

**NATURAL SIGN LANGUAGE AND PROFICIENCY IN  
LEARNING SETSWANA SIGN LANGUAGE AND CURRICULUM  
CONTENT AMONG STUDENTS WITH HEARING  
IMPAIRMENT IN BOTSWANA**

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***ABSTRACT***

*Language as 'mother tongue' is the first language in which one can express oneself fully as a tool for communication. Children acquire the mother tongue with seeming ease. Language theorists have offered various explanations about how children acquire and learn how to use language. The common element in the explanations is the innate force or power within the child and the opportunities for communication within the environment. Children with hearing impairment do not learn oral language the way it is acquired by hearing children. Because of the impairment, gestural communication which is the forerunner of language acquisition in normal children, are elaborated and end up as homesign or self-styled communication systems. This paper explores the relationship between homesign language as mother tongue of children with hearing impairment and their performance in learning the academic subjects and the second sign language formally taught in school.*

**INTRODUCTION**

Communication like language is a central feature of the social and linguistic development of human beings and for those who are deaf, it is particularly important as a medium to access information and resources and a mode of identity and community membership (1). Language is a primary tool for communication. It plays an important role in culture and ethnic identification and serves as a cohesive bond, a source of pride and identification. Mahshie (2) claims that "the ongoing use of language for everyday communication over generations is one of the main ingredients in making natural language learnable for children...that this use of language by a group of people has been identified as a mechanism through which natural languages regulate their level of complexity in a way that reflects

the actual potential of the human brain.” It is therefore beneficial to communicate in a language which is shared by others.

For hearing children, the shared language is oral or spoken while for those with severe to profound hearing impairment, it is self-styled gestures and/or sign language. This variation can be traced to the difference in the hearing status between these two populations of children. Hearing children can hear and hearing being one of the main senses links sound with development, particularly language development and acquisition. Hence, their first oral or spoken language is acquired with seeming ease in the context of their experiences and environments. On the other hand, children who are deaf can hardly hear or cannot hear sounds at all. This biological limitation hinders their acquisition of spoken language. While language development for this latter group happens in ways similar to those of hearing children, starting with manual babbling and evolving into linguistic expression (3), such language ends up in the form of sign. For these children the receptive channel of communication is visual (2). Sign emanates from visual concentration on movements and facial expressions that they can easily master compared to the tedious effort they need to exert, in order to hear sounds required in oral language, plus the innate need for a communicative tool. This is the self-styled sign system during the early developmental years, which eventually become the foundation for the natural home sign language of the child.

As a communication tool, it is a fact that oral language for hearing children is what sign language is for those who are deaf. Studies on how children acquire and use oral language led to attempts at research to understand the nature of sign language development among deaf children. Quigley and Paul (4) opine that describing the primary language development of deaf children is much more complex than describing the primary language development of hearing children. Recent studies point to gestures, which seemingly appear as surface behaviours during the early stages of language development, being present among hearing and non-hearing children.

Lewis (5) cites studies which report that signs are acquired at an earlier age than spoken words, that deaf and hearing children tend to develop referential and dietic gestures at an earlier age but as they grow older, hearing children shift to the use of words while deaf children elaborate their combination of gestures leading to iconic gestures with visual similarity to the meaning conveyed. These are supported by the findings of recent researches on the expression of communicative intent through the symbolic use of gestures by hearing and deaf children, as cited in Schirmer (6), and summarised as follows:

1. Both hearing and deaf infants use symbolic gestures to communicate.
2. Symbolic gestures appear at about the same time as spoken words in hearing children.
3. Symbolic gestures seem to be used for requesting before they are used for labeling.
4. Gestures and words are both used first in routinised activities.
5. Gestural communication is an important stage in the acquisition of language.

