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ABSTRACT

This paper presents the results of a study on communicative interaction patterns of three nonspeaking children (ages 8-12) with physical disabilities and their adult speaking conversation partners in three different interaction situations (with a speech therapist in a rehabilitation center, during conversation with their mothers at home, and during mealtime with an assistant at school). Results showed that the speaking adult dominated the content and the flow of the conversation with the exception of one assistant whose style of interaction positively stimulated the children's initiating behavior. Little variance was found between interaction patterns in the home situation and in the therapy situation. Two children predominantly used vocalization and gesture, alone or in combination, across all situations. The third child predominantly used eyegaze. The children made minimal use of their communication aids, which were non-electronic aids with Blissymbols and pictographs. The children used their aids primarily as a means to initiate topics. (JDD)

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COMMUNICATIVE SKILLS OF NONSPEAKING CP-CHILDREN: A STUDY ON INTERACTION

by

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1. Introduction

In the last decade, most researchers and clinicians have accepted that the ultimate goal of intervention with individuals who lack functional speech should be functional communication in all kinds of environments (Harris, 1982, Kraat, 1985, Light 1985). Due to intervention, many nonspeaking children in the Netherlands can make receptive use of a great number of different graphic symbols, for example Blissymbols or pictographs. They also appear to be capable of using these symbols productively in instructional settings. Nevertheless, most clinicians have observed that these children have great problems with playing an effective role in communication in the various natural environments in which they participate.

Communication involves at least two people. Both partners are mutually dependent in the communication process. So, the communicative role of the children may be facilitated or hindered by the interaction style of the speaking partner. Intervention programmes should focus not only on AAC systems and their users, but also on the role of speaking conversation partners in varying settings.

This presentation will focus upon the question of what is happening when young AAC users communicate with different speaking partners. I will present the results of a study on communicative interaction patterns of three nonspeaking children and their speaking conversation partners in three different interaction situations (Heim, 1989). The project was carried out at a Dutch rehabilitation Center in 1988 and 1989 and was subsidised by the Dutch Prinses Beatrix Fonds.

This paper is organized in three parts. First, I will discuss the goal and the specific research questions of the study. Second, the methodology will be described. And finally, some of the results will be presented.

2. Research goals and questions

The main goal of the project was to develop a useful and reliable system for the description of the patterns of communicative interaction between nonspeaking children and important adults in their daily lives.
A systematic description of interaction patterns must serve as the basis for intervention strategies to improve the communicative skills of nonspeaking children. Moreover, if we have a reliable analysis model at our disposal, it will be possible to investigate communicative development longitudinally and thereby evaluate the effects of intervention programmes.

This project focussed on communicative roles (initiating and responding behaviours) and modes of communication. The analysis was oriented around the following questions:

> What was the influence of the child and the adult on each other in discourse and what was the influence on the content and the flow of conversation (communicative roles)?
>
> Which means of message transmission were used by the children and by the adults (modes of communication)?

Furthermore, we were interested in possible variation in effect on the patterns of interaction produced by different partners and different situations.

3. Methodology

A boy (8 years) and two girls (8 and 12 years) were videotaped. All children are congenitally nonspeaking and physically disabled. They all use a non-electronic aid with Blissymbols and pictographs.
The children were videotaped in three different situations. First, during free conversation with a speechtherapist in the institution. Second, during conversation with their mothers at home. And third, during mealtime with an assistant at school. In Table 1 you will find a scheme of all dyads. Two adults were filmed twice, with two different children.

Table 1: Scheme of the interaction partners in the three videotaped environments

child	speechtherapy	home	mealtime
Bert (8 y.)	speechtherapist 1	mother Bert	assistant 1
Marjan (8 y.)	speechtherapist 2	mother Marjan	assistant 1
Irene (12 y.)	speechtherapist 1	-----*	assistant 2

* recording not transcribable due to technical problems

From each videotape a 10 minute interaction sample was fully transcribed for both child and adult to record the following behaviours: speech and vocalisation; selection of graphic symbols on the communication aid; eyegaze; gestures and actions; body posture and facial expression.
The written transcripts were segmented into discourse units: ***communicative turns*** and ***turn opportunities***. Turns are defined as intentional behaviour directed towards the partner. Turn opportunities were defined as pauses of 1 second or more between two turns of the same participant.

