

# Sign Bilingualism Method Bridging the Gap between Language and Literacy among Deaf Learners

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## ABSTRACT

This paper delves into the distinctive educational hurdles faced by Deaf and hard-of-hearing students, particularly in language and literacy acquisition. It offers a thorough examination of three prominent approaches in Deaf education: Oralism, Total Communication, and Sign Bilingualism, shedding light on their respective merits and limitations. The study tackles crucial aspects including language attainment, proficiency in reading and writing, mathematical comprehension, and critical thinking abilities within the Deaf learner community. Moreover, it emphasizes the vital task of bridging the divide between language and literacy development, underscoring the pivotal role of Sign Bilingualism in this endeavor. Acknowledging the significance of Sign Bilingualism in Deaf education empowers educators and stakeholders to foster a more inclusive and empowering learning environment for Deaf learners.

**Keywords:** Deaf, Bilingualism, Literacy, Oralism, and total communication.

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## INTRODUCTION

*“Once you learn to read, you will be forever free.” By F. Frederick Douglass*

Education encompasses the process of acquiring a diverse range of knowledge, skills, values, and attitudes through both formal and informal means, playing a pivotal role in individual and societal advancement. Within the classroom, it becomes evident that students exhibit varying learning styles, with some mastering content quickly while others progress at a slower pace. These differences can be attributed to various factors, including disabilities or disorders, sometimes a combination of both. It is from these scenarios that the concept of special education emerges, aiming to provide tailored support to address the unique educational requirements of individuals with disabilities.

Special education can be defined as a specialized approach to learning that is meticulously crafted to cater to the distinct learning needs of those with disabilities. Under the Rights of Persons with Disabilities Act 2016, there are 21 recognized types of disabilities, among which hearing impairment or Deafness is one. Deaf/deaf students, whether born with hearing loss or experiencing it later in life, often encounter challenges in acquiring language and speech in a natural manner.

The primary objective of special education programs is to ensure that all Deaf/d students and other children with special needs, regardless of the nature of their abilities or disabilities, are granted equitable access to a high-quality education. This education equips them with the tools to excel academically and socially, ultimately preparing them to lead fulfilling lives in society while enjoying a decent quality of life.

The degree of hearing loss significantly impacts the language development of Deaf or hard-of-hearing children. Language acquisition may be entirely absent, partially developed, or delayed in these individuals. In the realm of education, language serves as the fundamental foundation for absorbing any form of knowledge.

Within Deaf education, various approaches are employed to instruct Deaf students, namely Oralism, Total Communication, and Sign Bilingualism. These methodologies can be classified based on how they utilize residual hearing, sensory abilities, and modalities for language learning. Each approach is designed to cater to the diverse needs of Deaf learners, considering their unique circumstances and preferences in the learning process.

Oralism, as the initial approach, empowers Deaf learners to harness their residual hearing potential, often facilitated by appropriate assistive devices. This method is instrumental not only in fostering speech and language proficiency

but also lays the groundwork for subsequent literacy development, encompassing reading and writing skills. Undoubtedly, Oralism stands as an optimal choice for equipping Deaf individuals with the tools to thrive in an inclusive society.

For the success of Oralism, a versatile and personalized strategy is paramount. This encompasses early identification and intervention programs, intensive therapeutic initiatives, dedicated parent-infant programs, a team of proficient professionals, integration of cutting-edge technology, active family participation, and the establishment of visionary educational institutions. These components work synergistically to ensure the effectiveness and triumph of the Oralism approach in the education and integration of Deaf learners into society.

The second approach, Total Communication, adopts a multi-sensory approach in the education of Deaf students. It integrates various communication modes, such as sign language, speech, lip-reading, and written language. The goal is to provide a versatile, multi-modal framework, enabling individuals to utilize a combination of communication methods that suits them best. However, it's important to acknowledge that Total Communication comes with certain drawbacks. Its intricate nature and learning curve can be daunting for both students and educators. Additionally, the simultaneous use of multiple modalities may lead to inconsistent language development, potentially impeding mastery in any single method.

Sign Bilingualism serves as a vital bridge between language and literacy development for Deaf learners. This approach emphasizes the integration of sign language alongside written language, recognizing the importance of a visual-spatial language for Deaf individuals (Mayer, 2007). By employing both visual and written forms of language, Sign Bilingualism caters to the diverse linguistic needs of Deaf learners, enhancing their comprehension and communication abilities (Swanwick, 2001). Research shows that incorporating sign language in education facilitates better language acquisition and fosters a deeper understanding of written texts (Marschark & Wauters, 2008).

