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## MOTHER-INFANT ACTIVITIES: THE INITIAL STEP IN LANGUAGE DEVELOPMENT IN THE DEAF-BLIND CHILD

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### INTRODUCTION

Recent research has focused on pre-language and language development in typically and atypically developing children (Swisher and Thompson, 1985). One premise investigated is that language development is related to the quality of prelingual interaction between the infant and its principal caretakers. Another is that an infant may be predisposed to social interaction soon after birth, but this inclination is affected by exposure to developmentally appropriate sensorimotor experiences in accordance with socio-emotional (MacLean, 1982), motoric (Megin, 1979), and communication (Pruitting, 1979) skills developed during the first year of life.

The ethnological evolutionary perspective reported by Ainsworth, Bell, and Slayton (1974) and Schaffer (1979) directs analysis toward the significant caretakers in the context of infant communication behaviors. The infant, though predisposed to social interaction from the beginning, requires stimulation from individuals with whom an attachment has been formed. Without this interaction, the infant will remain at a primitive level of language functioning.

In addition to the premise that mother-infant attachment and prelingual communication are developmentally integrative, there appears to be a mutual responsibility for this relationship between mother and infant (Jaskir, 1981). Thus, an appropriate match between maternal and infant characteristics is necessary, otherwise communication dysfunction will occur. The development of a "synchrony" of communicative behaviors, then, is important in the development of pre-language interaction upon which eventual language is based.

Several studies offer substantive evidence of infant and maternal pathological interaction that appears to be characteristic of mother-handicapped infant dialogues. In nearly every study,

the mother or principal caregiver was required to adjust her respective caretaking behaviors with her handicapped child to elicit communicative responses. Further, the nature of adjustment appeared to be dictated by the nature and degree of the child's sensory impairment. For example, the importance of parents' voices and physical contact to develop initial communicative behaviors in blind infants has been demonstrated (Ellis, 1974). Also, visually-based parent contact behaviors are equally effective in the development of communication behaviors in hearing impaired infants (Anastasiow, 1982). It is understandable that extreme differences in infant characteristics generally associated with different handicapping conditions would influence the nature of mother-infant interactions.

### MOTHER/DEAF-BLIND INFANT INTERACTIONS

A number of case studies suggest that deaf-blind infants/children exhibit highly idiosyncratic interaction and limited response patterns when compared to the communication behaviors observed in normal infants. For instance, not only are normal infants more inclined to respond to caregiver solicited behaviors, they were more predictable in their interactive responses. Conversely, deaf-blind subjects were less responsive, less predictable, and generally less interactive so their mothers were proportionately more active, engaging in twice as many interactive behaviors as did their babies (Walker and Kershman, 1981, p. 8). Also, deaf-blind babies did not exhibit behaviors suggestive of communication intent. Hence, the mother's communication was invariably adjusted downward to match these more primitive behaviors.

Pre-language and language intervention programming for deaf-blind children is one of

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the most complex tasks confronting the special education teacher (Day, 1978). The problem is that the early interaction experiences of deaf-blind children does not provide the child with the necessary prerequisite experience to perform developmental tasks successfully. In addition, there is the critical need to reduce the deaf-blind child's deficits by the generation of intervention strategies at the deaf-blind child's level of developing language functioning (regardless of skill attainments in other skill domains or the child's chronological age).

Therefore, the socio-emotional aspect of the mother-infant experience is a crucial part of the pre-language understanding for all children. In mother-handicapped infant communication these social interactions are more primitive than in mother-nonhandicapped infant interactions (Shaffer, 1979) and the burden of these communicative exchanges is placed upon the adult. These social interactions consist primarily of stimulus-response patterns that are comparatively limited.

Movement-based intervention has received considerable recent support as a method to stimulate the development of pre-language behaviors in young deaf-blind populations (Megin, 1979).

### VAN DIJK METHOD/ COMMUNICATIVE INTENTION

The Van Dijk approach to the development of language is based upon the uses of motoric behaviors as the prerequisite form of language acquisition processes for the deaf-blind child. This theoretical and pragmatic structure is the re-creation of neonatal and early infant physical relationship with principal caregivers through imitative forms of activities. According to this model (Van Dijk 1068), the early pre-language developmental stages are:

1. Symbolic (the socio-emotional attachment relationship between mother and infant);
2. Resonance (the infant's response to physical stimulation);
3. Co-Active Movement (the movement through space with the child in a defined area); and,
4. Non-Representational Reference (the development of body image and objects of reference understandings).

These activities reinforce imitation of motoric

action and conceptualization that establishes the framework for a child-based language system through patterns of derivative natural gestures. The development of these natural gestures generates a more formalized language system (Magin, 1979). Meaningful language evolves because the deaf-blind child can express his/her own desires and needs in a way that is understood.