The system of discourse analysis employed was derived from the coding system developed by Janice Light in her important study on interaction patterns of children and their primary caregivers (Light, 1985). With regard to the first research question (communicative roles), all turns were coded either as an ***initiation*** or as a ***response*** according to their retrospective relationship with the previous discourse unit. Turns in which the discourse topic changes are scored as ***initiations***, turns in which the topic remains the same are scored as ***responses***.
All turns are also scored according to their relations with the subsequent discourse unit, that is the presence or absence of a claim for a response of the partner in the subsequent turn. Turns with a maximal claim for a response (for instance questions, requests) are scored as ***obliges***, turns with a minimal claim for a response (for instance confirmations and denials, clarifications) are scored as ***comments***.

With regard to research question 2 (modes of communication), all turns were coded according to the mode or combined modes of communication used to convey the message. We distinguished the following communication modes:

speech and vocalisation
selection of graphic symbols on the communication aid
eyegaze
gestures
facial expression.

Interjudge and intrajudge reliability coefficients for the coding system were calculated on a random sample of the transcripts with Cohens kappa. Coefficients for communicative roles (question 1) were as follows: for child behaviours, .80 and .83 respectively; for adult behaviours, .82 and .93 respectively. For the variable modes (question 2) the coefficients were as follows: for child behaviours .87 and .89 respectively; for adult behaviours .69 and .91 respectively.

4. Results

Discourse Status

As in earlier studies (Harris, 1982, Light, 1985), the results of the present study indicate that in most dyads the speaking adult is dominant in her influence on the content and the flow of the conversation. In general, the adults produced more communicative turns than the children. They also introduced twice as many discourse topics as the children in the interaction. And finally, they produced a large amount of 'obliges' (on average 65%), that is turns which demand a response from the partner.
The children, on the other hand, forfeited an average of 20% of their turn opportunities. They were not allowed much time to take their turns; usually the adults continued speaking after a potential speaker-switching pause of 1 second. While the children were able to respond to topics at hand, they had great difficulty in elaborating on these topics. They primarily played a respondent role; a mean of 44% of their turns consisted of 'minimal' answers (just 'yes' or 'no' or equivalents).

Little variance was found between interaction patterns in the home situation and in the therapy situation. The substantial influence of the mothers and the speech therapists on the interaction process was highly consistent over all dyads.
At mealtimes, the three dyads spent half as much time on communication. In each dyad there were several longer periods of silence (up till 60 seconds). In this situation the children had more opportunities to initiate communicative sequences.
Two of the three children were taped with the same assistant during mealtime. The style of interaction of this assistant differs not only from the style of the second assistant, but also from the style of the mothers and the therapists in several aspects. At the same time the interaction of the two dyads in which this assistant participated revealed patterns which were often the mirror image of the patterns with other conversation partners. For example, the other partners produced twice as many topics as the children, whereas in these interactions both children introduced twice as many topics as their partner.

It seems that the style of interaction of this particular assistant is positively stimulating for the initiating behaviour of the children. This style can be characterised as follows. The influence of nonspeaking children on the interaction seems to improve when the partner produces less 'obliges' and more comments. Anticipatory attitude towards the child, reacting to his or her initiatives, seems to stimulate initiating behavior. Less adult talk (not immediately filling up silence) and, in general, more nonvocal communication gives the child opportunities to introduce discourse topics. When the speaking partner repeats her own topic introductions in the form of comments, the child can feel free to accept or to reject those topics and so influence the content of the conversation.

Modes

All children used multiple modes to communicate. Two children predominantly used vocalisation and gesture, alone or in combination, across all situations. The third child predominantly used eyegaze (see Table 2). This difference is directly related to the individual physical handicaps.

Table 2: Mean proportions for selected* modes across all situations (% of turns)

modes	Bert	Marjan	Irene
vocalisation/ speech	48%	50%	0%
voc. + eyegaze	9	19	14
voc. + gesture	14	13	1
eyegaze	4	2	69

* Only these modes were compared which were most frequently and used in alle situations.

