

Sign Bilingualism Method Bridging the Gap Between Language and Literacy Among Deaf Learners

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Abstract:

The education of Deaf/d students faced unique education challenges, particularly in the language and literacy development. This paper provides a comprehensive overview current education system of Deaf. It addresses critical issues such as language acquisition, literacy proficiency, mathematical learning, and logical problem-solving skills among Deaf learners. The paper underscores the importance of the sign bilingualism method in the education of Deaf individuals, emphasizing its role in bridging the gap between language and literacy development. It stresses the pivotal role of Sign Bilingualism in achieving objective language development and its use in literacy development. By recognizing the significance of Sign Bilingualism in Deaf education, educators and stakeholders can contribute to a more inclusive learning environment for Deaf learners.

Keywords: Sign Bilingualism, Literacy skills and Deaf Education.

Brief Background:

“Once you learn to read, you will be forever free.”

By F. Frederick Douglass

Special education is a tailored approach to teaching and supporting individuals with diverse learning needs. It recognizes that every student is unique, and their learning styles, abilities, and challenges may differ. Special education encompasses a range of strategies and techniques to address the specific requirements of students with disabilities or special needs, ensuring that they have equal opportunities for education and personal development. Inclusive practices are often emphasized in special education, promoting the integration of students with special needs into regular educational settings whenever possible. This fosters a more supportive and accepting environment for all students, regardless of their abilities or challenges. The goals of special education include not only academic achievement but also the development of essential life skills, social skills, and emotional well-being. Special education teachers are trained to use individualized instruction, adaptive materials, and assistive technologies to cater to the diverse needs of their students.

Collaboration among educators, parents, and support professionals is crucial in the field of special education. This collaborative approach ensures that the educational experience is holistic and addresses the multifaceted needs of each student. By acknowledging and accommodating these differences, special

education plays a vital role in promoting an inclusive society that values diversity and supports the full participation of all individuals in educational and community life.

In India, the Rights of Persons with Disabilities Act, 2016, recognizes and categorizes 21 types of disabilities covered under the Act. They can be categorized according to medical, psychological, and educational aspects of needs. Students with hearing loss, whether by birth or acquired after birth, are referred to as Deaf/deaf or hearing impaired. They face difficulties in acquiring language and speech naturally due to hearing loss. The goal of special education programs is to ensure that all Deaf/d students, regardless of their abilities or disabilities, have access to a quality education and the opportunity to succeed academically and socially, preparing them surviving a high quality of life in society.

Due to the severity of hearing loss in Deaf/d children, verbal language development is either absent, partially developed, or delayed. In the education process, language is the foundation for receiving formal education. There are various approaches used in Deaf education, including Oralism, Total Communication, and Sign Bilingualism. The choice of approach depends on the utilization of residual hearing, sensory ability, and modality for language learning and choice of learners. The first approach, Oralism, enables Deaf learners to utilize their residual hearing with the aid of suitable assistive devices for speech and language development, subsequently progressing to the acquisition and enhancement of reading and writing skills, commonly referred to as literacy, involve a multifaceted developmental process. Literacy development encompasses the progression of abilities related to understanding, interpreting, and expressing information through written language.. Oralism is deemed the preferred option for fostering inclusivity in society, given the predominantly oral nature of our societal communication. But some individuals may excel in oral communication, while others may find it more challenging.

The second approach is Total Communication, which involves using multi-sensory channels in the education of Deaf students. It combines multiple communication methods, including sign language, speech, lip-reading, and written language. However, the complexity and learning curve of Total Communication may be overwhelming for both students and educators, particularly those unfamiliar with the approach. Inconsistent language development may result from the simultaneous use of multiple modalities, potentially hindering proficiency in any one method.

The third approach is Sign Bilingualism, where a visual/manual mode is used for language (Sign Language) development instead of oral communication. This approach allows Deaf children equipping learners with proficiency in sign and written languages. access to the curriculum in the language most accessible to them. Research conducted on Deaf students has shown that techniques such as sign language, lip reading, and speech were effective in teaching English. The use of Total Communication also demonstrated positive outcomes in English reading skills for Deaf learners.