Gestures play an important role in language and cognitive development. In the formal and informal educational context, Vygotsky, cited in (7) assumed that the communicative use of language is essential to cognitive development, thus deaf children are likely to experience difficulty in acquiring communicative use of language as well as in their cognitive development unless extraordinary educational measures are taken. Recently Schirmer (6), drawing from Reed's definition of cognition as the "acquisition and use of knowledge", stressed the interdependent relationship between cognition and language. That is, language acquisition results from the interaction among cognitive abilities (the language seed), the cognitive strategies, and the conceptual knowledge. He further claims that the deaf child begins life with a cognitive potential in the language seed. The seed needs a nourishing environment to grow into a mature language plant. This is in agreement with the nature-nurture concept on development. A recent trend on language studies is on the issue of 'mother tongue'. Mother tongue studies on the hearing population have spread to debates on mother tongue among individuals who are deaf.

This paper presents a description of findings from a study on the importance of the homesign, as the mother tongue, in learning the content of the curriculum and its role in the enhancement of the communicative skills, among children who are deaf in the primary schools. It was designed with the purpose of strengthening deaf education through the provision of improved opportunities for learning the second sign language formally taught in the classroom. It adheres to the belief that learning a second sign system is additive and not subtractive of the mother tongue.

The Terralingua definition of 'mother tongue' is adopted for purposes of this paper.

"The mother tongue(s) is (are) the language(S) one has first (provided it is a language one can express oneself fully in) and/or (voluntarily) identifies with" (8).

From this definition, it may be argued that the homesign, among children who are deaf who neither have a spoken nor 'formally learned' sign language, can be considered as mother

tongue, the language they acquired naturally. This viewpoint finds support from the findings of studies cited by Schirmer (6) claiming that “Across cultures around the world deaf individuals with no spoken or sign language have been found to communicate with gestures, and deaf children that use homesign exhibit regularities in their communication development that are similar to children learning a conventional language.”

In Botswana, young children who are deaf begin their schooling with homesign as their medium of communication with their peers and teachers in the classroom. The educational programme follows the curriculum prescribed for hearing children with English as a language subject and total communication as the teaching approach. Considering the significant relation between communicative language and cognitive development, this paper addressed the following questions:

1. To what extent does the school in each of the Centres for the deaf in Botswana utilise the homesign/mother tongue in teaching the content in the curriculum?
2. Does the use of the mother tongue facilitate the learning of the content in the curriculum?
3. Does the teaching of conventional sign develop a second language as an addition to and without eliminating, the mother tongue?
4. Is there a difference in the perceptions of teachers from the two Centres as regards the use of home sign?

## **METHODOLOGY**

Data for this study were drawn from the teaching staff of the two Centres for Deaf Education in Botswana. The Centres service the educational needs of children and youth with hearing impairment in the North and South regions of the country. The Francistown Centre is for the North and Ramotswa Centre is for the South. These Centres are residential facilities offering special education from preschool to primary levels. There is a total number of five preschool classes for early intervention (one in Francistown and four in Ramotswa), and 32 classes from standard one to seven (19 in Francistown and 13 in Ramotswa). Each class has an average of 6.5 pupils. The primary classes follow the regular curriculum with adaptations in the mode of instruction to make up for the loss of hearing, a major sensory-perceptual channel in learning. In addition, children are taught the formal or conventional Botswana sign language in English. The Centres admit children of varying ages referred by the parents and other

concerned agencies. Among the preschool group, there are children as young as two to two-and a-half years of age but majority are within the ages of four and one-half to six years.

The administrator of the Centre in Ramotswa has a Diploma in Special Education in the area of hearing impairment, with more than five years of teaching experience in the regular class while the administrator of Francistown holds a degree in Special Education and more than five years of teaching experience with hearing pupils. The staff includes male and female teachers who have completed either the Diploma in SPED or the Bachelor's degree in SPED in the area of hearing impairment. A majority of teachers have received formal training in sign language while a negligible few have undergone both formal and informal training. The teachers do not reside in the Centres. After school hours, the children are left with the resident matron who serves as houseparent. Table one summarises the personal-professional background of the teaching staff.

