

Assessing Pedagogical Methods to Enhance Learning Engagement for Students with Hearing Impairments in Special Education Institutions

Nida Khan¹, Sajid Masood*²

¹PhD Scholar, Special Education, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Punjab, Pakistan.

^{2*} Associate Professor, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Punjab, Pakistan.

Corresponding author: sajid@umt.edu.pk

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This research study utilizes different methods to improve students' learning engagement with hearing impairment in special education institutions. This study focuses on strategies public and private school teachers implement to enhance hearing-impaired students' learning. The study's sample is a collective case study research design to get participants' perspectives. Four schools (2 public and two private) were selected purposefully. Twenty teachers were selected based on their work experience. Data was collected through semi-structured interviews, observations, and document analysis. Analysis was done through reflective thematic analysis. Results show that three main factors contribute significantly to students' learning engagement. The strategies include total communication, individual attention, and teaching interventions. Moreover, this research points to the effects of different ways of structuring school financing on instructional variation and access to assistive technologies. The recommendations have been made to strengthen professional development programs, ensure equitable distribution of resources, and promote technological advancement for better learning experiences for students with hearing impairments.

1. Introduction

Learning engagement is a composite variable consisting of two basic components: an inherent motivation to learn and active cognitive processes facilitated by meaningful learning tasks and settings (Van Der Graaf et al., 2020). Students must take charge of their learning experiences, employ feedback, assess self-preferences, and go for what suits them best (Lai & Hwang, 2021). It may be challenging for learners who rely solely on their capabilities alone (Lin et al., 2022). Task-based interactions use cooperative learning, creative thinking, and assistance to foster critical thinking among students.

Every learner differs in his or her learning approach, and teaching methodology can never be standardized. Still, modern and efficient teaching practices determine student learning (Han, 2021). Learning engagement is important for learners with special needs to enhance their performance and respond to learning difficulties (Zepeda et al., 2019).

Special education teachers ensure students with special educational needs are provided with appealing teaching-learning techniques and general development. It is implicit, therefore, that the shared enterprise of teacher training and professional development that includes regularized coaching programs needs to provide tailored educational methods and applications, supports, and accommodations for learners that are enriched, evidence-based, and flexible to help educators grasp the management of special education classroom context complexities.

Research on learning engagement is still limited in the field of special education in Pakistan, and there are research gaps regarding the educators' perceptions of the teaching and learning process involving students with disability. More research should be conducted about how teachers modify educational practices for children with hearing impairment in primary school. These types of understandings may give potentially productive recommendations for enhancing the study achievements and supporting the concept of integration.

In Pakistan, students who are hard of hearing, especially in their academic learning, the experiences they undergo are not normal, and it gets worse as one continues with his or her education. Even though it is possible to understand science lessons, comprehend science concepts, and even perform experiments independently, these students often do not receive the same rights as their hearing peers (Hussain & Qureshi, 2020; Iqbal et al., 2022). Such difference calls for significant changes at the micro level and for enhancing the representation of other categories in science education (Saeed & Khan, 2023).

The educational provisions for children, such as children in Pakistan, have constantly evolved in the last few decades as local and international teachers and therapists have strived to improve facilities for students with learning disabilities (Ali & Khan, 2021; Javed et al., 2023). Traditionally, it has been customary to educate students with disabilities in Pakistani schools in the classrooms where the children are taught according to their different types of disabilities. Some recent studies posit that such segregation characterizes the recent trend of restricting opportunities for the education of disabled persons (Siddiqui & Tariq, 2022; Yousaf & Ahmed, 2024).

This study is important because its outcomes would assist policymakers and school education officials in putting into Practice effective rules and policies that would assist in

increasing students' participation and the standards of education among students with hearing impairments. Further, it will help educators enhance their teaching skills to enhance students' effective engagement.

The present study seeks to fill this gap by discussing learning engagement for special educators of children with hearing impairment in primary-level schools. However, no study has addressed special education teachers' perceptions about the learning engagement of students with hearing impairment at the primary level in Pakistan.

