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RELEVANCE OF SIGN LANGUAGE INCLUSION IN THE LANGUAGE DEVELOPMENT OF CHILDREN WITH HEARING LOSS IN CALABAR MUNICIPAL LOCAL GOVERNMENT AREA OF CROSS RIVER STATE

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Abstract
This study determined the relevance of sign language inclusion in the language development of children with hearing loss in Calabar Municipal Local Government Area of Cross River State. In order to achieve the aim of this study, three research questions and three null hypotheses were generated to guide the study. Literature review was done based on the variables under study. Survey research design was adopted for the study. 202 children with hearing loss in 3 special education schools participated in the study using the census approach. However, only 196 copies of the questionnaire were found usable. A questionnaire, validated by three experts (one each in Special Education, English and Measurement and Evaluation) and an English Language Achievement Test were the instrument data collection. Pearson Product Moment Correlation (PPMC) and independent t-test was used in testing the hypotheses. The study revealed that significant relationship between sign language usage and language development of children with hearing loss. The study also found that there is no significant difference in the language development with respect to sign language usage based on gender and school type. Based on the findings, it was recommended among others that teachers should use sign languages (total communication) in communicating to their students, irrespective of whether they are male or female, as language development is not affected by the gender of the recipient.

Keywords: Sign Language, Sign Language Inclusion, Language Development, Children with Hearing Loss

Background of the Study

The ear is one of the most important five sense organs, which must work properly for an individual to function well. If any of the parts of the ear is affected or damaged, it may result in hearing loss. **Hearing loss** is a partial or total inability to

hear. It may be present at birth or acquired at any time afterwards. Hearing loss may occur in one or both ears. Hearing loss may be caused by a number of factors, including: genetics, ageing, exposure to noise, some infections, birth complications, trauma to the ear, and certain medications or toxins (Adeleke & Oyundoyin, 2016).There are three main types of hearing loss: , sensorineural hearing loss, and mixed hearing loss.

According to World Health Organization (WHO, 2016) reported about 360 million people (about five percent) of the world's population live with hearing loss, which is considered disabling; and of this statistics, nearly 32 million are children. The vast majority of these individuals live in the world's low income and middle-income countries. For children, in fact hearing is very crucial to learning spoken language, achieving greater feats academically, and engaging in socially worthwhile activities. However, hearing loss poses a barrier to education, social integration and language development. Due to this, children with hearing loss can benefit greatly if they are identified early in life and offered appropriate interventions, like the use of sign language.

Spoken communication is uniquely human. If the sense of hearing is damaged or absent, individuals with the loss are denied the opportunity to sample an important feature of their environment, the sounds emitted by nature and by humans themselves. People who have hearing loss will have diminished enjoyment for music or the sound of a babbling brook. It is recognized that some hearing loss children are born to deaf parents who communicate through American Sign Language. Without hearing, these children have full access to the language of their home environment and that of the deaf community. However, the majority of these children are born to hearing parents. For these families, having a child with hearing loss may be a devastating situation. The loss or reduction of the sense of hearing impairs children's ability to hear speech and consequently to learn the intricacies of the spoken language of their environment. Hearing loss impairs their ability to produce and monitor their own speech and to learn the rules that govern the use of speech sounds (phonemes) in their native spoken language if they are born to hearing parents.

Consequently, if appropriate early intervention does not occur within the first 6-12 months, hearing loss or deafness, even if mild, can be devastating to the development of spoken communication with hearing family and peers, to the development of sophisticated language use, and to many aspects of educational development, if environmental compensation does not occur. It may cause delay in the development of receptive and expressive communication skills (speech and language); learning problems that may result in reduced academic achievement;

communication difficulties which often lead to social isolation and poor self-concept and may have an impact on their vocational choices. In addition, hearing loss can affect the development of children's ability to engage in age-appropriate activities, their functional speech communication skills, and their language skills. The researcher assumes that sign language may be relevant in addressing these ills in children with hearing loss. It is on this basis, that the study determined the relevance of sign language in the language development of children with hearing loss and whether difference exist in the language development of children with hearing loss with respect to sign language usage based on gender.

Sign languages (also known as **signed languages**) are languages that use the visual-manual modality to convey meaning. Sign languages are expressed through manual articulations in combination with non-manual elements. Sign languages are full-fledged natural languages with their own grammar and lexicon. According to Agomoh (2010), sign languages are not universal and they are not mutually intelligible with each other, although there are also striking similarities among sign languages. Linguists consider both spoken and signed communication to be types of natural language, meaning that both emerged through an abstract, protracted aging process and evolved over time without meticulous planning. Wherever communities of deaf or hearing loss people exist, sign languages have developed as useful means of communication, and they form the core of local deaf or hearing loss persons cultures. Although signing is used primarily by the deaf and hard of hearing, it is also used by hearing individuals, such as those unable to physically speak, those who have trouble with spoken language due to a disability or condition (augmentative and alternative communication), or those with deaf family members, such as children of deaf adults. Some sign languages have obtained some form of legal recognition such as the American Signed Languages (for example, pigeon signed English, total communication and signing exact English) (Oladoja & Oladoja, 2011).

