Language and Literacy of Deaf Children

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Abstract

Children with deafness encounter multiple problems in the course of developing their language and literacy skills. This research aimed at introducing a detailed review of the literature on issues affecting deaf children in acquiring language and literacy skills. Many problems pertaining to the development of literacy skills and the interrelationship between reading and writing are demonstrated. A review was carried out across the scientific databases (Semantic scholar- JSTOR- SAGE Journals- PubMed). The articles were categorised to address issues pertaining to the development of language and literacy skills, with a focus on reading and writing. Factors such as age, degree of deafness, student's age at the time of deafness, use of hearing aids, and the children's family and socio-economic backgrounds, all of which influence the language development of deaf children were investigated. The results of this review helped demonstrate important factors affecting the development of language skills among children with deafness, and highlighted the need for different approaches to respond to them.

Keywords: Deaf children, language, literacy skills, Hearing loss, Writing and reading.

Introduction

Deafness has various influences on children's development and attainments in terms of their language skills. Issues pertaining to the development of language and literacy skills are significant and sensitive areas for deaf children, as deafness may hinder their language attainment and development. Spoken language is not always accessible to deaf children. Sign language is not always readily available to deaf children either as over 90% deaf children are born into parents who can both hear, and do not already have knowledge of sign language (Mitchell & Karchmer, 2004). Consequently, many deaf children experience a marked

delay in language coluprehension and this has adverse effects on the development of their literacy and language (Golos & Moses, 2013; Moeller et al., 2010). The development of these skills among deaf children is a critical issue for deaf educators as well (Golos & Moses, 2013).

Language problems may subsist despite early identification and intervention (Goberis et al., 2012). Language development for deaf children has been examined from different perspectives in the literature. Developmental issues are usually affected by several factors. Such as age, degree of hearing loss, presence of other disabilities, socio-economic backgrounds, and communication among the family (Kushalnagar et al., 2010; Shojaei et al., 2016). Studies have found that early language access is a major solution to literacy challenges and can help bridge gaps in literacy skills among deaf children (Freel et al., 2011; Myers et al., 2010).

Research importance

This research aims to review the literature on the development of language and literacy skills among deaf children. This paper examines issues in language development, particularly reading and writing skills, and investigates factors that influence language development among deaf children, this review also provides useful insights on the strengths and weaknesses of deaf children with respect to language development, particularly reading and writing, in order to benefit special education teachers and parents in framing their approaches.

Research Questions

This review aims to overcome language development issues encountered in the course of reading and writing and to investigate factors such as age, degree of deafness, student's age at the time of deafness, use of hearing aids, and the children's family and socio-economic backgrounds, all of which influence the language development of deaf children. This study asks three research questions on the effect of deafness on language development as follows:

1. What are the strengths and weaknesses of deaf children related to the use of language while reading and writing?
2. What factors influence deaf children in their language development while reading and writing? What is the degree of such influence?
3. What are the adopted approaches and models relied on in addressing deaf children's language acquisition, as well as in teaching language?

The followed analysis highlighted three themes: (a) addressing the effect of deafness on language development, (b) literacy of deaf children, and (c) factors influencing language development.

Method:

The literature review included four phases: search, selection, literature description, and analysis of findings. In the first phase, studies were identified through international databases such as PubMed, Semantic scholar, and JSTOR using the following keywords: 'language and deaf,' 'writing and deaf,' 'reading and deaf,' and 'literacy and deaf.' In the first round, words targeting skills (i.e. 'reading,' and 'suiting ') were used. A large number of publications were found after this. Next, this was narrowed down using 'deaf children' as the target phrase. In the second phase, studies reporting on development levels pertaining to the reading and/or writing skills of deaf children were identified. After reading abstracts in the first phase, studies that focused on the reading and/or writing skills among deaf children were selected. Studies that examined the direct effects of popular educational approaches (e.g. auditory-oral, total communication, bilingual) were also selected. Studies that did not fulfil the criteria were omitted. In the third phase, the articles were were fully read and analyzed to describe the themes mentioned above. Table 1 shows the frequency of publications. There were numerous papers from a single journal.

Table (1) presents the frequency of publications

Name of database	Numbers of articles
JSTOR	24
Semantic scholar	31
PubMed	38
SAGE Journals	4

Results:

1. The Effect of Deafness on Language Development

The ability to understand and develop language is very important for deaf children to discover the world around them. For most children, the linguistic intake or receptiveness is possible through the auditory channel. This is not the case with deaf children. Despite the use of several means of communication such as sign language, finger spelling, and written language, a deaf child cannot develop complete linguistic intake

or input (Alothman, 2014; Herman et al., 2017). Liberman (2014) mentioned that the visual perception of language as used by deaf children differs from auditory perception, for example, written language as a visual stimulus provides limited information and written language differs from spoken language; many elements present in speech cannot be represented in writing, such as rhythm and duration (Griffin, 2011).

