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ANALYSIS OF EXPRESSIVE AND RECEPTIVE KENYAN SIGN LANGUAGE SKILLS AMONG PRIMARY DEAF CHILDREN IN WESTERN REGION, KENYA

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Abstract:
Research has shown that deaf children of hearing parents, who constitute 95% of the deaf community, find challenges in acquiring both sign and spoken languages. This study examined the competence of deaf children in Kenyan Sign Language. The study developed sign language tools in receptive and expressive vocabulary skills. These were sign order, conversation, placement and picture descriptive as a measure. In the majority of the assessment task, there were clear indicators of age effects, family background whether-deaf or hearing, and amount of contact with skilled signers. In the interview section, children tended to answer questions with short responses. The language was only reached at age ten. In a number of cases, simple questions were misunderstood and irrelevant answers were given. It was noted that the interaction with deaf children of deaf parents (DCDP) was very cordial as opposed to deaf children of hearing parents (DCHP). The picture description did not elicit proficient signing as was expected. The story description was not easy to understand and internalize because of the ambiguity of the children's signing. This was because there was no indication of the protagonist. In sign order, ages ten to eleven did not seem to understand spatial grammar reliably. This test worked better in its receptive version.

Keywords: Kenyan Sign Language, expressive language, receptive language, sign order, placement, storytelling, conversation, assessment tools

1. Introduction

Research evidence has shown that because most of the causes of deafness are not hereditary, many deaf children, about 95%, are at risk of acquiring and developing constructive language, whether signed or spoken. This is because, first, the deaf children cannot hear the spoken language used by their hearing parents and siblings and

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secondly, because their parents are not able to use Kenyan Sign Language (KSL) for social interaction during the critical language acquisition period.

This study attempted to explore the language competence of deaf primary school children in Kenyan Sign Language skills to establish KSL achievement used by deaf students, which would inform teachers within the school and outside and other professionals on the level of their performance in school.

2. Methodology

The study developed sign language tools in receptive and expressive vocabulary skills. These were sign order, Interview, placement (spatial locations) and picture description as a measure.

Teachers were informed of the study and asked to select four deaf children from each class in 12 classes, making a total of 48 children who participated in the study. It was ensured that the chosen children did not have any additional handicaps. A total population of forty-eight (48) deaf children therefore took part in the study, ie twenty-three boys (23) and twenty-five (25) girls. The average age ranged between 5 years 1 month to 15 years 2 months. This age range was identified as research has proved that it is the period in which language growth was greatest. Additionally, children of this age range were believed to express themselves freely and naturally.

The tests were carried out in a quiet classroom either in the evenings after classes or on Saturdays in the mornings to avoid class disruption. An exception was the children's preferred mode of communication, which was observed in the playroom. Each child was examined individually. All demonstrations and instructions were presented by two deaf classroom assistants with the assistance of two other hearing teachers proficient in Kenyan Sign Language.

Each test took between 15 and 20 minutes; however, occasionally, this time varied considerably with children who required support to have questions clarified and, therefore, repeated. There were twelve settings or grades. The settings differed in a number of key dimensions. Class 4 had been taught for 6 years by a teacher with sign language interpreter skills and had a child from a deaf parent. Class 6 had two deaf children from the same family. Classes seven and eight had used Kenyan Sign Language for nine and ten years, respectively. They had even more contact with other deaf people in the deaf community.

3. The Tasks

The following four receptive and expressive Kenyan Sign Language tools were used to measure Kenyan Sign Language reception and production:

a) Interview schedules,
b) Sign order,
c) Placement (spatial locations),

d) Picture description.

3.1 The Interview

The interview task was designed to put a child in a relaxed mood and to encourage conversation. The child was asked a number of simple questions by a familiar adult about him/herself, the school, the classroom and the family at home. Responses were analyzed in terms of appropriateness, correctness, use of space, use of parameters, body shifts and general conversational ability. The use of facial expressions and turn-taking was key as well.

3.2 Sign Order: Reception

In this task, simple action pictures were used to examine whether children were competent in KSL sign order, which means the order of and relationships between signs to provide meaning in a sign language sentence. There were two parts to this section. The child first watched a deaf adult sign a sentence in KSL, for instance, MAN(a) WOMAN(b) FOLLOW(ab) (in this sentence, the superscripts referred to the location). The man was placed at appoint (a) in space, the woman at point (b), the sign FOLLOW then moved through space from (a) to (b) implying the man followed the woman. The child was then shown pairs of the base pictures with the locations of the subjects changed. (So one picture had a woman following a man, and another had a man following a woman). The child had to select the correct picture for the sentence signed by the examiner. A mark was only awarded on the recognition of the subject, object, verb and the correct sign order.