**Table 1. The Personal-Professional Background of the Staff**

Professional Characteristics	Francistown (n=8)				Ramotswa (n=14)			
	Male (freq.)	Female (freq.)	Total	Percentage %	Male (freq.)	Female (freq.)	Total	Percentage %
<b>1. Teaching Experience in SPED (In Years)</b>								
a. 0-5	2	1	3	37.5	1	7	8	57.1
b. 6-10	1	1	2	25	-	5	5	35.7
c. More than 10	-	3	3	37.5	1	-	1	7.2
<b>Total</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>100</b>	<b>2</b>	<b>12</b>	<b>14</b>	<b>100</b>
<b>2. Educational Qualification</b>								
a. Teachers Certificate	-	-	-	-	1	1	2	14.3
b. Diploma in SPED	-	3	3	37.5	1	7	8	57.1
c. BEd SPED	2	2	4	50	-	3	3	21.4
d. BEd Primary	1		1	12.5	-	1	1	7.2
<b>Total</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>100</b>	<b>2</b>	<b>12</b>	<b>14</b>	<b>100</b>

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<b>3. Training on Sign Language</b>								
a. Formal	2	4	6	75	1	8	9	64.3
b. Informal	1	1	2	25	-	1	1	7.1
c. Both					1	4	4	28.6
<b>Total</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>100</b>	<b>-</b>	<b>-</b>	<b>14</b>	<b>100</b>

Data were collected by one of the principal researchers through a questionnaire, plus probing interviews. The questionnaire was divided in two parts. Part one had items to capture the personal-professional background of respondents. Part two had questions and eight items on a five-point scale as regards the homesign and the children's learning of the conventional sign and communication between the deaf child and their parents. The interviews were done with teacher respondents chosen at random for clarification and with the administrator of each Centre on administrative matters.

## **RESULTS AND DISCUSSION**

### **A. Homesign and the learning of formal sign language and content in the curriculum**

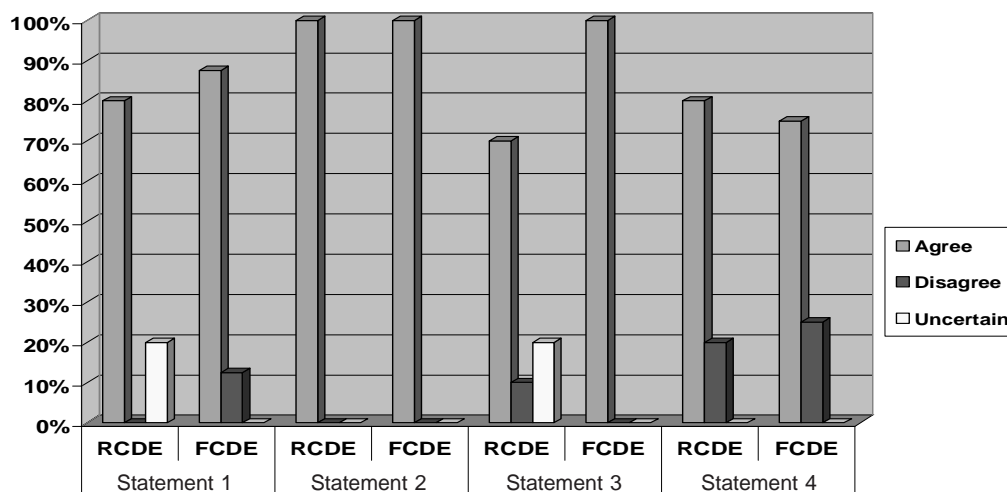
Centres use the total communication approach in teaching, with the signing component made up of the homesign and conventional sign formally taught. The conventional sign is a combination of American Sign Language (ASL) with English manual code for difficult words. In the lower primary, ASL is introduced as part of the curriculum. Teachers claim that the homesign serves as the foundation for the lesson on formal sign. At this stage, the natural homesign is also used to teach the content subjects. As the children gain proficiency in the conventional/formal sign, it is gradually used in the total communication approach and remains so until Standard seven. However, teachers at all levels admit that they use the homesign plus English manual coding in elucidating difficult issues or concepts in maths, science, social and cultural studies, among others. They claim that such practice makes learning easier for the children. It was likewise reported that children with well-established homesign perform better and appear motivated in learning formal sign lessons and in practising it. They also gain proficiency in the second sign faster, but do not forget the first language or homesign.