The development of language in deaf children is complicated. It is important to find an easy and effective means to communicate with a deaf child and this may involve either sign or spoken language. In some cases, it is clear that language development for profoundly deaf children begins early on and takes place entirely through visual, gestural, and sign language (Lederberg et al., 2013). They have limited access to language because 95% of such children have parents who can hear well (Mitchell & Karchmer, 2004). The environment in which deaf children grow up are mostly hearing oriented. They may not be exposed to sign language from an early age. This may, in some cases, lead to the lacke of opportunities for the child to obtain language. The basic difficulty that a deaf child encounters is being isolated from the ordinary speech environment (Webster, 2017). Therefore, it is not the loss of sound that is the basic challenge of deafness, but rather the language deficiency that is caused by the environment in which a child grows up (Lederberg et al., 2013).

The level of proficiency among deaf children plays a significant role in language development. For example, when deaf children engage with two languages such as sign and spoken/written language at the same time, their level of proficiency affects the extent of their mastery over language (Paul, 2009; Pichler & Koulidobrova, 2015). It may be argued that with such interactions, deaf children may produce different modes of language development. A deaf child's interactions with the people around them such as their parents are very important as these interactions can affect their rate of language development. Deaf children of deaf parents may benefit from linguistic interactions from the time of birth, and this development of language is natural (Klatter-Folmer et al., 2006). There is evidence that deaf children acquire sign language at a rate that is similar to the hearing children (Harley, 2013). Deaf children with hearing parents find it far more difficult to acquire language, as they do not have the opportunity to access language that deaf children with deaf parents do (Klatter-Folmer et al., 2006). Irrespective of whether their parents can

hear or are deaf, deaf children who had an early diagnosis of deafness and the opportunity for early language development tend to have good language (Marschark et al., 2001). Given that language acquisition is essential, deaf children should be given all opportunities for language development, such as a favourable linguistic environment and accessible language, at least in the early years of their lives (Mathews, 2017).

2. Language skills and Literacy among Deaf Children

There is a link between language fluency and the acquisition of literacy skills where the latter can enhance language fluency. Deaf children who begin schooling with some language abilities have a relatively easier time making the move to text based literacy than deaf children who may be entirely without linguistic experience (Mayer, 2007). Literacy skills involves two components, namely reading and writing. It is a subcomponent of a higher-order category that also includes direct person-to-person oral and manual communication (Garberoglio et al., 2014).

Reading and writing have a strong interrelationship, wherein writing facilitates the development of reading and reading facilitates the development of writing. Kress (2005) noted that reading is learned first and writing follows suit on most occasions. Deaf children struggle with both skillsets, particularly in areas such as comprehension, inferential comprehension, word recognition (Kyle & Cain, 2015), reading fluency (Luckner & Urbach, 2012), morphological knowledge (Trussell & Easterbrooks, 2017), and genre knowledge.

3. Writing Skills of Deaf Children

Acquirmg writing skills can be difficult for all types of children, both deaf and hearing child. One of the main issues that deaf children face is learning and using spoken language. For most people, speech is the primary means of communication and deaf children who cannot speak encounter difficulties while communicating with the world. There are other ways to communicate such as sign language, lip-reading, and gesticulation, but hearing people may not understand these modes. Therefore, writing is especially important to deaf children as it enables them to communicate with the world (Wolbers et al. 2012). There are two levels in writing. At a fundamental level, writers must produce letters, words, and sentences. This means that students must know the conventions of spelling and punctuation and use appropriate vocabulary

and syntactic structures. Heaton (1988: p 135) indicated that the following skills are involved in writing:

1) Language use, or the ability to write correct sentences and words.
2) Stylistic skills, or the ability to manipulate sentences and use language effectively.
3) Mechanical skills or the ability to use conventions peculiar to the written language such as punctuation, paragraphing, and spelling correctly.
4) Judgement skills, or the ability to write for a particular purpose in an appropriate manner with a particular audience in mind and the ability to select, an-ange, and order relevant Information. Moores (2001) believed that a deaf person's ability to communicate with hearing people may rely heavily on their writing skills. A deaf person can resort to compensatory strategies to understand a message when their grammar and vocabulary skills are limited (Cannon & Kirby, 2013). However, it is far more difficult to express oneself clearly while writing with these limitations. There are differences between students who use written language and students who use spoken language in terms of the level of awareness that is required of the speaker (Hulme & Snowling, 2014). Written language on the other hand, 'requires an explicit awareness, knowledge of how the code is put together and how it works' (Cárdenas, 2018).

