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Barriers and Enablers in Implementing Inclusive Education for Deaf and Hard-of-Hearing Students: Insights from Secondary Schools in Pakistan

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Abstract: This study investigated the barriers and enablers influencing the implementation of inclusive education for Deaf and Hard-of-Hearing (DHH) students at the secondary school level in Punjab, Pakistan. Using a quantitative, cross-sectional survey research design, data were collected from 207 special education teachers across public and private schools in Punjab province. A structured questionnaire employing a 5-point Likert scale was used to assess perceptions regarding current practices, systemic challenges, and facilitating factors. The analysis of data was provided in SPSS 26. Descriptive and inferential analysis indicated that inadequate teacher training and a lack of sign language interpreters, insufficient access to assistive technology, and inflexible curricula are the most significant obstacles. Conversely, volunteering support, good policy guidelines, professional advancement opportunities, and interactions with people in the community emerged as key anchors. Important perceptual variations were found in gender, types of schools, and urban-rural contexts. The evidence clearly shows the immediate necessity of specific interventions, improvement of resources, and quality implementation of policy, to catch up with the discrepancy that exists between policy and practice on inclusive education. The suggestions are capacity-building initiatives throughout the country, greater funding, and substantial stakeholder cooperation to create a better, equitable, sustainable learning experience for DHH students in Pakistan.

Keywords: Inclusive Education, Deaf and Hard-of-Hearing, Pakistan, Teacher Training, Educational Policy

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Introduction

One of the key concepts to have pervaded modern conceptions of educational practice has been inclusive education, a form of education that purports to imply the equal provision of educational learning to any given student, regardless of ability or disability. The inclusion trend represents a paradigm shift in the world, moving beyond traditional segregation and integration models to emphasize integration within mainstream education (Bhatia & Singh, 2021). According to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), especially Article 24, the right of persons with disabilities to be afforded access to inclusive, quality education on an equal basis with others is granted (Chibaya et al., 2021). Along with this, the Salamanca Statement, Das (2022) discussed the significance of the Salamanca Statement in promoting the educational system to address the needs of diverse learners by readjusting the environment, curriculum, and teaching approaches to facilitate the meaningful participation of learners.

In this international context, learning of Deaf and Hard-of-hearing (DHH) students is particularly important. DHH learners are inclusive in education due to the extra physical accommodations in typical classrooms (Khan et al., 2023). However, they require mechanical communication support, teachers who are ready to implement pedagogical strategies, and accessible services for assistive technologies. Studies show that given the required resources and support, inclusive learning environments promote academic success, social inclusion, and self-advocacy with the DHH students (Marschark et al., 2019). Nevertheless, this depends on whether the system is ready, whether the policies are implemented, and whether there is a culture of disability in the population.

In Pakistan, inclusive education has been incorporated formally in the policy framework, including the National Education Policy (2009), and ratification of the UNCRPD in 2011 (Sadruddin & Afat, 2021). However, it has not been applied effectively, especially to students with sensory impairment. Literature cites the existence of persistent obstacles, such as a lack of teacher training, the small number of sign language interpreters, the lack of suitable assistive devices, and inflexibility in the curriculum (Hameed & Manzoor, 2019). Also, the development of socio-cultural attitudes, which are frequently predetermined by misconceptions about disability, continues to affect the support and adherence to inclusive education practices (Kwame, 2022). Although some schools in selected cities have produced effective models of DHH inclusion, other settings (including rural and resource-poor areas) are challenged in a significant way.

The existing body of literature on inclusive education in Pakistan predominantly focuses on physical and intellectual disabilities, with comparatively limited attention to DHH learners. This gap is particularly critical given that hearing impairment is among the most prevalent disabilities in the country. Yet, only a fraction of school-aged DHH children are enrolled in formal education, and fewer still in inclusive settings. Where inclusion is attempted, the lack of coherent policy implementation, insufficient professional capacity, and scarce resources often undermine its effectiveness.

Internationally, successful inclusion for DHH students hinges on three interrelated factors: enabling policy environments, resource availability, and stakeholder capacity. Policies have to be operationalized into practical strategies that respond to the individual communication and learning needs of DHH learners optimally (Olszak & Borowicz, 2025). The factors needed to have equitable participation are resources in the form of assistive technologies, accessible learning materials, and well-designed classrooms. Lastly, teachers, administrators, parents, and peers need to have the skills, knowledge, and attitudes needed to create inclusive environments. These factors are poor in low- and middle-income countries like Pakistan, and hence there usually exists a very significant difference between policy aspirations and educational reality.