Ozoji, Unachukwu and Kolo (2016) stated that the grammar of sign language relies on space, hand shape and movement; this language also has non manual components – facial expressions, body movements – that play an important linguistic role in constructing visual-spatial utterances. On the whole, just as in spoken languages, sign language, such as American Sign Language (ASL), is structured at syntactic, morphological and phonological levels of analysis (Scott & Ho Meiste, 2017).Leech and Cress (2011) have showed that sign language results to long-term cognitive benefits, including: +12 IQ point advantage, accelerated speech and emotional development, enables children to communicate effectively, lowers frustration levels, improves child-parent bonding, reinforces the learning

of educational concepts such as ABC's, animals, and other specific themes, helps children remember words because there is muscle memory involved, and the more senses involved in learning, the greater memory retention the child will have, improves attentiveness to social gestures of others as well as of themselves, larger speaking vocabulary and ability to form longer sentences, earlier reading and larger reading vocabulary and better grades in school outcome".

Also, Freel, Clark, Anderson, Gilbert, Musyoka and Hauser (2011) asserted that "profoundly deaf children must be exposed to sign language as early as possible or they may miss a critical learning period for language acquisition and never become fluent at signing." Assuming parents are convinced of the value of sign language for their children with hearing loss, there remains one possible hindrance to the child's language learning. In the same vein, Halliday, Tuomainen and Rosen (2017) noted that sometimes hearing parents "do not feel comfortable with sign language, especially in public, and tend to sign only when they communicate directly with the child." He goes on to say that this presents a difficulty for children with hearing loss because it disallows them access to environmental and incidental learning. If parents sign only when directly addressing their child, it "leaves the child ignorant of what is being said and constitutes an obstacle to the child's learning." In effect, lack of parental confidence could lead to semi-lingualism- the development of only a partial language which is not much better than the situation of other deaf children who, without exposure to signs, are left to semi-lingual development of English, or of no language at all.

The best hope for children with hearing loss to fully develop their language skills lies with their parents. It may be useful for parents to review their attitudes towards signing. If a parent acts in public as though the child's first language is a source of embarrassment, how will the child's perception of himself be affected during those important developmental years? And how will the child become proficient enough in his first language to allow him to grasp a second? Agomoh (2010) encouraged parents to sign as much as possible, regardless of their skill levels. "For a deaf child with hearing parents," she writes, "it is vital that parents start signing though the signing may first be simple and incomplete. This provides the opportunity for the child to start developing language." Kyle (2019) noted that several researchers have reported that children with hearing loss "speak more clearly if they have better mastery of the rules of syntax and strong skills in vocabulary and semantics."

With regards to the relevance of sign language based on gender, Dostal and Wolbers (2014) stated that historically, researchers frequently cited the hearing level of children with hearing loss as the sole culprit for performance, or lack of

performance, in a variety of areas, including literacy, theory of mind, and language development. This perspective allows for a broader consideration of languages and modalities and a wider array of strategies for meeting the needs of children with hearing loss and places special emphasis on the importance of language access at early ages.

Although the literature on language deprivation and its effects on academic outcomes such as literacy is in its early stages, researchers have examined the differences between d/hh students who had early versus late exposure to language for a number of years. Bennett, Gardner, Leighner, Clancy and Garner (2014) stated that documented differences in language development and language outcomes for male children who were exposed to ASL early in life as compared to those female children exposed to ASL later. However, such differences are not only present in those who go on to use ASL. Similarly, Nielsen, Luetke, McLean and Stryker (2016) stated that there is also potential for male children with even a mild to moderate hearing loss and who use primarily or only spoken language to experience the effects of language delay.

Similarly, Beal-Alvarez (2014) reported on a small number of case studies which have explored sign bilingual language development, with particular emphasis on the effect of early sign language acquisition on the development of spoken language. She found that "these studies have demonstrated that early sign language acquisition does not prevent deaf children from learning vocal language, but can support this process" (p. 65). Importantly, use of sign language from an early age does not inhibit the motivation and interest in the learning of speech.