1.1 Objectives of the Study

1. To explore special education teachers' perceptions of learning engagement for children with Hearing Impairment.
2. To identify engagement strategies used by teachers of hearing-impaired students.
3. To conduct intra-school and inter-school assessments to understand differences in engaging teaching strategies.

2. Literature Review

The use of the term "disabled" can be considered derogatory. Therefore, there is a classification of hearing loss degrees, apart from normal, as hearing impairments (Brady et al., 2020). Section 504 of the Rehabilitation Act of 1973 and the Disabilities Education Improvement Act of 2004 recognize hearing impairment and deafness as different degrees of hearing loss. These conditions do not exclude anyone from excelling academically but are difficult if not addressed well (Smith et al., 2019). To prevent communication and cognitive and social issues regarding hearing impairment, they must be diagnosed as early as possible for immediate intervention (Harding et al., 2022; Tucker et al., 2021).

Of all the human senses, the auditory is known to be of great importance to the learning and developmental process. Therefore, loss of hearing greatly affects these. These include genetic factors and infections such as otitis media. It was also noted that hearing loss affects the growth of children's cognitive, speech, and emotional skills (McCreery et al., 2020). In cognitive skills, critical thinking and life skills are of much importance in the current literature (Jamil et al., 2024; Jamil, Jabeen, et al., 2024; Jamil, ul Ain et al., 2024; Naseer et al., 2022). However, the effects, such as social and emotional impacts arising from deafness, can prove detrimental to the lives of children as much as the families they belong to.

The empirical evidence further shows that elaborate conventional teacher perceptions play a critical role in moderating the factual evaluation of the academic accomplishments of deaf students. Research also shows these students perform poorly than their hearing counterparts in class (Marschark et al., 2019). Studies show that the more hours children with learning disabilities are placed in the general education classroom, having more than 16 hours per week, the better their academic achievement is than those in the self-contained classroom (Shaver et al., 2021).

In mathematics and reading, areas such as gender, the age at which the learning disability occurs, and any type of environment the student is exposed to in terms of education

may hinder him or her from performing well. It is well known that individuals with hearing loss tend to perform worse in almost all functioning aspects than their hearing counterparts.

Hearing-impaired students need a more practical and applied education, as modern practices rarely bring the child into the learning process. However, these assumptions crown disabled individuals, and the lack of appearance of disabled learners in curricula and teaching material and insufficient assistive services compromise learners' academic experiences (Lee & Chung, 2021).

In Pakistan, students with hearing impairments face many barriers when learning science as they go to further classes. While these students can comprehend science teaching, reasoning through different science concepts, and performing experiments individually, they are deprived of the same chances as hearing children (Hussain & Qureshi, 2020; Iqbal et al., 2022). The above differences justify significant changes at the micro level and the integration of diversity in the science departments in Pakistan for educational practices (Saeed & Khan, 2023).

A brief account of the evolution of the educational system for children with learning disabilities in Pakistan over the past few decades is also described here. These change-overs are primarily attributed to local and international professionals' efforts to develop better services for students with learning disabilities (Ali & Khan, 2021; Javed et al., 2023). Education of students with disabilities in Pakistani schools in the past was an idea where the disabled students were kept together in a separate classroom with lessons being taught to them according to their disability. This categorization pattern implies that recent academic writings noted a trend toward isolating persons with disability from education (Siddiqui & Tariq, 2022; Yousaf & Ahmed, 2024).

In a recent study by Jones et al. (2022), intensive care needed to be taken for classroom acoustic and visual means to facilitate engagement in learning for hearing-impaired students. Previous research on the use of assistive technologies and cochlear implants reports that there has been a positive change in academic achievement (Smith & Johnson, 2023; Lundberg et al., 2020).