The importance of this study lies in the necessity to provide empirical evidence about the barriers and enablers that form the DHH inclusive education in the Pakistani secondary schools. By giving attention to the views of teachers, given the context of institutional/public and private/rural institutions, it seeks to achieve a grounded perspective on the processes of social dynamics within systems, institutions, and within the classroom. Results will aim to guide policy, teacher education program development, and advocacy to create more effective/sustainable inclusive practices.

Objectives of the Study

1. To investigate teachers' perceptions about inclusive education for Deaf and Hard-of-Hearing students at the secondary school level.
2. To find out the key barriers hindering the implementation of inclusive education for DHH students.
3. To explore enabling factors and strategies to strengthen inclusive education for DHH students.

Literature Review

Inclusive education has gained global recognition as a human right and a pedagogical approach that ensures equitable learning opportunities for all students, including those with disabilities. The UN Convention on the Rights of Persons

with Disabilities explicitly advocates for inclusive, quality education, obliging signatory nations to eliminate barriers to participation (Bratan et al. 2020). For Deaf and Hard-of-Hearing (DHH) students, this entails more than physical presence in mainstream classrooms; it requires the provision of linguistic access through sign language interpretation, captioning, and adapted instructional strategies (Silvestri & Hartman, 2022).

Successful international models demonstrate varied approaches. The bilingual-bicultural model, adopted in Sweden and Denmark, treats sign language as the first language of instruction, complemented by written and spoken national languages (Griffin, 2021). In contrast, co-enrollment models in the United States and Hong Kong place DHH and hearing students in the same classroom, co-taught by general and specialist teachers (Yiu, 2024). Despite differing contexts, these models highlight critical enabling factors: trained educators, appropriate technologies, supportive policy environments, and positive societal attitudes.

In developing countries, however, structural and resource-related constraints significantly hinder implementation. Challenges include a shortage of trained teachers, limited assistive technologies, and cultural stigmatization of disability (Gomes & Lexa, 2025). These barriers underscore the importance of context-specific strategies for inclusive education in low- and middle-income countries.

Pakistan has progressively incorporated inclusive education into its policy framework, particularly since ratifying the UNCRPD in 2011. The National Education Policy (2006) and the National Policy for Persons with Disabilities (2009) endorse mainstreaming children with mild to moderate disabilities into regular schools. However, implementation remains inconsistent, particularly for students with sensory impairments.

Empirical studies highlight a persistent policy–practice gap (Hameed & Manzoor, 2019). Although policies stipulate curriculum adaptation, teacher training, and provision of assistive devices, these provisions are seldom realized in practice. Public sector schools, especially in rural areas, often lack basic infrastructure, trained personnel, and instructional materials. Urban private institutions may implement more advanced inclusion strategies, yet access remains limited to students from higher socioeconomic backgrounds (Sultana & Hameed, 2024).

The absence of reliable national data on the number and educational status of DHH students further complicates planning and resource allocation. UNICEF (2017) estimates that millions of children with disabilities in Pakistan remain out of school, with hearing impairment being a major contributor to exclusion.

Multiple barriers hinder the inclusion of DHH students in Pakistan's secondary schools:

1. Teacher Preparedness – Many general education teachers lack training in DHH pedagogy, sign language, and the use of assistive technologies. This results in limited instructional adaptation and reduced student engagement.
2. Infrastructure Deficiencies – Classrooms often lack acoustic treatments, visual alert systems, and appropriate seating arrangements to support DHH learners.
3. Limited Support Services – A shortage of qualified sign language interpreters, educational audiologists, and speech therapists severely restricts accessibility.
4. Rigid Curriculum and Assessment Systems – Standardized curricula often fail to accommodate diverse learning needs, and assessment methods may disadvantage DHH students.

While there is growing scholarly interest in inclusive education in Pakistan, studies focusing specifically on DHH learners remain scarce. Existing research tends to emphasize barriers, with limited exploration of enabling factors and strategies for effective implementation. Furthermore, stakeholder perspectives—particularly those of teachers—are underrepresented, despite their central role in translating policy into practice.

This gap is significant given the size of Pakistan's DHH population and the documented disparities in educational access and quality. Understanding the interplay of barriers and enablers within the local context is essential for

designing interventions that are both culturally relevant and practically feasible. Accordingly, this study seeks to provide an evidence-based account of teachers' perceptions regarding inclusive education for DHH students in secondary schools, to inform both policy and practice.