4. Approaches towards Developing Writing Skills

There are several approaches towards developing one's writing skills. This section presents a brief overview of these approaches with a specific focus on deaf learners. The most cited approach for the development of writing skills is the sociocognitive approach that aims to investigate and accomplish two important goals. First, it aims to explore the cognition that a learner takes out of naturalistic settings (Marschark & Hauser, 2008). Second, it explores the diverse samples of writers and materials attempting to address a variety of cognitive styles and recognise social experiences and literacy practices that student bring to the process of writing (Marschark & Hauser, 2008). Berkenkotter and Huckin (1995, quoted in Marschark & Hauser, 2008) noticed that the most recently emergent theories (e.g genre analysis') and research have emphasised on the influence of studies in the area of 'genre analyses' on writing. 'Genre' is a standard form of textual discourse such as stories, recommendations,

or literature reviews. Marschark and Hauser (2008) argued that one key difference between novice and expert writing is the ability to move from one genre to another, and to adapt to different contextual situations, including different academic areas. They also mentioned that socio-cognitive approaches towards instructions adapting a 'genre approach' are recommended, as leaners will be more competent to write more effectively if they understand the goals and features of the target genre.

Williams and Mayer (2015) reviewed the literature on the development, instruction, and assessment of writing among deaf children aged 3 to 8 years. They found that most of the work had concentrated on spelling and when the focus was on the production of writing, the analyses were limited to the word level alone other methods of teaching and evaluating the literacy skills of deaf students have focused on understanding their competencies. Marschark and Hauser (2008) conducted research by integrating deaf students into the processes of writing in 'writing across the curriculum' (WAC) and 'writing in the disciplines' (WD). They stated that some of the opinions expressed by key WAC and WID researchers supported the idea that there are not only specialised ways of writing, but also of learning. Thus, if writing and learning are related to knowledge acquisition m a given discipline, writing will effectively promote content learning. The theory and practice of WAC and WID have prospered as major strategies in teaching academic writing. They have often resulted in writing-intensive courses. Marschark and Hauser (2008) noted that WAC and WID are in line with the best practices m deaf education that emphasise the connections among reading, writing, and learning.

5. Attainments of Deaf Children in Writing

Research has also focused on attainments of deaf children in writing. Marschark and Hauser (2008) noted that in 1960s the learning requirements of deaf children received extensive attention and an expansive proliferation of empirical research on the process of thinking while writing followed. However, research conducted throughout the 1970s and early 1980s was restricted to methods such as Think-Aloud or Read-Aloud Protocol Analysis to identify the cognitive processes that writers relied on in the production of text. Deaf children encounter problems in the course of developing their literary and cognitive skills and this may result difficulty in writing. Several examples of these

difficulties have been highlighted throughout the literature. For example, identified that deaf children encounter some difficulty in writing skills, in areas such as: (l) drawing analogies, (2) working with similes, and using metaphors with (3) specific and (4) nonspecific referents (Mcanally, et al. 1987). Comparing deaf students with their peers who can hear, Volterra and Bates (1989) noticed some differences in writing between both classes. They claimed that deaf students usually (l) generate shorter sentences, (2) avoid complicated syntactic constructs, (3) use a more limited vocabulary, (4) often delete function words (e.g. articles and prepositions) and, on some occasions, use more words than required, (5) often remove major components of the sentence (e.g. the verb 'to be or auxiliary verbs), and (6) form sentences with Incorrect word orders.

A few deaf children can write ideas in auditory style, which may be very difficult as translating such ideas into writing can be challenging. Different techniques are used to analysing deaf children's writing. Yoshinaga-ltano and Snyder (1985) identified five different types of analyses:

1. Quantity of sentences and length of composition,
2. Complexity of syntactic forms used in sentences and composition development,
3. Analysis and categorisation of errors m the composition,
4. Quantitative use of various parts of speech, and
5. Quantitative analysis of various types of transformational grammatical structures used.

Little studies have discussed the development of vocabulary in deaf children (Luckner & Cooke, 2010; Pizzo, 2018). These studies have showed that the level of vocabulary is lower for students with deafness than among those who can hear. Deaf children use more simple syntactic structures including nouns, verbs, and determinants, and make less regular use of adverbs, auxiliaries, and conjunctions than do hearing children (Kilpatrick, 2015). Several studies that have examined deaf writing have mostly focused on English as the medium of writing (Harris et al., 2017; Moores & Miller, 2009; Marschark & Spencer, 2010). Other studies have identified the difficulties encountered by deaf children in learning other languages such as Italian (Fabbretti et al., 1998) and Hebrew (Tur-Kaspa & Dromi, 2001). Therefore, it can be concluded that difficulties are not language specific.