Martin & Thompson (2024) emphasized physical and social interactions to enhance teacher collaboration in implementing classroom modifications for learners of impaired hearing. Reid & Stevenson (2023) discussed matters from the teachers' point of view and practices in their meta-analysis that considered the long-term impact of classroom adaptations. Nkambule and Dube (2021) urged the need to engage parents in supporting the education of deaf learners and stated that this should be done in a team or collaborative manner. Ramli et al. (2020) argued about the audiologist's role in special education according to the perception of Malaysian teachers to call for an interprofessional working relationship. The research study of Sari and Sukoco (2021) also gives the detailed positive impacts of interactive teaching models on the cognitive abilities of students with hearing impairment. Musyoka et al. (2021) suggested a need for flexible programs to enhance physical activity participation among hearing-impaired learners. Napier & Leeson (2022) discussed the instructional and communicative difficulties of sign language interpreting in the teaching-learning context.

3. Research Methodology

The study used a qualitative research method, with a collective case study research design adopted, given the aim of the current study to deeply explore the learning engagement experiences of students with hearing impairments. This method enables understanding the participants' perceptions and the environment that shapes their behaviors. The research was inductive in studying the phenomenon. The study focuses on four schools, including two public and two private special education schools, for students with hearing impairment at the primary level. The researchers purposefully chose twenty teachers based on their work experience and practice involving learning engagement challenges. Also, convenience sampling was used for the selected teachers, where one student from each of the selected teachers was asked to provide information on the level of interaction between teachers and students. Data collection employs three main tools: semi-structured interviews, classroom observations, and analysis of documents. Interviews based on the narrative and attitudinal data were recorded in notes and audio to collect teachers' perceptions. Classroom observations entail participants' instruction, interaction, and student participation, videotaped and coded using ethnographic field notes. Secondary data from document analysis support the interview and observation findings. Data was analyzed through reflective thematic analysis (Clarke & Braun, 2014). Such a widespread approach enables us to comprehensively examine special education teachers' perceptions and behaviors concerning learning engagement in hearing-impaired students.

4. Findings of the Study

4.1 Teachers' Perceptions of Learning Engagement for Children with Hearing Impairment

The findings of this study reveal that special education teachers have a charge list of constructs concerning the learning engagement of children with Hearing Impairment as a sophisticated, layered process. From it, they understand that successful communication also reflects on the organization of learning activities within the cognitive, emotional, and behavioral domains. From this perspective, they can approach teaching to assist learners in acquiring knowledge and skills that will meet all these dimensions simultaneously.

4.2 Engagement Strategies used by Teachers

Three key strategies emerged as fundamental to enhancing learning engagement across public and private schools: total communication, integration of teaching techniques, and an individual approach. One common theme that teachers often point out relates to the use of both oral instructions and written notes, as well as the use of additional appeals to help a child grasp the information given. Using lessons in role-play, group discussions, and experimental forms of teaching is imperative as it helps sustain the student's attention and involvement in the activity. Direct instruction enables one to adapt to the child's abilities, learning ability, and learning rate since children with hearing impairment have unique learning difficulties.

Many generalizing strategies reported across the schools included using graphics, multiple modalities, and incentives. Graphs, figures, illustrations, and movies are imperative paradigms facilitating knowledge delivery to impaired students. Teaching strategies that

involve multiple senses are preferred because they help students reinforce what they have learned and are also suitable for students with different learning modalities.

4.3 Differences in Engaging Teaching Strategies

There was convergence in the aspects used in engagement strategies, and the study investigated differences in teaching between public and private schools. These variations illustrate professionalism concerning teaching strategies and highlight the impact of institutional resources and policies. While the general school demonstrated that public students preferred instructional interactions to be open in multiclass environments, independent schools used more instructional techniques, affording them access to resources in particular fields. The success of all those strategies in capturing students' attention points to the fact that teaching should not be one-size-fits-all. Analyzing the study, several differences were found between the public and private schools regarding the resources available to the students, which influenced the successful use of the proposed engagement models.