Also, Nielsen, Luetke, McLean and Stryker(2016) studied six bilingual children and discovered a great deal about language milestones. They found that both a baby girl acquiring spoken French and English simultaneously and a baby boy, who was acquiring spoken French and Quebec Sign Language (Langue de Signes Quebecoise - LSQ), achieved classic linguistic milestones and exhibited patterns of lexical growth that were consistent with monolingual norms. Nelson, White, and Grewe (2012) asserted that use of sign with male infants leads to “earlier communication of wants, thoughts, and needs, advanced speech and language development, increased IQ and cognitive skills, reduced frustration and emotional outbursts, a strengthened parent–child bond, improved literacy, and increase self-esteem and feelings of satisfaction and accomplishment”. Parents may feel compelled to use baby sign as a way to “jump-start” initial reciprocal communication with a child and promote spoken language development.

Hence, the need for this study as it determined the relevance of sign language in the language development of children with hearing loss in Calabar Municipal

Local Government Area of Cross River State. The study will be of immense significance to parents, teachers, government, policy makers, students, researchers and the general public.

Purpose of the study

The main purpose of the study is to determine the relevance of sign language in the language development of children with hearing loss in Calabar Municipal Local Government Area of Cross River State. Specifically, the research seeks to determine whether:

1. Sign language usage relates to language development of children with hearing loss
2. Difference exist in the language development of male and female children with hearing loss with respect to sign language usage

Research questions

In order to achieve the purpose of the research, the following research questions were designed to guide the study:

1. What is the relationship between sign language usage and language development of children with hearing loss?
2. What is the difference in the language development of male and female children with hearing loss with respect to sign language usage?

Research hypotheses

The following research hypotheses were formulated to guide the study, and were tested at 0.05 level of significance:

1. There is no significant relationship between sign language usage and language development of children with hearing loss.
2. There is no significant difference in the language development of male and female children with hearing loss with respect to sign language usage

Methodology

The researchers adopted a survey research design. The study was carried out in special education schools in Calabar Municipality, Cross River State**.** The population of the study consists of 202 children with hearing loss in the study area (Records from the Cross River State Secondary Education Board, 2021). This comprises of 21, 61 and 120 children in Hillcrest, Greenland and Government Special Education Centers in Calabar Municipality. Purposive and Census approach was adopted in this study such that every member of the population is

involved in the study due to the manageable size. The instruments for data collection were a questionnaire titled "Relevance of Sign Language Questionnaire" (RSLQ) and an 'Achievement Test' to measure the children language development. The instruments were validated by three experts: One in special education, another in English Language and an expert in measurement and evaluation, all from the University of Calabar. To ascertain the reliability of the instruments, a trial test was carried out using 15children with hearing loss in Calabar South who were not part of the main study. The data collected were subjected to Cronbach Alpha Statistical Analysis, which yielded an overall reliability index of .84. 202 copies of the RSLQ were administered and 196 copies were correctly filled and returned giving rise to 97% return rate. After the data was collected, hypotheses were tested using Pearson's Product Moment Correlation. All the hypotheses were tested at 0.05 level of significance with 194 degree of freedom.

Results

There is no significant relationship between sign language usage and language development of children with hearing loss.

The summarized data was subjected to analysis, using Pearson Product Moment Correlation Statistical Technique and the result is presented in Table 1.

TABLE 1: Pearson Product Moment Correlation Statistical Analysis of the relationship between sign language usage and language development of children with hearing loss N=196

Variable	ΣX ΣY	ΣX² ΣY²	ΣXY	df	r-cal	Remark
Sign language usage		2,699	34,403			
			66,854	194	0.4987	
Significant						
Language development	5,396	133,686				

Result significant at p<.05, Crit-r=0.138

The result of the analysis as presented in Table 1 above revealed that the calculated r-value of .50 was greater than the critical r-value of 0.138 at .05 level of significance with 194 degree of freedom. The result of the analysis was said to be significant since the calculated r-value was greater than the critical r-value, with

this, the null hypotheses was rejected. Thus, the result implies that there is significantly relationship between sign language usage and language development of children with hearing loss. Also, since the result is positive, increase in sign language usage would consequently increase language development of children with hearing loss.

Hypothesis Two

There is no significant difference in the language development of male and female children with hearing loss with respect to sign language usage

To test this hypothesis, independent t-test statistic was used and the result is presented in Table 2: Independent t-test analysis of gender and language development with respect to sign language usage n=196

Variable	N	X	SD	df	t-cal	Remark (Gender)
Male	94	23.1041	6.2101			
				194	1.1420	NS
Female	102	24.2507	5.3240			

Result significant at p<.05, Crit-t=1.972, NS = Not Significant

From Table 2, the calculated t-value of 1.1420 was found to be less than the critical value of 1.972 needed for significance at 0.05 level of significance with 194 degree of freedom. Since the calculated t-value was greater than the critical t-value, the null hypothesis was retained. This implies there is no significant difference in the language development of male and female children with hearing loss with respect to sign language usage. Also, from the means, female students had a mean of 24.2507 higher than the mean of male students which is 23.1041; this implies that female students' language development in English Language is better than their male counterparts.