Yoshinaga-ltano and Downey (1996) studied the written language skills of 94 hearing students and 461 deaf students aged between 7 to18 years' in different educational settings. They found that an increased degree of deafness delayed the acquisition of written language skills further. They also reported that deaf students experienced delays in the acquisition of written language skills at all ages when compared with hearing students. Another finding explained that students who used auditory oral communication experienced fewer delays 111 acquiring writing skills than children who used sign language.

6. Reading Skills among Deaf Children

According to Moores (2001), reading is a highly complex process comprising several interrelated sub-processes; the reader actively brings past knowledge and expectations to the process and anticipates what they will encounter in text-predictions that may be modified in the course of reading. Reading is a core skill that can impact performance in other academic areas. Students who find it difficult to read will also find it difficult to handle other academic subjects. Reading requires two important skills: (l) familiarity with spoken language and (2) understanding the mapping between that language and the printed word (Chamberlain & Mayberry, 2008). Schirmer and McGough (2005) identified four components of metacognition: (a) knowing when you comprehend, (b) knowing what you comprehend, (c) knowing what information you need to learn to understand, and (d) knowing how to Invoke techniques to enhance comprehension. All these strategies seem inextricably linked and require a high degree of autonomy on part of the reader.

- **Approaches for Reading Development**

A number of approaches and models address the learning and development of reading skills. For example, the 'simple view of reading', developed by Gough and Tunmer (1986) provides a good starting point for understanding reading processes. It comprises of two key factors, namely 'decoding' and 'oral language', which include reading comprehension as their product. This approach sees reading comprehension as a form of linguistic comprehension that enters the brain through visual decoding. Decoding is the process of interpreting the symbols on a page into a word in the reader's aural vocabulary bank. Oral language comprehension facilitates the interpretation of the meaning of

words. The relationship between decoding and oral language can be conceptualised in the following manner: decoding the text (recognising words in text and sounding them out phonemically) facilitates oral language comprehension (ability to understand language), and this leads to reading comprehension (ability to read and obtain meaning from what is read) (Gough & Tunmer, 1986). The ability to decode words is essential for skilled reading. Those with either very low decoding skills or very poor comprehension abilities will be weak at reading. Decoding or reading words is often a bottleneck that prevents readers from gaming a higher or more satisfactory understanding of the text (Kirby, 2007).

Deaf learners will encounter certain difficulties in taking the first step in this approach, that is, decoding the words. This may be because they may have rather limited vocabulary and more particularly synonyms. Other approaches to develop reading skills include the 'bottom-up' and 'top-down' approaches, as well as a mixture of the two. 'Bottom-up' approaches simply suggest that the reading process begins with the print on the page. Taking clues from the written features such as letters, the reader works upwards towards 'higher' levels of words and sentences, until the entire meaning is discerned. In the process, words are used to form phrases, and phrases are used to articulate ideas; and the knowledge of syntax (grammar) is very important (Cárdenas, 2018; Paul, 2009). The 'top-down' approach suggests that reading is guided by decisions made by the brain. Webster (1986) claimed that top-down processing needs prior knowledge to decide and see the deeper implications of the text. It is important to recognise that both bottom-up and top-down processing occurs frequently m reading comprehension.

- **Attainments of Deaf Children in Reading**

Studies have shown that deaf readers encounter difficulties in acquiring several reading skills, and have also found that deaf students are weaker when compared to hearing students in many areas associated with linguistic comprehension such as metacognitive strategies and word identification (Moeller et al., 2010); memory span; attention span, wherein deaf children have a low attention span and may not be able to organise their knowledge and long and short term memory processes (Marschark & Maye, 1998; Marschark & Spencer, 2010); knowledge of syntax; figurative language (Paul, 2003); grammar (Traxler et al., 2014);

vocabulary size (Pizzo, 2018); reading fluency (Luckner & Urbach, 2012); and morphological knowledge (Trussell & Easterbrooks, 2017).