Knors and Renting's (2000) study on Deaf parents and their Deaf children brought to light a significant aspect of early language acquisition in Deaf families. The findings underscored that when a baby is born to Deaf parents, the parent communicates using sign language in a manner akin to how hearing parents use spoken language. Consequently, the infant begins to babble in sign language, mirroring the linguistic development seen in hearing children learning spoken language. This method is often referred to as 'sign bilingual' in certain contexts and 'bilingual bicultural' in others. Furthermore, the term 'cross-modal

bilingualism' is utilized to express the use of two languages and modalities.

These approaches emphasize the cultivation of a first language, whether oral or sign, and concurrently support the development of a second language and literacy for educational purposes. In recent times, there has been a discernible shift in Deaf education towards recognizing the significance of a bilingual-bicultural approach. This approach emphasizes the integration of both sign language and the local sign language (such as Indian Sign Language), along with written languages like English or Hindi, within the educational framework designed for Deaf students. This holistic approach aims to provide a comprehensive and inclusive learning environment that addresses the linguistic and cultural needs of Deaf individuals.

Issues and Challenges in Deaf Education:

The Deaf education system, while highly systematic, structured, and logical, but also have intricate challenges requiring careful attention and innovative solutions. A significant hurdle is the persistent achievement gap between deaf and hearing students, mainly attributed to limited access to quality language input during critical periods, leading to delayed language acquisition and subsequent academic struggles.

Deaf education incorporates a diverse array of methods and approaches aimed at delivering quality education to individuals with varying degrees of hearing impairment. A primary challenge lies in ensuring equitable access to education, as deaf students frequently face obstacles related to communication, social integration, and academic achievement. The ongoing debate over choosing sign language, spoken language, or a combination thereof underscores the necessity for tailored approaches that account for individual preferences and learning styles. In brief, some important issues and challenges in education of are included:

1. Language or Linguistic issues (Verbal/Sign):

Research, as demonstrated by Emmorey (2002), consistently emphasizes that sign languages function similarly to spoken languages in linguistic, social, and cognitive aspects. Notably, Hickok, Love-Geffen, and Klima (2002) found that both sign and spoken languages engage the left-lateralized brain network, revealing shared neural substrates in language processing. While some right hemisphere involvement exists in sign language processing, the preponderance of evidence indicates left hemisphere dominance, reinforcing the equivalence of sign languages to spoken languages in cognitive processing. Mineiro et al.'s (2014) findings highlight the neural correlates, affirming sign languages as complete linguistic systems with robust grammatical and communicative capacities.

2. Sign language acquisition as first language (L1)

Research on sign language acquisition highlights its comparability to spoken language and its effectiveness for Deaf individuals. Studies on deaf children of deaf parents in the USA and the UK, by Petitto et al. (2001), Most (2003), and Rinaldi & Caselli (2009), reveal that early proficiency in sign language leads to achieving linguistic milestones and pragmatic skills. However, non-native or non-fluent signers, often born to hearing parents, face challenges, leading to delayed sign language development. Catching up becomes difficult, especially for those with hearing parents attempting to learn sign language as a second language (L2) in adulthood.

Despite some families creating their communication strategies like 'homesign,' they don't match the benefits of early exposure to fluent sign language from birth, as noted by Janjua, Woll, and Kyle (2002) and Morford

& Hänel-Faulhaber (2011). This body of research underscores sign language's significance as a natural language with its own grammatical structure. It emphasizes that sign language is the most acceptable and valid form of language for the comprehensive development of individuals, especially within the Deaf community. This insight reinforces the importance of early exposure to sign language for optimal linguistic and cognitive development in Deaf individuals.