3.2.1 Sign Order: Expression

The production part of the sign order involved the identification, production of the vocabulary item, using appropriate verbs, putting the items in the correct spatial arrangements and using the inflected form of the verb. The child was given a picture to examine before the deaf assessor signed to the child in a particular ordering, indicating the spatial arrangement of the picture.

The picture portrayed a woman giving an envelope to a man. In this sentence, the woman was signed and placed at point (a) in space, and the man was placed at point (b). The envelope was signed and, while still held, moved from point (a) to point (b), showing the use of the directional verb ‘give’, which meant that the woman gave the letter to the man. The child was asked to sign a selection of pictures to indicate how well he could produce sign order. A mark was only awarded for the production of subject, object, vocabulary item and the directional verb.

3.3 Placement (Spatial Locations)

In sign language, the setting up of people, objects or places in space in relation to the signer or to each other, for reference or during descriptions of real or imagined vents is called placement (Miles, 1998:110). The placement task required the accurate setting up

of objects in space in relation to each other (objects). The task showed a picture of a man sitting at a table. On the table were three items placed at various locations in relation to the man in the picture, e.g. a book on the left side of the table, a pen at the center of the table and a ruler on the right. The child was allowed to examine this arrangement before being asked to sign the spatial arrangements. In the comprehension part, the child was then required to indicate the appropriate picture that corresponded with the spatial locations signed by the assessor. A mark was only awarded on the correct arrangement. In the next part of the production, the child was shown the base pictures and asked to reproduce the spatial arrangement. A mark was awarded for the correct production of the base pictures.

3.4 Picture Description

This section elicited a simple picture of school children playing. The child was asked to describe what was happening. The significant concern here was the KSL production, especially the correct use of sign parameters, the extent and use of verb targets, facial expressions, placement, coherence word order and the overall quality of the child's production. The assessor sat beside the child and examined this.

4. Results and Discussion

In the interview section younger children (aged 5-7 years) had requested repetitions from the assessor before they were able to answer the questions. Those aged 5-7 years and even a few of 8 years, were only able to articulate single signs during the interview. In circumstances where they did not understand the question and were unable to provide answers, younger children simply nodded their heads or smiled or, better still, shrugged their shoulders, a characteristic that is common to this age group, including their hearing counterparts. At other moments, they simply looked down, and the assessor had to make eye contact again.

Although a measure of MLU (mean length of utterance) was not within our scope, it was evident that older children aged 12-15 years produced longer utterances, and understood questions with little repetition or clarification though this was still below what was expected of this age compared with hearing counterparts. There was also a noticeably better performance by class 4, mean score of 8.37, SD=0.69 compared with other classes given their mean age. This was apparently attributed to the class having been taught by a teacher with good signing skills and experience. In this class, too, was a child with deaf parents.

In sampling scores, it was noted that chronological age was also a predictor of singing competence. The result showed better performance by age 11-12, whereas most of the class 4 children had a teacher with good signing skills. This category of children had an even better performance than years 13-14. It was generally noted that older deaf children were better at signing though there were variations within the classes.

4.1. Sign Order Comprehension

It was evident that years in school had an effect on performance. Those with more years in school did well. However, age at the onset of deafness did not indicate an effect. Performance of sign order by gender did not show a significant relation, though there was a slightly better performance in favour of boys. Neither difference reached statistical significance**.** An examination of the deaf children with deaf families showed better performance in sign order comprehension than the rest. They were able to interpret the subjects and objects, and they inflected the verbs correctly. This seems to show the effect of early sign input on deaf children in deaf families.

4.2 Sign Order Production

Here, children were shown pictures and asked to sign in a way that reflected the arrangements of the participants. They had to provide the grammatically correct, spatially related utterance. They scored marks for correct production, subject, object and verb. Children had some difficulties in the production part because, as Kyle (1990) puts it,

> "*Firstly, it appeared to be a task similar to one with which the children were familiar, i.e. 'Name the other object', and secondly, the children may not have felt the need to disambiguate the relationships of the objects and people in the pictures. Deaf children are often used to naming items."*

Vocabulary knowledge and verbs were analyzed separately from the complete sentence production. There were 10 vocabulary items and 5 verbs which were analyzed. This did not go as well as was expected. The number of verbs inflected was fewer compared with the naming of the vocabulary items. Here we could see better performance in the older children too. The major problems were the grammatical features which the test was designed to highlight. Children tended to name the vocabulary and not to comment on them. At the age 5-9 years level was single sign naming. From the age of 10 years onwards, the responses were a bit complex and involved two sign constructions.