Deaf students generally score lower on standardised measures of reading comprehension than their peers who can hear. Mitchell and Karchmer (2004) identified a gap in the average reading comprehension performance for 15-yearold deaf and hearing students, over a period of six years, in the ninth edition of the Stanford Achievement Test. Similarly, Marschark and Harris (1996) reported that the reading level of a deaf high school graduate is on average the same as that of an eight or nine year old child who can hear. Geers (2011) found that the lags in reading comprehension that deaf children experience in school when compared to their peers who can hear tend to increase over the years at school. Hermans, et al., (2008), studied the relationship between reading skills and sign language and found that highly developed sign language are linked to high levels of readability for deaf people who primarily use sign language. 5. Factors Influencing Language Development Deaf children come from different socioeconomic backgrounds, have different ages of onset and degrees of deafness, and may or may not use hearing aids. Some of these factors may have an impact on language development and other aspects of the personality development of deaf children (Moores & Miller, 2009). This section discusses the major factors that influence language development of reading and writing skills by deaf children.

7. Onset of Hearing Loss:

The first 36 months of childhood constitute the most critical period for language acquisition; language development is never as rapid after this period (Klatter-Folmer et al., 2006; Kushalnagar et al., 2010). The age of hearing loss plays a critical role in language development. However, there are many reasons for and causes of deafness. Some children may be deaf from birth and others may acquire deafness later in life. Children acquire speaking skills at an early age by communicating with members of the family and by imitating the speech, they hear.

- **Degree of Hearing Loss**

The degree of hearing loss can vary from person to person (McCreery et al., 2015), and is classified as mild (20-40), moderate (41-70), severe (71-95), and profound (95+) dB. The British Association of Teachers of the Deaf uses these categories. Children with a lower level of

hearing impairment are likely to use speech to communicate. Those with a greater level of hearing loss are more likely to use sign language. Tomblin et al. (2015) found that children with mild to serious hearing loss are at risk of experinencig delays in linguistic development, and noted that better degrees of audibility are associated with growth in language.

- **Age of intervention**

Researchers have attempted to explore the factors affecting reading outcomes among deaf children. Some of the underperformance in language among deaf children has been the result of delayed detection and intervention. The age of Intervention is a robust indicator for later reading capabilities (Mayer & Treze, 2018; Connor et al., 2000).

The identification of deafness before the age of six months can increase the probability of language development in deaf children. The early appropriate Intervention programme should include family counselling, fitting of hearing aids, auditory therapy, language learning, and educational strategies based on the needs and abilities of the child. Early detection and Intervention have the greatest impact on the development of speech and language. On the other hand, late identification and intervention for deafness may lead to the development of a limited vocabulary and difficulties with grammar. Tomblin et al. (2014) analysed the impact of hearing aids on language development in children with mild to severe hearing loss. They studied 180 deaf children, between ages 3 and 5. They found that the degree of enhancement of hearing ability through the use of hearing aids was associated with language development in children. Some deaf children use hearing aids and undergo cochlear implant procedures to hear well. Deaf children who used hearing aids from an early age onward had greater advantages (e.g. educationally and linguistically) than those who used them at a later stage (Nicholas & Geers 2006). The use of hearing aids has benefits for both language development and communication (Bunta et al., 2016; Teschendorf et al., 2010, 2011).

Penna et al. (2015) examined the effect of hearing aids on the linguistic profiles and the hearing skills of children. They investigated a non-probabilistic sample of 110 children aged between 6 and 10 years, who used hearing aids to address mild to profound hearing loss. Four types of tests were performed: language, speech perception, phonetic

discrimination, and school performance tests. They found that 65% of the children had altered vocabulary, whereas 89% and 94% had altered phonology and inferior school performance, respectively. They also found that the late identification and intervention contributed to losses in language development.

- **Family:**

Communication between family members and deaf children at home plays an important role in developing the deaf children language (Anderson, 2006; Crowe et al., 2012; Hintermair, 2015). Communication with deaf children from an early stage can help them understand language faster. The parents' ability to hear and the mode of communication they use can also affect the acquisition of language by deaf children. Deaf children with deaf parents are more likely to use Sign language as communication means (Anderson, 2006; Fitzpatrick et al., 2016). Deaf children with hearing parents may experience difficulty in communication because the parents' use of spoken language. Sign language is not usually available in the early years of their life. Spencer and Harrisis (2006) noted the wide variations in sign language received by deaf children and found that there are differences among hearing mothers and their language provision to their deaf children, wherein most of them had not had any prior experience using signs to interact with deaf people. However, deaf mothers, who are known to differ from hearing mothers, usually position their signing within the child's visual field while making their language more perceptible for their deaf children, and wait for the child's gaze to establish before they begin communicating. Deaf children from deaf families have better linguistic skills and achieve higher academic standards than deaf children born to hearing parents (Lederberg et al., 2013). The quality of interaction, either by sign or spoken language, also influences language development. In mother-child interactions, it is clear that the mother is not only talking and communicating with her child but is also encouraging her child to respond to her. Deaf children may experience differences in social interaction where the quality and quantity of play Interaction between deaf children and their deaf or hearing peers pertain to communication fluency (Marschark et al., 2008). Research has shown that deaf students with deaf parents who relied on sign language for communication from

birth did better at reading and writing than deaf children with hearing parents (Hermans et al., 2008).