Sign Bilingualism promotes cognitive flexibility and metalinguistic awareness, leading to improved literacy skills (Padden & Ramsey, 2000). It also nurtures a strong sense of cultural identity within the Deaf community (Humphries et al., 2017). By recognizing the significance of Sign Bilingualism in Deaf education, educators and stakeholders contribute to a more inclusive and empowering learning environment for Deaf learners, ultimately narrowing the gap between language and literacy development.

### **Issues and Challenges in Deaf Education**

The Deaf education system, though meticulously organized and logical, grapples with a multitude of challenges that demand innovative solutions. Chief among these is the persistent achievement gap between Deaf and hearing students, largely stemming from limited access to quality language input during critical developmental stages. This delay in language acquisition subsequently leads to academic difficulties. Deaf education encompasses a diverse array of methods and approaches tailored to individuals with varying degrees of hearing impairment. Ensuring equal access to education remains a paramount challenge, with barriers spanning communication, social integration, and academic performance for Deaf students. The decision between sign language, spoken language, or a hybrid approach sparks debate, underscoring the necessity for personalized strategies that account for individual preferences and learning modalities.

### **Language or Linguistic issues (Verbal/Sign)**

In individuals with hearing impairments, the diminished or absent auditory input crucial for acquiring spoken language presents significant challenges in both comprehension and expression. This deficit in sound access during critical developmental stages, when language acquisition is most rapid, can impede the formation of foundational linguistic skills.

It is imperative to emphasize that extensive research has substantiated that sign languages, being natural languages, serve the same essential linguistic, social, and cognitive functions as spoken languages (Emmorey, 2002). A noteworthy discovery in these studies is the similar engagement of the left-lateralized brain network in supporting both sign and spoken language processing (Hickok, Love-Geffen, & Klima, 2002). While there is some right hemisphere involvement in sign language processing for spatial and movement aspects, the left hemisphere demonstrates dominance in this regard (Mineiro et al., 2014). These research findings underscore the significance of early identification and intervention, tailored to the needs of deaf children, in preparing them for future education.

### **Issues Related Sign Language Acquisition**

Research on sign language acquisition in children demonstrates that the development of sign language is on par with that of spoken language, showing its effectiveness in Deaf education. Studies from the USA and the UK, particularly with deaf children of deaf parents, indicate that early proficiency in sign language leads to comparable

milestones in vocabulary, sentence structure, and pragmatic skills (Petitto et al., 2001; Most, 2003; Rinaldi & Caselli, 2009). However, this pattern does not extend to the majority of deaf children who do not have native or fluent signers as parents. Typically, these children are born to hearing parents with no prior exposure to deafness or sign language. This group faces challenges in attaining fluency in sign language, experiencing a general delay in its development and struggling to catch up. It's reported that hearing parents find it challenging to learn sign language as adults, treating it as a second language (L2) (Napier, Leigh & Nann, 2007; Von Pein & Altarriba, 2011). While many of these families may create their own 'homesign,' these communication strategies don't provide the same level of early language exposure as fluent sign language from birth (Janjua, Woll & Kyle, 2002; Morford & Hänel-Faulhaber, 2011). This body of research underscores that sign language possesses its own distinct grammatical structure, affirming its status as a natural language.

### **Literacy Issues among Deaf Learners**

Deaf learners indeed face significant challenges in achieving literacy proficiency, which encompasses reading, writing, and mathematical skills. These challenges often arise from their limited or absent exposure to the phonological or signacy aspects of language, which are fundamental for the development of these skills. Here are some key points to elaborate on this issue:

- a. **Limited Exposure to Phonological or Signacy Aspects:** Deaf individuals typically have limited exposure to the phonological aspects of spoken language or the signacy aspects of sign language, which hinders their ability to grasp the foundational elements of language.
- b. **Hearing Parents and Deaf Children:** Most deaf children (over 95%) are born to hearing parents who may not have prior experience with deaf culture or sign language. This lack of experience can make it challenging for parents to provide the necessary linguistic support for their deaf children.
- c. **Impact of Motherese:** Motherese, also known as "baby talk," plays a crucial role in the early language development of children. Deaf children may miss out on this linguistic input, which can affect the germination of their natural language skills.
- d. **Processing Deficiencies:** Research studies, such as those by Mayberry (2007), Malaia and Wilbur (2010), and Mayberry et al. (2011a), have highlighted that delayed access to a first language (either spoken or sign language) can result in processing deficiencies that subsequently impact the development of literacy skills.
- e. **Literacy Skills:** Literacy proficiency includes not only reading and writing skills but also mathematical skills. Deaf individuals who face challenges in acquiring a strong linguistic foundation may struggle with all aspects of literacy, including understanding written texts and solving mathematical problems.