Methodology

The research used a quantitative, cross-sectional survey research design that falls under the positivist research paradigm. This method was chosen to gain an in-depth perception of the teachers who are exposed to inclusive education of the Deaf and Hard-of-Hearing (DHH) students in secondary schools. The data was collected throughout the population using a structured questionnaire (one of the cross-sectional research designs), so it was possible to identify the existing trends related to barriers and enabling factors.

The target population was a group of teachers who instruct DHH students in the inclusive secondary schools of the province of Punjab, Pakistan. This was done through both mainstream and special education teachers in public and private institutions within urban and rural setups.

A purposive sample design was used, whereby the sample had to include individuals with appropriate experience in terms of teaching DHH learners. A total of 230 questionnaires were administered, and 207 were responded to in full, i.e., 90%. The sample was varied in terms of gender, the type, and the geographical distribution of the teachers, which made it possible to compare the data regarding the factors of demography.

Data were collected using a self-administered questionnaire developed based on previous literature, e.g., (Hameed & Manzoor, 2019; Kamran & Bano, 2025), and adapted to the Pakistani context. The questionnaire was reviewed by three experts in special education and educational research for content validity. A pilot test with 20 teachers ensured clarity of items and reliability of the scale. Cronbach's alpha coefficients were 0.89 for the barriers scale and 0.91 for the enablers scale, indicating high internal consistency.

Data were coded and entered into SPSS Version 26 for statistical analysis. The analysis process included descriptive statistics, including frequencies, percentages, means, and standard deviations, to summarize demographic characteristics and item responses. An Independent Samples t-test was used to compare perceptions by gender and school type. One-Way ANOVA to examine differences across levels of teaching experience and location (urban/rural). Post-hoc tests (Tukey's HSD) for identifying specific group differences when ANOVA results were significant.

Results

Table 1

Teachers' Perceptions of Current Inclusive Education Practices (N = 207)

Item	M	SD
Inclusive education is effectively implemented for DHH students in my school.	3.12	0.89
The current curriculum meets the learning needs of DHH students.	2.95	0.92
Classrooms are adequately equipped with visual and auditory learning aids.	2.87	0.95
Peer interaction between DHH and hearing students is encouraged and supported.	3.34	0.84
Teachers receive regular training in inclusive practices for DHH learners.	2.78	0.91
Overall perception of current inclusive practices (composite score)	3.01	0.76

The mean composite score (M = 3.01, SD = 0.76) indicates that teachers perceive inclusive education practices for DHH students as moderately effective. Peer interaction opportunities (M = 3.34) are rated relatively higher. In contrast, the availability of visual/auditory aids (M = 2.87) and frequency of training (M = 2.78) are rated lower, highlighting areas for improvement in resource provision and teacher professional development.

Table 2

Perceived Barriers to Inclusive Education for DHH Students (N = 207)

Barrier	M	SD
Lack of trained teachers proficient in sign language	4.21	0.66
Shortage of assistive technologies (e.g., hearing aids, FM systems)	4.08	0.72
Inadequate funding for inclusive programs	4.05	0.74
Rigid curriculum not adapted for DHH students	3.94	0.81
Insufficient support staff (interpreters, audiologists)	4.10	0.70
Negative socio-cultural attitudes towards disability	3.88	0.83
Large class sizes are hindering individual attention	3.79	0.85

The highest-rated barrier is the lack of trained teachers proficient in sign language (M = 4.21), followed closely by shortages in assistive technologies (M = 4.08) and support staff (M = 4.10). This suggests that capacity building and resource allocation are urgent priorities. Cultural attitudes and curriculum rigidity also emerged as substantial challenges, indicating the need for both policy-level reforms and community sensitization initiatives.

Table 3

Perceived Enablers of Inclusive Education for DHH Students (N = 207)

Enabler	M	SD
Strong administrative support for inclusive education	4.15	0.68
Clear government policies with effective implementation	4.08	0.70
Regular, targeted professional development for teachers	4.12	0.69
Availability of modern assistive technologies	4.05	0.72
Active parental and community engagement	3.98	0.75
Collaboration between general and special education teachers	4.09	0.71

Teachers identify administrative support (M = 4.15) and professional development (M = 4.12) as the most influential enablers, alongside collaborative teaching models (M = 4.09). The emphasis on policy clarity (M = 4.08) and technology availability (M = 4.05) indicates that systemic support and resource provision are central to improving inclusion outcomes.