- **Socio-economic Background**

This factor relates to the previous one, as the socio-economic background of a child influences its language development and abilities. A child who grows up in a better socio-economic background experiences better linguistic development because the socio-economic background (Lederberg et al., 2013). It provides the child with better space for communication and offers exposure to appropriate stimuli (e.g. going on trips, reading books, etc). The Department of Health and Human Services in the US (Harmer, 1999) reported that deaf people, on average, had low Incomes. School-going children from low-income backgrounds are more likely to encounter problems with academic attainment, including language development (Waber et al., 2006; Marschark and Hauser, 2008). Deaf children from low socio-economic backgrounds tend to have poor language development levels than children from moderately higher socio-economic backgrounds (Noble et al., 2005; Jaiyeola, & Adeyemo, 2018). Research has showed that socio-economic statuses significantly affect literacy development. Twitchell et al. (2015) evaluated the effects of socio-economic status and the degree of sign language skills on the English reading skills of 135 deaf students. However, socioeconomic status and sign language proficiency were not correlated in this sample; both factors were obviously predictors of reading skill. The level of education of parents is also an important determinant of deaf children's linguistic abilities. Better-educated parents may provide better learning situations and offer their children higher stimuli (Eyalati et al., 2013). They may not usually wait for their children to ask for things or wait to notice a problem with their children's language abilities, as they may already be familiar with their needs for a supportive learning environment.

- **Physical Conditions/Learning Difficulties**

A child's physical condition has a major impact on language development. The focus here is on the larynx, lips, tongue, ears, eyes, and brain. When a child is physically, emotionally, and behaviourally fit, they are more capable of developing their language skills (Levickis et al., 2018).The hearing, vocal, visual, neural, and mental capacities all have direct influences on a language development because any type of

impairment can affect the child adversely (Lee et.al., 2013). For example, a deaf child would be less active than a hearing child, and less action can result in slower language development (Cupples et al., 2014; Guardino, 2015). The Health Advisory Services (Fiorillo et.al, 2017) showed that 40 to 50 % of deaf children have emotional, behavioural problems, or both. These problems can impact language development as well.

Cupples et al. (2018) investigated language development in young deaf children and other different types of disabilities (autism, cerebral palsy, and/or developmental delay) as well. A total of 67 children were examined and they are from 3 to 5 years. The study used the Preschool Language Scale (Fourth Edition) and the Peabody Picture Vocabulary Test. They found that the children's language levels remained stable over the two years under study. This stability varied significantly across children with different types of disabilities. Children with autism, cerebral palsy, and/or developmental delays presented a drop in scores, whereas children with other types of disabilities presented a relative improvement. They found that the type of additional disability also affected language development m deaf children.

- **Communication Media:**

What a child receives from the communication media provided to it can also affect language development. When a child, for example, watches a television programme, they learn from what they are watching. Televisions are found everywhere in society and can be used for education at homes, as well as m nursery and preschool settings. Televisions contribute to the learning process by being a part of the environment surrounding a child (Easterbrooks & Stoner, 2006). When a family allows a child to watch particular programmes on television, the child receives the language used in such programmes and develops its language skills accordingly. For example, educational programmes can help children learn the alphabet and develop their academic vocabulary. Television plays a significant role in influencing children's learning (language development) and socialisation skills; further, deaf children seem interested and watch television more than their peers who can hear (Lewis & Jackson, 2001). However, the benefit of watching television depends on the choice of programme as well Mendelsohn, et al., (2008) examined the effect of watching television on a baby's language development and suggested that television and DVDs are not useful for

the development of language for babies. Children who spend more time watching such media have a slower rate of language development than children who spend less time.

On the other hand, a number of studies have found that using appropriate educational television programmes can successfully raise the literacy skills of preschool hearing children. However, only a few studies have examined whether this method can be effective for deaf children at the preschool level. Golos (2010) investigated the type and frequency of literacy skills that deaf students can integrate into the process of watching educational videos delivered in sign language. Deaf children were recorded while watching the educational video, over three sessions. The videos were coded for literacy-related engagement behaviours. The results showed that preschool deaf children relied on a number of literacy skills and behaviours regardless of their age and the extent of access they had to sign language, and that these behaviours changed after they watched multiple videos.