This is in accord with the findings of studies that deaf children who use the homesign, exhibit regularities in their communication development (6). While there may be other intervening factors in the Centres, the systematic practice of reverting to the use of the homesign, which is the first language, provides pupils access to visual and cognitive concentration to enhance learning of the content and second language. This practice seems to be along the trend in the US as reported by Mahshie (2) where more and more speech therapists support deaf children's natural acquisition of sign and also work closely with teachers, to ensure that the content they teach is presented in concepts that the children are able to talk about in sign language, or can read.

### B. Learning of conventional sign and effect on homesign

The teachers' responses to an eight-item five-point scale reflect their keen observation as regards the language and communication behaviours of their pupils in the homesign and conventional sign language. Figure one shows the responses to each item.

**Fig. 1. Teachers' opinion on homesign and learning of second sign language formally taught in school**



RCDE= Ramotswa Centre for Deaf Education; FCDE= Francistown Centre for Deaf Education

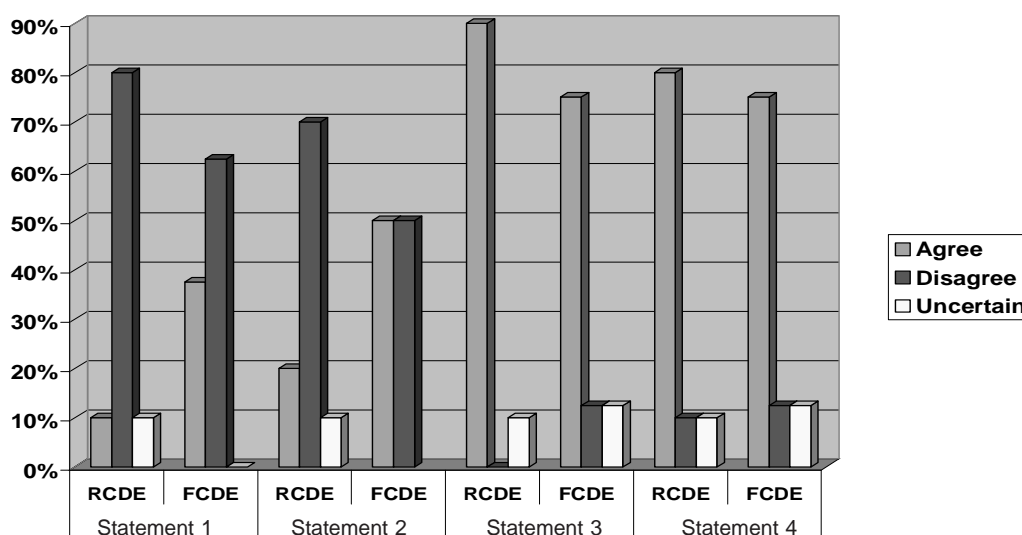
- Statement # 1     *“Homesign language is a prerequisite for learning the formal sign taught formally in school.”*
- Statement # 2     *“Children who come to the Centre during their preschool age are better learners of the sign language formally taught in school than children who come at standard one or older.”*
- Statement # 3     *“ Children who attend preschool in the Centre end up being more proficient in the use of sign language taught in the classroom.”*
- Statement # 4     *“ Children who come to the center at a later age have difficulty in learning formal sign language.”*

It was reported that very young children, two-to-two and a half years old, have very limited referential and deictic gestures which are initially used singly. After a period of time in the Centre, they combine referential and deictic gestures and their homesign expands with characteristics peculiar to the homesign of the other children who are long- time residents of the Centres. This observation appears to be in line with the argument of Volterra, cited in Lewis (5), that the development, use, and combining of gestures among young deaf children is dependent upon the child’s access to the gesturing model. In the Centre, such a model is accessed by the young child, as it communicates with other deaf children. The teachers also claim to have observed children who are new in the Centre, who have uniqueness in their homesign or mother tongue, which accounts for subtle variation among homesigns. The uniqueness or variation though, gradually disappears while the homesign is maintained.