3. Literacy Issues among Deaf Learners :

Deaf learners encounter significant obstacles in achieving literacy proficiency, specifically in reading and writing. The primary challenge stems from a lack of exposure to crucial phonological or sign language elements during their foundational development. Over 95% of deaf children are born to hearing parents, missing essential experiences like motherese vital for natural language development. Research suggests that delayed access to spoken or sign language as a first language (L1) leads to processing deficiencies, impacting literacy skill development (Mayberry 2007; Malaia & Wilbur 2010; Mayberry et al. 2011a). Literacy skills, covering reading, writing, and math, are profoundly influenced by these challenges.

These hurdles contribute to a substantial deficit in literacy development for a majority of deaf individuals. Recognizing these challenges underscores the importance of early and accessible language exposure for deaf learners, emphasizing the need to establish a strong foundation for their literacy skills. Addressing these barriers is crucial for fostering an inclusive and supportive educational environment that enables deaf learners to overcome challenges and achieve proficiency in essential literacy domains.

a) Reading Issues among Deaf Learners:

The sequence of reading and writing acquisition in deaf education remains a contentious issue. Reading, a complex intellectual skill, necessitates prior knowledge of written symbols. Deaf children, facing challenges in learning oral or sign language acquisition due to deafness, often learn both language and reading simultaneously, contributing to delayed reading skills. Studies in the 1980s and 1990s revealed a positive correlation between sign language proficiency and reading skills in deaf individuals, particularly those born to deaf parents where sign language is the primary home language (Prinz & Strong 1998; Hoffmeister 2000; Padden & Ramsey 2000).

The observation that proficient signers are also adept readers supports the idea that sign language plays a crucial role in fostering literacy among deaf children. This insight suggests alternative pathways to literacy, not reliant on spoken language phonology. In response, a bilingual education model emerged in the 1980s, envisioning sign language as the first language, laying the groundwork for reading skills in Deaf individuals as a second language. This model underscores the importance of sign language as a bridge to literacy, providing a unique and effective approach to supporting the reading proficiency of deaf learners.

b) Writing skills Issues among Deaf Learners:

Writing skills involve conveying information through written language, encompassing grammar, vocabulary, sentence structure, punctuation, organization, coherence, and clarity. Developing these skills requires practice, refinement, and an understanding of specific conventions. Deaf learners face unique challenges, such as limited exposure to spoken language impacting their grasp of grammar, sentence structure, and vocabulary. In addition to challenges with phonemic awareness, accurate pronunciation, and spelling, deaf individuals face unique difficulties in word usage and readability. The sign bilingual model of literacy development positions sign language as the first language (L1) and written language as the second language (L2). These languages differ significantly in syntax, tense, and mood designation. For instance, the

English phrase "I went" translates into three signs in Indian Sign Language (ISL), conveying the meaning "I go finish." The nuances of sign language, especially in relation to writing, become more pronounced for deaf students.

Mayer & Wells (1996) argued that deaf children encounter obstacles in learning the written form of spoken language for various reasons. Sign language lacks a standardized written form, unlike most second language (L2) learners who have written representations of their spoken languages. This absence of a written system for sign language limits deaf children's prior experience with written sign language. Additionally, challenges arise when deaf children begin learning to write, as the written form is based on an oral language experience they have never had. The lack of a direct correlation between signed and written forms adds complexity to literacy acquisition for deaf learners, highlighting the unique hurdles they face in developing written language skills.

Moore (1978) highlighted in their research work that deaf students significantly lag behind their hearing peers in terms of writing conventions. Due to challenges and delays in the writing process, Marschark, Lang, & Albertini (2006) reported a substantial gap in writing skill levels between deaf and hearing peers, quantifying that a 17-18 year old deaf student writes at a level comparable to an 8-10 year old hearing peer. On the vocabulary front, research indicates a significant delay in lexical item development, markers usage, and spelling proficiency.