It appeared that the standard response to identifying elements of a picture did not naturally lead to fully grammatical utterances with appropriate verb inflexions. The sign order performance showed that deaf children rarely had sign order production skills. The results also suggested that comprehension of it only started at the age of 9 on average, though comprehension was better than production.

4.3 Placement (Spatial Location)

The focus here was to assess the understanding of spatial locations in relation to each other. The task had three items placed on the table. A book is on the left edge of the table, a pen is at the centre, and a ruler is at the right edge of the table. The assessor signed the spatial location of these items related to each other while the child was observed. The

child had to select a corresponding picture which depicted the arrangement from the rest, which had these items placed at different locations. There were four different arrangements, and a chance score was 2.

In the production part, a mark was scored on the correct production of the three vocabulary items and their correct spatial location relative to each other. Understanding of the locations was evident, though even at this age, they still kept on confusing the directions especially left and right. After signing the vocabulary item, there was a brief pause, thinking of where to place the item, especially during the production. On many occasions, the location of the items was not clearly marked, resulting in placing them at the same location or in opposite locations.

4.4 Picture Description

Of concern in this task were the KSL production, the extent and use of the verbs, the use of the facial expressions and the overall quality of the child's sign production. In general, the picture description task did not seem to elicit much proficient sign language production in almost all the children. Ten verb targets were expected to be elicited through the descriptions but were not in two-thirds of the population. The target verbs expected included WALK, PLAY, PULL, LOOK, CLIMB, WRITE, CARRY, CUT, BRING AND SIT. The results were not as was expected from the young children, ages 5-7 years. They kept pointing at the items and people in the picture and signing the names without commenting on them.

A few older children, age 9 and above, did fairly well and produced a few target verbs within their description. Evidently, older children used English word order. A sentence like "*The thin boy climb up"* was noted, which according to Kyle 1990 was apparently due to a lack of role models to instill sign word order. Sometimes, children go out of their way and start to act out stories by copying the posture and imitating the actions instead of actually describing the picture. Older children from the age of 8 to 15 years produced more verbs and tried to use them in simple descriptions than did the young ones who simply pointed at the pictures and signed the names. The picture description task, though, was seen not to elicit rich sign language production because the children's signing, in most cases, was unclear and incomprehensible. This made this assessment rather difficult. A close analysis of the transcripts, however, still revealed that they were less fluent than hearing children of the same age in spoken language. The length of sentences needed to be longer, but there was a tendency for deaf children to name only and never evaluate.

5. Results

This section covers the results of the findings. Of significance is that the age of children and contact with skilled signers have tended to be predictors of better signing performance. This was also true of deaf children from deaf families.

It was evident that older children from age 10 years and above showed better performance in sign features such as spatial grammar, produced longer utterances and had better vocabulary production, unlike the younger ones who mostly produced single signs. Deaf children of deaf parents (DCDP and Class 4, had longer contact with a teacher with good singing skills. The production part of the tasks was more difficult for the deaf children than the comprehension part. This was more evident in the picture description and sign order production tasks. Though this was not our focus, there is evidence that the use of speech was not favorable for the children in the study. No child was able to use speech alone, and the rest who were reported to be using it with gesture were reported to produce unintelligible speech. A few were rated as being able to lip-read, but there were variations in these.

6. Discussion

In the majority of the assessment tasks, there were clear indications of age effects, family background – whether deaf or hearing – and the amount of contact deaf children experienced with skilled signers. In the interview situation, children tended to answer the questions with very short responses. Longer utterances were not reached until children were about 10 years old. Simple questions were misunderstood, and irrelevant answers were given. Kyle (1990) suggests that this occurs due to a lack of sufficient role models to correct deaf children's sign language, as it occurs in similar situations with hearing children mastering spoken language.

Meadow *et al.* (1981), however, suggest that the interaction and communication of DCDP are usually very cordial as opposed to those of DCHP. They suggest that DCDP interaction shows characteristics of extended and enjoyable communication and that DCDP are able to sustain interaction for longer periods of time to elaborate on ideas in a reciprocal fashion and in general, their conversation reflects a mature conversational style, as opposed to those of hearing parents who are found to be more intrusive and directive in their communication. Perhaps it is these areas of interactional needs which made the qualitative difference between DCDP and DCHP in this study. Deaf Children of Deaf parents showed clear evidence of better conversational ability. Although DCDP signs better than DCHP, Kyle (1990) reports that one of the most disadvantageous elements of deaf children's interaction is that the teachers and other adults with whom they interact with are predominantly second language learners in sign language and, as a result, are not fluent signers, often using simultaneous spoken/sign communication.