Reagan (9), claims that signs, even iconic signs are culture-specific. It may then be that the initial variation in the signs of children, is influenced by their home culture and eventually the Centre’s culture influences the variations. These children are described by the teachers as better learners of the sign formally taught in the school which is anchored on the homesign. They further claim that they use the second sign proficiently without losing the homesign. While there is no strict written policy that prohibits the use of homesign, children are encouraged to use the conventional sign formally taught for proficiency. However, there is the natural tendency for children to use homesign in and out of the classroom to express their needs and to clarify concepts in their lessons. These show that learning of the conventional sign does not eliminate the homesign. The conventional sign becomes an additional second language for the deaf children.

Since homesign has its origin at home, the teachers' opinion as regards communication between parents and the deaf child was solicited. Figure 2 shows the teachers opinion. Teachers are of the opinion that there is no difference between deaf and hearing parents as regards the quality of time spent in communicating with their deaf child. Both type of parents tend to spend less time in communicating with the deaf child, with hearing parents using limited gestures. Whatever is the basis of this opinion is not known, hence, this issue needs to be validated through further research.

**Fig. 2. Teachers' opinion regarding communication between deaf child and parents**



Statement # 1 *“Deaf parents spend more time communicating with their deaf child.”*

Statement # 2 *“The quality of communication between deaf parents and their deaf children is better.”*

Statement # 3 *“Hearing parents tend to use very limited gesture when they communicate with their deaf child.”*

Statement # 4 *“Hearing parents spend less time communicating with their deaf child.”*

### **C. Perceptions of Teachers from the two centres: is there a difference?**

An analysis of the earlier discussions and cursory inspection of the figures cited, show that there is no difference in perceptions of teachers from the two Centres with respect to the factors explored. This may be due to the fact that both Centres are guided by the same policies that emanate from the Ministry of Education as regards curriculum matters. This finding would need an in-depth study in the future. A study that would tease out variables within the cultural context of Botswana that may provide clear explanations regarding the present findings.

### **SUMMARY AND RECOMMENDATIONS**

At the Centres, children's homesign is allowed to grow and develop naturally which shows that the children's right to practise their mother tongue is respected. It is used as the foundation for the formal teaching of conventional sign language and as a medium to explain complex concepts in the curriculum content. A significant observation is that the learning of the second sign that is formally taught in the class takes off from the homesign, and that proficiency in the second sign is additive and does not eliminate or destroy the homesign. The second sign adds to the mother tongue of deaf children in producing and understanding messages.

These observations are aptly captured in Kauppinen's statement (10) that, "A deaf person is not handicapped if his or her linguistic and cultural rights are respected." She claims that many of the signs used by the deaf emanate from their heart as well, that sign is a visual language which develops naturally. Variation in signs is part of the unique and genuine nature to communicate thoughts, feelings and needs.

The recommendations derived from this study are focused on issues pertinent to teaching methods and communication between the parents and the deaf child. Since the data in the present study were derived from teachers' reports, it is recommended that future studies look into the classroom communicative interactions between the teacher and pupils. Such studies may be able to measure the extent by which homesign and the second sign language are used in the teaching-learning situations and identify teacher behaviours that could be favourable or unfavourable to learning. It will highlight implications for strategies that may be designed to enhance the communicative and cognitive development of deaf children. Strategies

are important because of the significant relationship of communicative use of language to cognitive development, as deaf children are prone to experience difficulties in these aspects, unless extraordinary measures are taken (7).

It is also recommended that case studies on communication between deaf parents and the deaf child and hearing parents and the deaf child in Botswana, be undertaken. Such studies should cover the neonatal period to the preschool age when the child is admitted in the Centre. It will provide insights for home-based early intervention for the acquisition of language, as it links to the Centre's preschool programme.

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