c) **Mathematical Problem-**

Deaf individuals may encounter unique challenges in their mathematical learning journey. One of the fundamental issues stems from variations in language and communication. Limited exposure to mathematical vocabulary in their native sign language, as well as difficulties in translating complex mathematical concepts, can pose significant barriers. Additionally, word problem solving, which heavily relies on linguistic comprehension, may be particularly challenging for deaf students, especially when presented in written English. Access to quality education and specialized resources further exacerbates these difficulties, as disparities in resources and qualified educators can hinder mathematical development. **Nunes and Moreno (2002)** highlighted that the challenges in mathematics faced by deaf and hard-of-hearing students stem from a lack of emphasis on mathematics education for this demographic, coupled with reduced opportunities for incidental learning. In a study conducted by **Nair P., Govindan, and Ramaa S. (2014)** titled "Mathematical Difficulties Faced By Deaf/Hard of Hearing Children," the researchers investigated the mathematical problems encountered by deaf and hard-of-hearing children. The study involved assessing twenty-five deaf and hard-of-hearing children using an Arithmetic Diagnostic Test for Grade-IV. The test covered areas such as number concepts, addition, subtraction, multiplication, and division. The analysis revealed that while children demonstrated proficiency in solving simple computational tasks, they encountered difficulties in problem-solving tasks that required language comprehension. This outcome aligns with the findings of Titus (1995), which indicated that children with hearing impairment often excel in computational skills but face challenges in developing problem-solving abilities.

4. Lacking of Logical Problem Solving-

Hearing loss not only affects speech and language development but also impacts logical thinking and problem-solving skills among deaf children. Deaf individuals may face specific challenges when it comes to logical problem-solving skills. One significant factor contributing to this difficulty is the potential gap in exposure to language and communication. Limited access to vocabulary in their native sign language, as

well as potential difficulties in translating complex logical concepts, can pose significant hurdles for logical thinking. This is especially true when presented in written form in a language that may not be their primary mode of communication. These linguistic barriers can hinder the development of robust logical problem-solving abilities. Heather Maltzan (2005) conducted research on “Deaf Students and Problem Solving in Mathematics,” and reviewed four researches studies that is Luckner 1992, Frostad & Ahlberg 1999, Research by Van der Woude in 1968 and Titus in 1995 indicates that deaf and hard of hearing students exhibit delays in grasping the concept of rational number ordering and understanding the semantic meaning of word problems compared to their hearing counterparts. However, despite these differences, both groups employ similar problem-solving strategies. In summary, the findings from these studies collectively suggest that while deaf and hard of hearing students may face challenges in specific mathematical concepts, their problem-solving approaches align with those of their hearing peers.

We can explain the issues and challenges arising in acquisition of literacy in Deaf with this example. Indeed, for a deaf child growing up in a hearing home, the absence of verbal communication can create a profound and isolating experience. In such households, parents may not engage in spoken conversations or share bedtime stories, leaving the child with minimal exposure to language. Interactions with other children may be limited as well, as communication often relies on spoken words. Television becomes a visual medium with no accompanying auditory information, and telephones and radios lose their utility.

The inability to express basic needs, ask for toys, or even communicate fear creates a significant barrier for these children. In this environment, the concept of having a name might not be imparted, contributing to a sense of disconnection. The language gap that emerges between deaf children in hearing homes and the hearing world becomes a fundamental challenge that educators of the deaf must address throughout the educational journey. Bridging this gap is crucial for the holistic development and effective communication of deaf individuals within the broader society.

Gap between Language and Literacy among Deaf Learners -

The foundation of literacy is rooted in the first language learned by a child from birth, either in an auditory society through spoken language or in a signing community through sign language, developing naturally. Children with hearing impairment, due to congenital hearing loss, may not acquire spoken language as their first language, and if they do, the development may be significantly delayed. When these children enter school for formal education, they encounter challenges in both writing and reading tasks compared to their hearing peers, resulting in lagging behind. The primary cause is the weak formation of the child's first language.

Late intervention, inaccessible environments, traditional teaching methods, poor phonics, and reliance on auditory cues may not align with their learning needs. Consequently, many struggle with fundamental skills like phonological awareness and decoding, crucial for reading. Additionally, limited exposure to spoken or sign language may hinder vocabulary development.