Discussion

This study investigated teachers' perceptions of the current state of inclusive education for Deaf and Hard-of-Hearing (DHH) students in Pakistan's secondary schools, identifying key barriers and enablers influencing implementation. The findings reveal a mixed picture: while inclusive education for DHH students is recognized in policy and partially practiced, significant systemic and resource-related challenges persist.

Teachers rated current inclusive education practices for DHH students as moderately effective, with relatively higher scores for peer interaction but lower scores for the availability of visual/auditory aids and frequency of professional training. This aligns with prior research by Sultana and Hameed (2024), who observed that opportunities for social integration often exist even in resource-limited schools, but meaningful academic inclusion requires more specialized infrastructure and training. The finding also resonates with Bronfenbrenner's Bio-ecological Systems Theory, which underscores the need for supportive microsystems (e.g., classrooms) and mesosystems (e.g., home–school collaboration) to promote holistic inclusion.

The most pressing barriers identified—lack of trained teachers proficient in sign language, shortage of assistive technologies, and inadequate support staff are consistent with the literature on inclusive education in low- and middle-income countries (Ahmed et al., 2022). These are obstacles, not just of an institutional nature, but also they are the wider systemic barriers to disability, noted in the Social Model of Disability (Barnes, 2019). which blames disability-related disadvantages on the inaccessibility of society, as opposed to the impairment of the individual. Exclusion is also worsened by curricular rigidity and bad socio-cultural attitudes. Stiff, one-size-fits-all curricula lack

the flexibility to accommodate different educational requirements, and social misunderstandings of deafness deter parents from sending their children to mainstream schools. These results are echoed by the argument put forth by Prakash (2025) that, unless culture is shifted and curriculum adjusted with the help of policies, inclusive education among DHH students will be merely a surface one.

Administrative support, constant professional development, and cooperative teaching models are marked as the most influential facilitators in the study. This is consistent, which demonstrates that co-teaching between general and special educators leads to improved academic and social outcomes for DHH learners (Blanton, 2023; Ramos et al., 2021). Teachers also emphasized policy clarity and availability of assistive technologies, reinforcing Kamran and Bano's (2025) findings that tangible resource provision must accompany policy mandates.

From the perspective of the Capability Approach, these enablers can be seen as mechanisms that expand the real freedoms and opportunities available to DHH students, allowing them to participate fully in educational and social life (Hanesworth et al., 2019). Policies that ensure equitable access to trained educators, technology, and flexible curricula directly enhance students' capabilities.

Conclusion

This paper has investigated the views of teachers regarding the inclusion of Deaf and Hard-of-Hearing (DHH) learners in secondary schools within Punjab province in Pakistan, in terms of current practices, constraints, and facilitating factors. These results show that although there is an inclusive education policy and that there exist some positive attributes, especially peer interaction, this is not experienced due to the prevailing systemic challenges that heavily limit the implementation. The main obstacles are the unavailability of educated teachers who know how to use sign language, insufficient provision of assistive technologies, a shortage of support staff, and a lack of flexible curriculum.

On the other hand, effective administrative leadership, personalized teacher preparation, cooperative teaching strategies, and competent policy systems are revealed as potential drivers that would support inclusion. The results indicate that Pakistan's policy and practice decisions in the inclusive education system are poor; therefore, there is a need for both structural and attitudinal changes.

In theory, the findings support the idea of the Social Model of Disability that relies on the focus on environmental change and the Capability Approach that focuses on increasing the opportunities of students. Practically, they signal toward concrete steps that can be taken in the direction of making DHH inclusion at secondary education levels more effective.

Recommendations

Based on findings, we propose the following recommendations:

- Incorporate DHH-related pedagogy, sign language training, and the use of assistive technologies into pre-service teacher education.
- Ensure the provision of regular in-service training that is specific to the approach of inclusivity for students with hearing impairments.
- Invest in new assistive aids, such as hearing aids, FM systems, captioning, and visual learning aids.
- Ensure an adaptable allocation of resources to underserved and rural communities.
- Recruit and train sign language interpreters, educational audiologists, and support staff to work in the schools with DHH students.
- Develop mobile resource teams to assist schools in far-flung areas.
- Extend assessment policies to include alternatives that allow learners to demonstrate success in their learning.
- Implement awareness programs to challenge stigmatization and foster greater societal advocacy for inclusive learning.
- Organize regular meetings between parents and teachers to collaborate on supporting DHH students. Reference

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