Discussion of Findings

Sign Language Usage and Language Development of Children with Hearing Loss

The finding in this regard revealed that there is significant relationship between sign language usage and language development of children with hearing loss. This is because the development of language is essential for the cognitive and

social development of all children, including, of course, those children who have hearing loss. Expressive language ability in any modality plays a major role in the development of spoken language. However, the ways in which language, cognitive and other aspects of development can best be stimulated and enhanced, and which language or languages should be learnt, are topics for on-going debate in the field of education of children with hearing loss.

The finding is supported by Leech and Cress (2011) have showed that sign language results to long-term cognitive benefits, including: +12 IQ point advantage, accelerated speech and emotional development, enables children to communicate effectively, lowers frustration levels, improves child-parent bonding, reinforces the learning of educational concepts such as ABC's, animals, and other specific themes, helps children remember words because there is muscle memory involved, and the more senses involved in learning, the greater memory retention the child will have, improves attentiveness to social gestures of others as well as of themselves, larger speaking vocabulary and ability to form longer sentences, earlier reading and larger reading vocabulary and better grades in school outcome".

The finding agree with Freel, Clark, Anderson, Gilbert, Musyoka and Hauser (2011), they asserted that "profoundly deaf children must be exposed to sign language as early as possible or they may miss a critical learning period for language acquisition and never become fluent at signing." Assuming parents are convinced of the value of sign language for their children with hearing loss, there remains one possible hindrance to the child's language learning. In the same vein, Halliday, Tuomainen and Rosen (2017) noted that sometimes hearing parents "do not feel comfortable with sign language, especially in public, and tend to sign only when they communicate directly with the child." He goes on to say that this presents a difficulty for children with hearing loss because it disallows them access to environmental and incidental learning. If parents sign only when directly addressing their child, it "leaves the child ignorant of what is being said and constitutes an obstacle to the child's learning." In effect, lack of parental confidence could lead to semi-lingualism- the development of only a partial language which is not much better than the situation of other deaf children who, without exposure to signs, are left to semi-lingual development of English, or of no language at all.

The best hope for children with hearing loss to fully develop their language skills lies with their parents. It may be useful for parents to review their attitudes towards signing. If a parent acts in public as though the child's first language is a source of embarrassment, how will the child's perception of himself be affected during those important developmental years? And how will the child become

proficient enough in his first language to allow him to grasp a second?

Language Development of Male and Female Children with Hearing Loss with respect to Sign Language Usage

The finding in this regard revealed that there is no significant difference in the language development of male and female children with hearing loss with respect to sign language usage. This is because sign language provides all parents, whether their children have optimal hearing or not, a way of furthering their children's progress and helping them to meet their highest potential. There are many credible sources of information about the advantages of using American Sign Language and various sign language systems to boost language development, literacy, and even to improve the quality of children with hearing loss speech production

The finding is supported by Dostal and Wolbers (2014) who stated that historically, researchers frequently cited the hearing level of children with hearing loss as the sole culprit for performance, or lack of performance, in a variety of areas, including literacy, theory of mind, and language development. This perspective allows for a broader consideration of languages and modalities and a wider array of strategies for meeting the needs of children with hearing loss and places special emphasis on the importance of language access at early ages.

Although the literature on language deprivation and its effects on academic outcomes such as literacy is in its early stages, researchers have examined the differences between d/hh students who had early versus late exposure to language for a number of years. The finding agree with Bennett, Gardner, Leighner, Clancy and Garner (2014), who stated that documented differences in language development and language outcomes for male children who were exposed to ASL early in life as compared to those female children exposed to ASL later. However, such differences are not only present in those who go on to use ASL. Similarly, Nielsen, Luetke, McLean and Stryker (2016) stated that there is also potential for male children with even a mild to moderate hearing loss and who use primarily or only spoken language to experience the effects of language delay.

Conclusions

Hearing problem is the third most common disease after hypertension and arthritis. If an individual's hearing is affected, it may constitute a great challenge to the persons' living because in human development, hearing is a very important factor in social and academic life. Hearing helps an individual to communicate and interact with his/her environment. On the contrary, hearing loss may hinder a person's social and emotional growth, leading to low self-esteem, aggressiveness,

labelling, stigmatisation and stereotyping. Hence, the need to re-emphasize sign language inclusion and usage at all levels of education for the wellbeing of these persons in the society, as revealed in the findings of this study.

Recommendations

With regards to the findings of the analysis of the research hypotheses put forth for in this study, the following recommendations are made:

1. Government should employ competent sign language interpreters and educators in various schools, as this would enhance the speedy language development of these students, both in school and at home
2. Teachers should use sign languages (total communication) in communicating to their students, irrespective of whether they are male or female, as language development is not affected by the gender of the recipient.

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