Educational media has been increasingly relied on as a tool to enhance the development of deaf children's language and literacy skills. For example, Golos and Moses (2013) examined 31 deaf children in preschool to identify the extent of their American Sign Language and literacy skills after watching one video from an educational video series on sign language. They found a significant improvement in the skills targeted in the video among all participants regardless of the level of the baseline ASL skills. The results showed that learning sign language and acquiring literacy skills using educational media could benefit deaf children with varied degrees of exposure to sign language. Educators of deaf children have expressed their concern over the lack of curricular resources that are suitable for and beneficial to deaf children (Alothman, 2014). They have suggested that early childhood classrooms need appropriate materials, particularly for language and literacy development. Teachers may not be fluent in sign language. Therefore, it is necessary for educational tools to support and expand the language and literacy skills of deaf children.

Approaches to Language Learning

Although there are a number of approaches and models that tackle acquiring, learning, and teaching language, two approaches are used and quoted in this study: the natural and the structured approaches. Both have

been used to teach both deaf children and those who can hear (Paul, 2009). These approaches have been adopted and used to enhance language development in educational settings (Higgins & Lieberman, 2016).

1. The Natural Approach

This approach indicates that the major purpose of a language is to facilitate communication. (Krashen & Terrell 1983, 75) It notes that for deaf children to acquire communication skills, they need to be 'exposed' to language through day-to-day communication that occurs 'naturally' in their environments It acknowledges that children do not usually follow a systematic approach to learn a language at home or in class, but rather that language is acquired and developed by children comfortably and easily in social settings and through unconscious efforts (Humphries, et al. 2012). This approach focuses on the acquisition of a language through meaningful real-life situations and involves the development of colloquial and idiomatic expressions (Paul, 2009).

Guardino and Antia (2012) believed that classroom environment, peers and teachers are also support deaf children in acquiring and developing their language skills. The natural approach indicates that teachers should be familiar with the words and structures that each child needs in order to communicate effectively. It also emphasises that teachers should help learners develop their language skills through natural and contextual methods by bringing the children's experiences, interests, and needs into class. The natural approach has been useful in language intervention programs as it empowers the pragmatic interests of learners.

2. The Structured Approach.

The structured approach is frequently referred to as the 'fonnal', 'grammatical', or 'analytical' method (Mcanally et al., 1987). It requires students to engage in meta-linguistic behaviour. For example, it requires the explicit study, analysis, and categorisation of grammatical and structural aspects of a language by a learner, such as parts of speech (nouns, verbs, and objects) (Rosemberg, et al, 2020).

Mcanally et al., (1987) offered a set of principles that apply to the structured approach. These principles can also support language instruction. Teachers who handle both deaf and hearing children may find these principles helpful in the development of instructional units and

activities focusing on morphological and syntactic skills. These principles are as follows:

1) Unfamiliar words and sentence formation rules should be presented according to normal language developmental sequences or established orders of difficulty.
2) Words featured in the phrases, clauses, and sentences used for Intervention should be highly familiar.
3) Knowledge of word or sentence formation rules should be established first in recognition and comprehension tasks, and then in formulation tasks.
4) The knowledge and control of word and sentence formation rules should be established first with highly familiar word choices.

3. Approaches Towards Supporting Language Learning Needs of Deaf Children

Although the approaches to language development for typical children may provide interesting insights, greater focus on approaches dealing with deaf children is necessary. The most influential approaches addressing language development among deaf children include the auditory oral, the total communication, and the bilingual-bicultural approaches. Each approach is discussed separately below.

- **Auditory/Oral Approach**

This approach highlights the importance of developing language skills among deaf children, and alms to help them receive and understand language through their residual hearing (auditory) and lip-reading/spoken language (oral) skills (Wearmouth et al., 2017). This approach suggests that the development of language take place through spoken language where a learner acquires language through hearing and speech, and the emphasis is often on listening skills and the development of speech and lip-reading skills. It is believed to be superior to others as it empowers learners to understand and communicate better with hearing people. A deaf person can extract information on the structure of spoken language by observing the movement of the lips, jaws, and face of the speaker. However, lip-reading skills among deaf people are related to the extent of their understanding of oral language (Dye & Pascalis, 2017). Studies have also focused on the differences among deaf lip-readers. Kyle et al. (2013) described a new test to examine speech-reading skills among 86 deaf and 91 hearing children aged (5 to 14). They examined the effects of

hearing status, age, and linguistic complexity on the ability to lip-read, they concluded that lip-reading skills showed significant improvements with age for both deaf and hearing children.