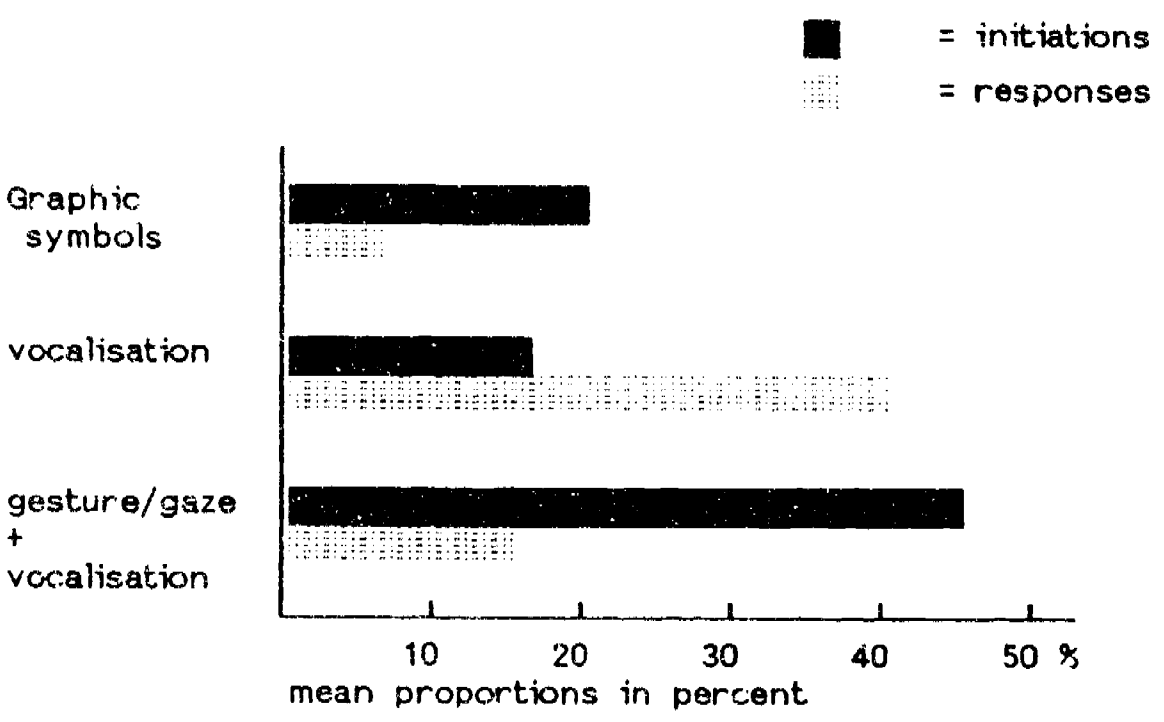
The children made minimal use of their communication aids. The frequency of the distinctive modes showed variation for each child across the three interaction situations. During mealtime the children had no communication aids available, so they had to rely on other modes. In the two other situations the three children used their aids respectively in 4%, 11% and 12% of their turns. The children were more apt to use their communication aids in conversation with their speech therapists than in conversation with their mothers.

The adults used speech in almost all their communicative turns. However, there were considerable differences between the adults concerning their use of nonvocal modes to support their spoken messages. This use of nonvocal modes seemed to have no clear differential impact on the means of message transmission chosen by the children.

Interrelationships

The results presented up to this point have considered the two coding variables (i.e., communicative roles and modes of communication) in isolation. However, there appears to be a clear set of relationship between these two variables. Figure 1 presents the mean proportional use of selected modes of communication across the children's initiations versus their responses.

Figure 1: Mean proportions of child initiations and responses for selected modes*



* Modes were selected which revealed a differentiation between initiations and responses.

The direction of the relationships is in some aspects counterposed to the findings in the Light study (Light, 1985). Whereas in her study the children used their aids almost solely to respond, the children in the present study chose their aids primarily as a means to initiate topics. It seems that these children chiefly use their aids to introduce topics which are outside the 'here and now', whereas topics related to the 'here and now' (for example requests for objects) are introduced by means of vocalisation in combination with gesture or eyegaze.

5. Conclusion

In conclusion, the system of analysis employed in this pilot study has turned out to be a useful and reliable tool to describe initiating and responding behaviour, patterns of interaction and means of message transmission of nonspeaking children. The study has revealed several important aspects: factors which determine the communicative behaviours of

nonspeaking children and their adult conversation partners together with factors which also hinder the communication process.
In our intervention programmes for nonspeaking children, we therefore must conclude that the conversation partners (parents, clinicians etc.) must be included, since they not only influence the communication but also play an important role in improving the communicative skills of their children.

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