The primary challenges faced by deaf learners in achieving literacy proficiency are rooted in their limited exposure to language during critical developmental stages, often due to the absence of phonological or signacy input from parents. This can lead to processing deficiencies that impact their ability to develop strong literacy skills, including reading, writing, and mathematical proficiency. Effective early intervention and support, such as exposure to sign language and specialized educational programs, are crucial for mitigating these challenges and promoting literacy development in deaf individuals.

### **Reading Skills Development Issues among Deaf Learners**

The debate over whether reading should precede writing or vice versa in deaf education remains a contentious issue. The unique challenges faced by deaf children in developing reading skills are attributed to their limited exposure to phonetic knowledge and written symbols, as well as the absence of prior experiences. Here are some key points to further discuss this topic:

- a. **Simultaneous Learning:** Deaf children often start learning both oral and/or sign language and the associated meanings of written symbols simultaneously. This simultaneous approach is often a response to the need for effective communication and language development. However, it can contribute to delayed reading skill development.
- b. **Positive Relationship between Sign Language and Reading Skills:** Research conducted in the 1980s and 1990s demonstrated a positive relationship between reading skills and sign language competency. Deaf children of deaf parents, where sign language is the primary language used at home, tend to be more successful readers compared to deaf children of hearing parents. This suggests that proficiency in sign language can support the development of reading skills (Prinz & Strong 1998; Hoffmeister 2000; Padden & Ramsey 2000).
- c. **Supporting Deaf Children's Literacy Development:** Sign language has been found to play a significant role in supporting the literacy development of deaf children. It can provide a strong linguistic foundation upon which to build literacy skills in a second language, such as written language.
- d. **Bilingual Education Model:** In response to these findings, a bilingual education model emerged in the 1980s, which promotes sign language as the first or dominant language for deaf children. Sign language is seen as the basis upon which to develop literacy skills in a second language, which may be the written form of the language or another form of communication.

The controversy over whether reading or writing should come first in deaf education reflects the unique challenges faced by deaf children due to their limited exposure to language and written symbols. Research has shown that sign language proficiency can positively impact reading skills, leading to the development of a bilingual education model where sign language serves as the foundation for literacy development in a second language. This approach aims to provide deaf children with the linguistic support they need to become successful readers and writers.

### Writing skills Issues among Deaf Learners

Deaf learners often face unique challenges in developing their writing skills, which encompass various aspects of effective written communication. These challenges stem from their limited exposure to spoken or sign language, and they can affect several components of writing:

- a. **Grammar and Vocabulary:** Limited exposure to language can impact a deaf learner's understanding of grammar rules and vocabulary usage. This can result in grammatical errors and a restricted vocabulary in their writing.
- b. **Sentence Structure:** Deaf learners may struggle with sentence structure, as they may not have the same exposure to spoken or sign language syntax. This can lead to difficulties in constructing coherent and well-structured sentences.
- c. **Phonetic Awareness and Spelling:** Challenges in phonetic awareness and pronunciation can affect spelling accuracy, which in turn can lead to word usage and readability issues in written work.
- d. **Differences between Sign Language and Written Language:** The syntax and grammar of sign language can differ significantly from written language, creating additional complications for deaf learners when transitioning to writing. For example, sign languages often use different structures for tense and mood compared to written languages.
- e. **Bilingual Model of Literacy:** The bilingual model of literacy development, which promotes sign language as the first language (L1) and written language as the second language (L2), acknowledges the need for a strong linguistic foundation in sign language before developing writing skills. However, creating a written form of sign language can be challenging as it doesn't have its own established written system.
- f. **Lack of Fluent L1 Sign Language Skills:** Deaf children may not have fluent L1 sign language skills, which can further hinder their ability to learn L2 literacy (written language) effectively.