4. Total Communication Approach

The total communication approach requires that a deaf child be given the maximum opportunity to access a language. This approach allows learners to communicate using a range of mediums, such as speech, lip-reading, gesticulation, reading, writing, finger spelling, and sign language (Kyle et al., 2013). Al-Rayes (2005) highly recommended this approach in teaching deaf children, as it enables the learner to use the best/easiest method for them in any given context. This approach emphasises the individuality of each learner and gives them room to rely on the methods that suit them best in developing their language and in communicating with others (Allen & Anderson, 2010).

- **The Bilingual-bicultural Approach**

The bilingual-bicultural approach treats sign language as the 'common' and 'natural' mode of communication for deaf children (Higgins & Lieberman, 2016). It requires deaf children to be exposed to sign language as their 'first' or 'prefened' language and form of communication. The early years are known as the optimal age for linguistic development in the bilingual approach. It requires deaf children to learn and develop their sign language from early childhood onward. The bilingual-bicultural approach encourages the use of sign language as the deaf community's 'natural first language' and also highlights the importance of learning and developing skills in a 'second language' for deaf children, and recommends a community spoken language for reading and writing (Hrastinski, & Wilbur, 2016) The phrase 'sign bilingualism' is referred to two languages, namely 'sign' and 'spokell/wfitten' languages, together.

Golos et al. (2018) investigated how early childhood settings should help deaf children learn. They examined the reliance on cultural and linguistic roles in early childhood environments and instruction; they found that classrooms differ in terms of the type and frequency of cultural and linguistic providers and based on the type of communication used in the classroom, the teachers' hearing level, and the level of their sign language.

Some studies have examined social inclusion and its effects on developing language and literacy skills among deaf children. Constantinescu et al. (2015) investigated the effect of spoken language on social inclusion among 95 deaf children who were aged 5 years. Relying on factors such as 'education' and 'Interacting with society and fulfilling social roles', they found that social inclusion was influenced by speech abilities and vocabulary. Constantinescu-Sharpe et al. (2017) examined two aspects of social Inclusion, namely 'education' and 'interacting with society and fulfilling social goals'. They surveyed the parents of deaf children order categorical Interactions among school and background characteristics.

- **Conclusion and Recommendations**

This study has examined some of the relevant literature on deaf children and their language development (reading and writing) journeys, the literature review m this paper discussed two approaches related to the education of deaf children. Furthermore, it discussed the effect of deafness on language development, and how the limitations of visual perceptions can Influence the act of receiving language. It also highlighted the Importance of early access to communication. In addition, it showed the most factors influencing language development among deaf children are the onset and degree of deafness, the use of hearing aids, and family and socio-economic backgrounds. This study can offer room for both information to be derived while framing strategic directions for teachers handling deaf children, as well as future research in the field by building on the panorama of the literature shown. In conclusion, it is important to highlight that approaches to language learning offer situational strategies that adopt a mix of different approaches based on the conditions determined by the learner and the environment.

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مستخلص البحث

يواجه الأطفال المصابون بالصمم العديد من المشاكلات المتعلقة بتطوير مهاراتهم اللغوية ومهارات القراءة والكتابة. هدف هذا البحث إلى تقديم مراجعة تفصيلية للأدبيات المتعلقة بالقضايا التي تؤثر على الأطفال الصم في اكتساب مهارات اللغة ومحو الأمية، لتوضيح أهم المشكلات المتعلقة بتنمية مهارات القراءة والكتابة والعلاقة المتبادلة بين القراءة والكتابة. تم إجراء مراجعة عبر قواعد البيانات العلمية الدولية (Semantic scholar–JSTOR –SAGE Journals– PubMed). تم تصنيف المقالات لمعالجة القضايا المتعلقة بتنمية مهارات اللغة ومحو الأمية، مع التركيز على القراءة والكتابة. كذلك؛ تم التحقيق في عوامل مثل: العمر الزمني، ودرجة الصمم، وعمر الطالب في وقت الإصابة الصمم، واستخدام المعينات السمعية، وعائلة الأطفال، والخلفيات الاجتماعية والاقتصادية، وكلها تؤثر على التطور اللغوي للأطفال الصم. ساعدت نتائج هذه المراجعة في إظهار العوامل المهمة التي تؤثر على تنمية المهارات اللغوية بين الأطفال المصابين بالصمم، وسلطت الضوء على الحاجة إلى مناهج مختلفة للاستجابة لها.

الكلمات المفتاحية: الأطفال الصم، اللغة، مهارات القراءة والكتابة، فقدان السمع، الكتابة والقراءة.