As education advances to higher levels, where language becomes more abstract and complex, most deaf children tend to lag behind their hearing counterparts in reading, writing, and academic activities. The increased vocabulary and language load can lead them to develop a dislike for studying, giving rise to psychological issues that ultimately impact their literacy achievement levels.

Sign Bilingualism method bridging the gap between Language and Literacy development among Deaf Students:

Sign Language plays a pivotal role in the development and education of deaf children, contributing to genuine social inclusion, as recognized in major international texts. Despite consensus on its importance, debates arise regarding the application of Sign Language in the formal education of young deaf children, especially in teaching writing and reading. The discussion explores the effectiveness of Sign Language in literacy development, involving linguistic, cultural, and educational considerations. Amidst this dialogue, the Sign Bilingual method emerges as a crucial approach, bridging the gap between language and literacy development for deaf learners. This method integrates sign language, typically the native or preferred language (L1), and a second language as written (L2). Referred to as 'sign bilingual' or 'bilingual bicultural,' this approach reflects ongoing discussions within the field of deaf education, emphasizing the multifaceted nature of incorporating Sign Language in formal education settings.

Sign Bilingualism significantly facilitates language and literacy development among Deaf learners, various key points includes:

- **Bridging Communication Gaps:** Communication is essential for the holistic development of individuals. However, a significant number of deaf individuals are born into hearing families, lacking exposure to oral expression. This constraint adversely affects all dimensions of development in Deaf individuals. Sign Bilingualism facilitates effective communication between deaf individuals, within their families initially, and later with hearing educators or peers in the classroom who may not be proficient in sign language. This promotes a more inclusive learning environment
- **Linguistic Accessibility:** Sign Bilingualism provides deaf learners with early immersion in a natural language, laying the groundwork for literacy skills through signacy. This method harmoniously blends signed communication, improving language proficiency and establishing a robust basis for successful language acquisition and literacy progression in the educational experiences of deaf individuals
- **Cognitive Benefits:** The development of intellectual functional capacity requires accessible communication from birth. However, for the Deaf, verbal communication can be challenging, result impacting on cognitive development. Early exposure of sign language, and later on, combined use with written language, enhances cognitive processes, understanding and manipulating linguistic structures. This approach fosters cognitive flexibility, linguistic adaptability, and problem-solving skills, not only facilitate the cognitive benefits but also improve potential of linguistic development and made easy to literacy development.
- **Conceptual Understanding:** Sign languages often have visual and spatial components, which can aid in conveying abstract concepts. This visual representation of ideas can facilitate a deeper understanding of language and, consequently, literacy.
- **Language Maintenance:** For many deaf individuals, sign language is their primary mode of communication. Utilizing sign language in society in communication and education helps to maintain and strengthen their linguistic identity, which is vital for overall cognitive, personal, emotional and social development.
- **Facilitating Literacy Skills:** The visual nature of sign languages can provide a helpful bridge to written language. Deaf learners can relate signs to written words, aiding in the development of reading skills without any barriers. Due to strong linguistic skills, sign reading develops naturally in the deaf. Along with reading, they start learning how to write alphabet and their shape, incorporate in words and sentences, pronunciation of words in sign just like a hearing person in voice.

- **Enhancing Literacy Instruction:** Sign Bilingualism allows for more effective literacy instruction, as it addresses the unique linguistic needs of deaf learners. It provides a solid foundation in both languages, which is crucial for developing proficient reading and writing skills that is why Deaf learners build up a confidence in competitive society.

Conclusion:

The vital role of Sign Language in the development and education of deaf children is acknowledged for fostering social inclusion. Despite consensus on its significance, debates persist regarding its application in formal education, particularly in literacy development. The Sign Bilingual method emerges as a crucial bridge between language and literacy for deaf learners, integrating sign language and a written second language. The ongoing discussions reflect the complex interplay of linguistic, cultural, and educational perspectives in the dynamic field of deaf education. Balancing these considerations is key to optimizing the benefits of Sign Language for the comprehensive development of deaf individuals. The Sign Bilingual method significantly contributes to bridging the gap between language and literacy development among deaf learners. By recognizing and valuing sign language as a legitimate and essential mode of communication, this approach empowers deaf individuals to excel in both language acquisition and literacy skills, ultimately promoting their overall educational success and socio-emotional well-being.