Due to these difficulties and delays in the writing process, research has indicated significant gaps in writing skill levels between deaf and hearing peers. For instance, it has been reported that 17-18-year-old deaf students may write at a level comparable to 8-10-year-old hearing peers (Marschark, Lang, & Albertini, 2006). The literature generally highlights issues such as a lack of cohesion among sentences, higher syntactical errors, variations in vocabulary usage, and limited content elaboration in the writing of deaf individuals (Devilliers 1991; Maxwell & Falick, 1992).

Deaf learners face a range of challenges in developing writing skills due to their unique linguistic experiences and limited exposure to language. These challenges encompass grammar, vocabulary, sentence structure, phonetic awareness, differences between sign and written language, and the need for a strong linguistic foundation in sign language before transitioning to writing. Addressing these challenges requires specialized support and strategies to facilitate effective written communication among deaf learners.

### Mathematical Issues among Deaf Learners

Deaf individuals often encounter distinctive challenges when it comes to their mathematical education. One of the primary obstacles arises from differences in language and communication. Deaf students may have limited exposure to mathematical vocabulary in their native sign language, and they may struggle to translate complex mathematical concepts from one language to another. Additionally, word problem solving, which heavily relies on linguistic comprehension, can be particularly problematic for deaf students, especially when presented in written English.

A study conducted by Nair Prithi Govindan and Ramaa S. in 2014 investigated the mathematical difficulties faced by deaf and hard of hearing children. They assessed 25 deaf and hard of hearing children using an Arithmetic Diagnostic Test designed for fourth grade students. This test evaluated the children's proficiency in areas such as understanding number concepts, performing addition, subtraction, multiplication, and division. The analysis of the test results revealed that the children were capable of solving straightforward computational tasks, but they encountered difficulties when it came to problem-solving tasks that relied heavily on language. This finding aligns with the conclusions of a prior study conducted by Titus in 1995, which also observed that children with hearing impairments often performed well in computational skills but struggled with problem-solving abilities.

### **Issues Related to Logical Problem Solving skills**

Hearing loss can indeed have a broad impact, not only on speech and language development but also on the development of logical thinking and problem-solving skills among deaf children. Deaf individuals face specific challenges in the realm of logical problem-solving skills, and one major contributing factor to these challenges is the potential gap in language and communication exposure. This gap becomes particularly pronounced when mathematical content is presented in written form, especially if the written language is not their primary mode of communication. These linguistic barriers can significantly impede the development of robust logical problem-solving abilities.

Heather Maltzan conducted a study in 2005 titled "Deaf Students and Problem Solving in Mathematics," in which she reviewed four research studies conducted by Luckner (1992), Frostad & Ahlberg (1999), Van der Woude (1968), and Titus (1995). The conclusions drawn from these four studies collectively suggest that deaf and hard of hearing students tend to lag behind their hearing peers in developing a strong grasp of concepts related to rational number ordering and the semantic meaning of word problems. However, despite this gap, both deaf and hearing populations tend to employ similar problem-solving strategies.

In essence, while deaf students may face specific challenges in certain aspects of mathematical problem-solving due to linguistic barriers, they are still capable of using similar problem-solving strategies as their hearing counterparts. The key lies in addressing these linguistic barriers and providing effective support and accommodations to help bridge the gap in mathematical problem-solving skills for deaf individuals.

### **Gap between Language and Literacy among Deaf Learners**

The foundation of literacy typically begins with a child's first language, which is naturally learned from birth in an auditory society or through sign language in a signing community. However, children with hearing impairments face unique challenges because they do not acquire spoken language as their first language due to hearing loss, and if they do develop it, it often happens later and may be delayed. Consequently, when they enter formal education settings, they encounter difficulties in both writing and reading tasks compared to their hearing peers, often falling behind in these areas. The primary reason for these struggles is the underdeveloped foundation of their first language.

Several factors contribute to this language gap and subsequent literacy challenges. Late intervention, inaccessible learning environments, traditional teaching methods that do not align with their learning needs, poor phonics instruction, and limited exposure to spoken or sign language can hinder the development of crucial phonological awareness and decoding skills necessary for reading. Additionally, their vocabulary development may be limited.

As deaf students progress to higher levels of education, where language becomes more abstract and complex, they often continue to lag behind their hearing counterparts in reading, writing, and academic activities. The increasing language demands can lead to a dislike of studying and, in some cases, psychological issues that affect their overall literacy achievement.