Some often found that they had to manage an increased number of students due to constraints and augmentation of class sizes, shortages, or restrictions on the availability of unique teaching aids and tools. Such differences in resource supply affected the variety and extent of the concern level of engagement approach possible by teachers, as well as more choices often being available to private school teachers. The findings pointed out the need to provide support in professional development to achieve mastery of the technology and incorporate assistive technologies that foster learners' engagement. Private schools seemed to provide more frequent support to teachers for their professional development and, after that, better availability of integrated sophisticated technologies. This contrast makes it very important to provide fair training and technological integration for all the school environments so that all the teachers are well-equipped to attend to children with hearing impairment. Teachers in public and private schools mentioned difficulties they faced while implementing engagement strategies: large class sizes, limited resources, or lack of adequate training. The study also emphasized the significance of parental support of learning activities, though the volume and kind of support found were higher in private schools than in private schools. There is a strong call for cross-sectional cooperation involving educators, parents, and administrators to fight all the odds and establish an improved learning environment.

4.4 Discussion

This study finds that training engagement is encompassing and multidimensional in the teachers' perception. This understanding can be underpinned by findings from the current educational psychology on students' engagement, where the cognitive, emotional, and behavioral aspects are considered (Fredricks et al., 2004). However, the teachers' understanding of this complexity should be appreciated as it can indicate that there will be differentiated approaches toward students with hearing impairments. All these identified strategies, such as total communication, interactive education techniques, and individual instruction, are in line with the research-recommended techniques for teaching deaf learners in both public and private schools worldwide, according to Marschark et al. (2020). These approaches help fulfill the needs of students with hearing impairments concerning communication and enable them to contribute to the learning process. However, the cross-

sectional study revealed variation in the implementation level between public and private schools, further calling for effective practice and fair distribution of resources.

Most clearly, there is the problem of inequitable distribution of resources between the public and private schools. This directly influences the quality and number of engagement strategies teachers can use in their teaching process. That is an issue of fairness. It is disconcerting that students with visual impairments in private schools report better access to assistive technologies and more professional development opportunities than their public-school counterparts. Such a state requires policy interventionism to enhance resource rights across all learning institutions. The problems in how teachers apply engagement strategies reflect the need for systemic support, especially in public schools. There are always overcrowded classrooms, inadequate materials, and personal from par professional training, some of the major problems in special education (Avramidis & Norwich, 2002). These challenges, therefore, call for a four-pronged strategy, which includes policy reforms, increased funding, and better teacher training programs. The study examines the need to use assistive technologies, as well as the need for professional development to increase learning activity. This aligns with other studies pointing towards technology support and teacher professional development as significant factors that improve the education of learners with learning difficulties (Edyburn, 2013). This means that more effort and resources should be provided in public schools and teacher training. The consideration of parental involvement as the enhancing factor of learning interest aligns with the research on home–school relations in special education (Turnbull et al., 2015). It is also evident from the variance and the degree of this involvement between public and private schools that more defined interventions are required to encourage parents' participation in all types of schools.

5. Conclusions

The findings of this work are that special education teachers consider learning engagement for children with hearing impairment as a dynamic and multifaceted phenomenon that should be addressed in an integrated manner. Some main strategies identified as crucial for letting students engage include total communication, using interactive teaching methods, and paying much attention to individual students. However, the effectiveness of these strategies in classroom practice differs depending on whether the school is public or private since the available resources and the degree of support given are not the same for both. Some common forms of engagement, such as visual aids, multisensory learning, and incentives, are normally used. Still, they are hindered by factors such as a large student-to-teacher ratio, inadequate resources, and lack of sufficient training in the specialty. First, the need for continuity in professional development and the incorporation of aids and technologies are other areas where private schools are usually better off. Second, parental involvement is another significant factor in promoting learning-related efforts on the part of learners. However, the level and form of such involvement differ depending on the type of education provided. These results emphasize a definite need for greater equality in the distribution of resources as well as better teacher training coordination between educators, parents, and administrators for better learning environments for students with hearing impairments.

5.1 Recommendations

- There should be organized, mainstream, well-coordinated training for special education teachers with a major emphasis on learning how to help students with hearing loss.
- Policymakers need to ensure that both public and private schools receive similar resources.
- There should be improvement and availability of recent assistive technologies, and the implementation of their use in all special education classes should be ensured.
- There should be a provision to assure the special education teachers of routinely constant and continuous professional development.
- Design and implement organized schemes for increasing parental participation in schooling kids with hearing loss.

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