References:

1. Luckner, J. (1992). Problem solving: A comparison of hearing-impaired and hearing individuals. *Journal of the American Deafness and Rehabilitation Association*, 25, (4), 21-27.
2. Frostad, P., & Ahlberg, A. (1999). Solving-story-based arithmetic problems: Achievement of children with hearing impairment and their interpretation of meaning. *Journal of Deaf Studies & Deaf Education*, 4, (4), 283- 293.
3. Titus, J. C. (1995). The concept of fractional number among deaf and hard of hearing students. *American Annals of the Deaf*. 140. (3), 255-263.
4. Van der Woude, K. W. (1968). Problem solving and language : A comparison of the problem solving processes used by matched groups of hearing and deaf children. Unpublished doctoral dissertation, Loyola university, Chicago.
5. Heather Maltzan (2005) “Deaf Students and Problem Solving in Mathematics, Rochester Institute of Technology in 2005.
6. Nair Prithi Govindan & Ramaa S.(2014) conducted a research on “ Mathematical Difficulties Faced By Deaf/Hard of Hearing Children” *Conflux Journal of Education* pISSN 2320-9305 eISSN 2347-5706 Volume 2, Issue 7, December 2014
7. Moores, D. (1978). *Educating the deaf: Psychology, principles and practices*. Boston (MA): Houghton Miffling.
8. Watson, L. (2002). The literacy development of children with cochlear implants at age seven. *Deafness and Education International*, 4(2), 84 -98.
9. Marschark, M., Lang, H. G., & Albertini, J. A. (2006). *Educating deaf students: From research to practice*. New York, NY: Oxford University Press
10. Paul, P. (2001). *Language and deafness* (3rd. ed.). San Diego, CA: Singular
11. Saloviita, T. & Schaffus, T. (2016). Teacher attitudes towards inclusive education in Finland and Brandenburg, Germany and the issue of extra work. *European Journal of Special Needs Education*, 31(4), 458-471.

12. Marschark, M. & C. Lee (2014). Navigating two languages in the classroom: Goals, evidence and outcomes. In M. Marschark, G. Tang & H. Knoors (eds.), *Bilingualism and bilingual deaf education*. New York/Oxford: Oxford University Press, 213–241.
13. Emmorey, K. (2002). *Language, cognition, and the brain: Insights from sign language research*.
14. Mahwah, NJ: Lawrence Erlbaum Associates. (Hickok, Love-Geffen & Klima 2002).
15. Petitto, L. A., M. Katerelos, B. G. Levy, K. Gauna, K. Tétreault & V. Ferraro (2001). Bilingual
16. signed and spoken language acquisition from birth: Implications for the mechanisms
17. underlying early bilingual language acquisition. *Journal of Child Language* 28.2, 453–496.
18. Mayberry, R. (2007). When timing is everything: Age of first-language acquisition effects on second-language learning. *Applied Psycholinguistics* 28.03, 537–549. (Janjua, Woll & Kyle 2002;
19. Morford, J. P. & B. Hänel-Faulhaber (2011). Homesigners as late learners: Connecting the dots from delayed acquisition in childhood to sign language processing in adulthood.
20. *Linguistics and Language Compass* 5.8, 525–537.
21. Prinz, P. M. & M. Strong (1998). ASL proficiency and English literacy within a bilingual deaf education model of instruction. *Topics in Language Disorders* 18.4, 47–60. Mayer & Wells (1996)
22. Menéndez, B. (2010). Cross-modal bilingualism: Language contact as evidence of linguistic transfer in sign bilingual education. *International Journal of Bilingual Education and Bilingualism* 13.2, 201–223.