A survey carried out in a number of schools for the deaf by (Adoyo, 1994) showed that out of 41 teachers, only 7 were able to sign well. The rest used sign-supported speech (SSS), still with difficulties although the use of sign language was advocated in the school. This kind of situation is not ideal for deaf children's sign acquisition and development, even if the child had initial sign input.

As pointed out by Kyle (1990:54):

"It is not simply the content of the hearing adult's utterance in sign that is important, but the way in which this is delivered and the way in which it takes into account the unique interactional style necessary in a visual world".

In general, the picture description did not elicit proficient signing as was expected. Not many children were able to produce and use the expected target verbs. The description tasks, however, showed older children, from the age of 10 years, starting to produce expected verbs and using them in simple and short sentences. This suggested both development and conceptual growth. The younger children, aged 5-7 years, simply pointed at the pictures and signed the names.

Generally it was observed that the story description was not easy to assess due to some children's incomprehensibility in production. The omission (ellipsis) of the subjects and sometimes objects in their description made it impossible to determine "who did what to who". This incomprehensibility regularly resulted from several phenomena occurring at the same time. For instance, it was not easy to analyze a sentence like this:

CLIMB UP---------- BUILD ROOF ---------- AFRAID

Because the description did not start with an introduction of the protagonist, it was not clear who was climbing up, who was building the roof, and who was afraid and what he was afraid of. The sequence of null-subject made the description quite difficult to understand. The disambiguity of the child's signing seemed to be caused by too frequent use of null-subjects and by not lexically or pronominally introducing and reintroducing a protagonist combined with the application of unestablished locations in the syntactic singing place.

In Sign Order performance, children up to age 10 – 11 years did not seem to understand the spatial grammar reliably. This test worked best in its receptive version but varied in both vocabulary and grammar. Children tended to name the elements of the picture, but to choose the wrong verb. As Kyle (1990) would put it, deaf c*hildren are often used to tasks asking them to 'name the object'*. The vocabulary knowledge in the sign order tasks, which was analyzed separately, yielded better scores than the use of verbs, though this is only a small part of linguistic development which, Kyle (1990) says, does not actually take into account the interaction and construction of language by the child. According to Kyle, there are more important parts of linguistic development that need consideration. In the Spatial Location task, most of the children in the study produced vocabulary items well. The spatial locations in the syntactic singing space in relation to each, however, caused some challenges for a number of children. Children found it challenging to sign the spatial locations of the objects in relation to each other.

From the literature, it is noted that about 90% of deaf children born to hearing parents acquire language in the most unfavorable way, that is, in the absence of good sign language models (Kyle, 1990). The situation in this study was not an exception. Most of the children have entered the school without a firm language base, and the actual

socialization in sign language, which they receive from peers, only starts at about year 6 or 7, and teachers have to do some patchwork.

There is, therefore, a need for intensive sign language in-service training for teachers. In my view and based on the findings, proficiency in sign language should be a prerequisite for the employment of teachers in schools for the deaf. Additionally, there is a dire need for the employment of teachers who are deaf for social interaction with deaf children at an early age in school. This will take care of the critical age of language acquisition.

Additionally, another way of dealing with deaf children's low level of language performance would be to ensure early diagnosis of deafness and to provide the child with access to language models, that is, KSL native signers, from an early age to develop interactional skills.

Johnson *et al.* (1989) provide a model program which calls for the use of deaf role models in the early years of deaf children to encourage sign language development. According to Kyle (1990), this kind of program would ultimately provide adequate development of other languages. There is a need for real educational Kenyan Sign Language policy from early childhood to university.

7. Conclusion

The focus of the study was to assess Kenya's sign language competence among primary deaf children in 12 grade. It is apparent from the findings that deaf children have difficulties in the acquisition of Kenyan Sign Language grammar. The findings do, however, suggest that deaf children of deaf parents (DCDP) have a more complex linguistic performance compared with deaf children of hearing parents (DCHP). Many factors appear to influence their language complexity, the strongest being parents' language use at an early age, their attitude towards the language, and the amount of contact deaf children have with deaf parents, colleagues, and role models. However, the general performance of all the deaf children in Kenyan Sign Language in this study still remains below the expected level.

Conflict of Interest Statement
The author declares no conflicts of interest.

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