Imagine a deaf child growing up in a hearing household where parents do not communicate through spoken or sign language, bedtime stories are not shared, television provides only visual content, telephones are of no use, and radio is inaccessible. In such a situation, the child cannot even express basic needs or fears. This lack of communication and language exposure creates a significant gap between deaf children and the hearing world. Educators of the deaf face the challenging task of bridging this gap and developing language and literacy skills among deaf learners throughout their educational journey.

### **How Sign Bilingual Method Bridging the Gap between Language and Literacy Development among Deaf Learners**

Sign language plays a pivotal role in providing deaf children with access to reading, especially when an appropriate visual mediation is established between sign language and written language, rather than relying on phonological connections. The significance of sign language in ensuring the true social inclusion of deaf individuals is widely acknowledged in major international documents. However, the debate surrounding the use of sign language in the education of young deaf students, particularly in teaching them reading and writing, remains a topic of significant discussion.

The Sign Bilingual method is instrumental in bridging the gap between language and literacy development in the deaf community. This approach utilizes sign language, often the deaf individual's native or preferred language, in conjunction with a written form of spoken language. Depending on the context, it may be referred to as 'sign bilingual' or 'bilingual bicultural.' This unique language learning approach involves the use of two or more modalities, such as sign, text, and speech, as well as two or more languages.

In essence, the Sign Bilingual method recognizes the value of sign language in empowering deaf learners, allowing them to access and excel in reading and writing while preserving their cultural and linguistic identity. It is a powerful educational approach that embraces the multi-modal and multi-linguistic nature of deaf education, ultimately enhancing the overall learning experience for deaf individuals.

Sign bilingualism is a method where reception and production of sign language and spoken language take place through different channels (vision and gesture, and audition and voice respectively). Even though deaf people may receive spoken language through visual perception of oral articulations and accompanying voice (speech-reading), the two languages are differently articulated and received. Research interest in this field has thus explored aspects of bimodal bilingualism which are not encountered in the study of unimodal (where there is a shared modality) bilingualism. Here's how Sign Bilingualism widely facilitates language and literacy development among Deaf Learners:

- a. **Linguistic Accessibility:** Sign Bilingualism ensures that deaf learners have access to a natural and fully accessible language from an early age. This helps in developing a strong linguistic foundation, which is essential for later literacy skills. Foundation of Literacy is based on Oracy/ Signacy
- b. **Cognitive Benefits:** Research suggests that using a sign language alongside a written/spoken language can have cognitive benefits for deaf learners. It enhances their ability to understand and manipulate linguistic structures, which is vital for literacy acquisition.
- c. **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.
- d. **Bridging Communication Gaps:** Sign Bilingualism enables effective communication between deaf individuals and hearing educators or peers who may not be proficient in sign language. This promotes a more inclusive learning environment.
- e. **Facilitating Reading 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.
- f. **Language Maintenance:** For many deaf individuals, sign language is their primary mode of communication. Utilizing sign language in education helps maintain and strengthen their linguistic identity, which is vital for overall cognitive, personal, emotional and social development.
- g. **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.
- h. **Cultural Affirmation:** Incorporating sign language acknowledges and affirms the cultural identity of deaf individuals. This recognition fosters a positive attitude towards language learning and literacy development.
- i. **Positive Impact on Academic Achievement:** Research indicates that a Sign Bilingual approach can lead to improved academic outcomes for deaf learners, including higher levels of literacy proficiency. Promoting Reading Skill by voicing loudly/signacy.

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.

## CONCLUSION

The Sign Bilingualism method serves as a vital bridge between language and literacy development for deaf learners. By harnessing the power of sign language, often their native or preferred mode of communication, in conjunction with a written form of spoken language, this approach recognizes the unique needs of the deaf community. It acknowledges that deaf individuals thrive when they can access and engage with content in a way that aligns with their linguistic and cultural identity.

This method not only facilitates reading and writing skills but also fosters a strong sense of belonging and self-esteem among deaf learners. By embracing the multi-modal and multi-linguistic aspects of their education, Sign Bilingualism ensures that they have equitable opportunities for academic success and social inclusion. It promotes cognitive development, language proficiency, and a deep connection to their cultural heritage. In conclusion, Sign Bilingualism empowers deaf learners to overcome language barriers and unlock the doors to literacy, education, and a brighter future.

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