delivering complex, specialized subject matter to students with hearing impairments. The primary obstacle identified through interviews and class observations is the severe inconsistency in instructional communication methods, which is deeply rooted in the lack of an adequate, standardized sign language system tailored to academic subjects.

In classroom practices, teachers frequently struggle to explain abstract and highly specific conceptual knowledge such as technical terminology or advanced thematic lessons because specific signs or uniform codes for these concepts do not exist in the basic sign language framework. This findings echo the assertions of (DZULKIFLI et al., 2020; Dzulkifli et al., 2020), who argued that the absence of subject-specific sign vocabularies inevitably causes fragmentation in classroom discourse, forcing educators to alter or oversimplify the curriculum, which reduces students' cognitive absorption.

Furthermore, observations showed that teachers frequently have to switch unpredictably between lip-reading, basic sign dictionaries, and informal, home-grown signs developed dynamically within the classroom context. While this hybrid approach attempts to bridge immediate gaps, it introduces conceptual ambiguity. Students frequently display confusion when trying to match the rapid structural lip movements with limited visual gestures, especially since individuals with hearing impairments face inherent biological barriers in capturing un-vocalized sound stimuli and constructing complete spoken words without intense, automated systematic drilling (Suranata et al., 2017).

When assessing student comprehension, teachers are restricted to observing basic physical behaviors, such as evaluating whether a student can copy alphabetic letters from the whiteboard or answer direct, simplified questions. This operational challenge confirms the systemic classroom friction noted by (El-Zraigat, 2013), where communication restrictions transform potentially interactive lessons into mechanical, passive routines, severely dampening the abstraction and concentration levels of deaf learners.

Required Specialized Training, Subject-Specific Sign Codes, and Assistive Technologies

To resolve the instructional friction identified in RQ1, the participating educators explicitly articulated three interconnected categories of structural needs: targeted, ongoing professional training; the collaborative development of standardized technical sign codes; and the modern adoption of digital assistive technologies.

Regarding professional readiness, although teachers report having basic institutional orientation, they emphasize a critical deficit in advanced, fluent sign language competencies. The field interviews indicate that short-term, general workshops are insufficient to build pedagogical confidence. Teachers require sustained pre-service and continuous in-service training programs that focus deeply on specialized linguistic mastery and alternative clinical-pedagogical approaches (El-Zraigat, 2013; Gürgür et al., 2016).

The specific needs identified by the subjects, along with the supporting literature used to contextualize the findings, are summarized in Table 1 below.

Table 1. *Matrix of Teacher Communication Needs and Support Systems*

Identified Need Dimension	Field Data Findings (North Gorontalo SLB)	Theoretical/Empirical Context
Specialized Training	Continuous in-service mastery programs; focus on linguistic fluency over basic vocabulary.	Gürgür et al. (2016); El-Zraigat (2013)
Subject-Specific Codes	Standardization of signs for abstract, academic, and technical subject matter.	Dzulkifli et al. (2020a, 2020b)
Assistive Technology	Classroom laptops, visual media (LCDs, mirrors), speech-to-text tools, and audiometers.	Cano et al. (2018);實 Srivastava et al. (2021)
Collaborative Support	Activation of learning communities (Kombel), In-House Training (IHT), and parent clusters.	Schwab et al. (2019); Suranata et al. (2017)

Moreover, the field data underscores an urgent demand for real, highly concrete learning media during classroom execution to overcome students' limitations in verbal expression. Observations confirmed that teachers heavily utilize tactile tools, laptops, mirrors (for articulation modeling), and visual slides via LCD projectors. This reliance on visual-spatial pathways aligns with digital interactive education paradigms, which advocate for the deployment of smart learning assistance systems, interactive visual software, and real-time speech-to-text conversion tools to serve as an accessible sensory bridge for deaf communication (Cano et al., 2018; Srivastava et al., 2021).

Finally, a prominent operational recommendation raised by the educators is the provision of functional hearing detection tools (audiometers) within the school facilities. Without proper, institutionalized audiometric assessment, teachers cannot accurately evaluate the precise residual hearing capacity of individual students, making it impossible to correctly differentiate or adapt pedagogical approaches to match the diverse physiological profiles in the classroom (Gürgür et al., 2016).

Structuring Collaborative Professional Support and Social Participation

The final core theme emerging from the case study targets the institutional framework required to sustain teacher competency and maximize deaf students' social-emotional development. Data analysis shows that isolated classroom efforts cannot successfully resolve systemic communication barriers; instead, educational institutions must foster interconnected collaborative ecosystems involving professional networks, school management, and parental partnerships.

Teachers in North Gorontalo identified the school-based learning community group (*Kelompok Belajar* or *Kombel*) and target-specific In-House Training (IHT) workshops as the most viable mechanisms for peer professional growth. Through these peer clusters, novice educators can routinely shadow and receive structured mentoring from expert teachers who possess advanced sign specialization, facilitating an organic transfer of contextual knowledge (Gürgür et al., 2016).

Furthermore, the study highlights that student development in special education cannot be detached from the home environment. Teachers reported maintaining constant communication with parents or guardians to ensure that the alternative communication systems used at school are systematically reinforced and practiced at home. This collaborative continuity is vital because regular family involvement and consistent behavioral reinforcement at home significantly boost the resilience and linguistic adaptability of children with special needs (Suranata et al., 2017).

Lastly, building a collaborative support network is empirically proven to enhance the social participation and emotional well-being of deaf individuals within the school environment. The field findings indicate that when schools establish structured, multi-professional collaborations involving teachers, educational leaders, and specialists, they create an inclusive community that actively combats peer isolation. This structural alignment reduces the pervasive perceptual gap where teachers frequently overestimate the inclusivity of their classrooms while students silently experience severe peer group rejection (Schwab et al., 2019). Fostering an integrated institutional community ensures that the linguistic, pedagogical, and psychological needs of both teachers and students are supported equitably (Gürgür et al., 2016; Schwab et al., 2019).

CONCLUSION

This study concludes that special education teachers in North Gorontalo face complex, multi-dimensional communication barriers that significantly hinder the effective delivery of specialized, abstract subject matter to students with hearing impairments. These challenges stem from a critical shortage of standardized, subject-specific sign language vocabularies and a lack of advanced, ongoing professional training for educators, which frequently restricts classroom discourse to passive, oral-reliant, or inconsistent communication methods.

To overcome these operational deficits, there is an urgent institutional requirement to shift from generalized educational approaches toward a structured, teacher-centered support framework. Teachers crucially require sustained, high-level in-service sign language training, the collaborative development of technical sign codes, and immediate access to modern assistive technologies and audiometric tools. Additionally, building interconnected school learning communities (*Kombel*) and establishing rigorous partnerships with parents are vital strategies to guarantee the continuous reinforcement of communication systems, ultimately enhancing the professional competencies of educators and maximizing the social participation of deaf students within an inclusive learning ecosystem.

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