All four subjects had concomitant auditory and visual impairments and severe to profound delays in developmental skills. They were also nonverbal and were unable to express any vocal, verbal, or communicative intentions.

In view of the subjects' rudimentary pre-language skill functioning levels, the Request of Action intentional category was selected as the most developmentally appropriate to teach. This was modified to an intentional behavior by the subject which directed the listener to continue a nurturant/movement activity. The researcher believed that this modification was more appropriate considering the severity of the multiple impairments. Therefore, the generally idiosyncratic, randomized behaviors of the deaf-blind children provided the bases for interventions. Thus, the intent was to refine these movements as mechanisms for communicative intention of elocutionary types of behaviors.

### INTERVENTION MODEL

The teachers were able to re-establish consistently applied natural/nurturant interventions that impacted upon the perceptive abilities of the subjects. They adapted specific behavioral interventions to ensure a synchronous match between teacher-interventions and specific idiosyncratic responses of each deaf-blind child.

An observation period was scheduled to select stimuli to be incorporated in the eventual intervention process. Also, a communications behavioral history of interactive experiences for each subject family was compiled. Then appropriate movement based/nurturant interventions were designed to elicit communicative intent behaviors from the subjects. Responses to pleasurable tactile kinesthetic interventions were identified by noting the subject's smiles, eyeblinks, nodding, gurgling, or random movements generated in a consistent manner. A pleasurable response list was compiled for each subject from these activities which served as ancillary nurturant interventions with

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the primary Van Dijk movement-based intervention. These were all designed specifically to elicit communicative intent responses from the subjects.

In the Van Dijk model, the initial step in pre-language skill is described as the "resonance phenomenon". Resonance movement activities are developmentally appropriate with the random and reflexive actions of cognitive functioning found in infants and young children with cognitive abilities at the earliest sensori-motor levels.

In this study, the teachers initiated mutually-conducted pre-language resonant movements such as rocking, crawling, or swinging, based on the subjects most consistent body gestures, as the primary intervention to elicit communicative-intent responses. These gross motor activities were combined with mother-infant nurturant activities, to establish a trusting, warm relationship to assist development in areas deprived during infancy and to establish a basis for interaction during the later functioning levels. In effect, the teacher initiated communication from the subject at the subject's level by becoming "physically involved with the child in one of those movements" (Day, 1978, p. 36).

For example, Subject #4 was put on her teacher's lap and both were engaged in a side-to-side, simple rhythmic movement. Two nurturant adaptive mother-infant types of play activities were initiated on an alternative basis (i.e., blowing on her face and rubbing her abdomen). After administering these combined movements for several seconds, the teacher attempted to encourage communication by suddenly stopping and changing the movement activity. This set the stage for a possible interaction sequence. More specifically, with the cessation of the pleasurable activity, the subject recognized that something had changed in her environment and wanted equilibrium restored. The slightest reaction of the child, such as head pushes, vocalization, or back arching, was interpreted by the teacher as a behavior suggestive of communicative intent.

This communicative behavior exhibited by the child was simultaneously reinforced by the teacher by resuming the pleasurable activity. The teacher would be at all times during these movement activities incorporating a nurturant pleasurable activity. At the end of this

observation period, a gross motor movement combined with nurturant mother-infant activity was selected as the mechanism for the teacher to use in order to solicit communicative-intent responses from each subject.

### CONCLUSION

Pre-language development for deaf-blind subjects in a social context was only partially investigated in this two-month study. The amount of data recorded was limited and further study is warranted. This research design focused on the impact of mother-infant types of activities, with complementary nurturant interventions, on the pre-language development of deaf-blind children. However, only a few of the more than thirty interventions used were reported here. The observational data provided substantive support for the strong effect of these strategies on the initial development of rudimentary communication for the subjects examined in this study.

The utilization of auditory-tactile and visual-gestural communicative types of movements had significantly positive and beneficial effects on the subject. Each subject had an opportunity to emit signals that were self-inspired, or came from "within" rather than from "without", as recommended by those advocating the Van Dijk approach. As one teacher noted, "We hardly ever got as moment's rest!" as elocutionary or communicative intent behaviors began to predominate the classroom interaction patterns in post-intervention programming. In effect, the students were given the option of taking a more active control of their classroom environment.

The analysis of the strong effect of these mother-infant interventions for deaf-blind subjects who had apparent dysfunctional prelingual attachment experiences with their respective principal caregivers was particularly important in this study. The results also supported the basic concepts of the stage process models described by Piaget (1968) and Van Dijk (1970) as the basis for methodology for the assessment and remediation of communicative behavior. In this study, four subjects of varying ages and functioning abilities, yet at similarly deficient levels of pre-language development, were programmed to progress from an initial pre-language level of communicative functioning (prelocutionary) to the next level (elocutionary) in accordance with a stage invariant model of language

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sequence. This skill progression is even more remarkable considering their different cognitive and motorical functioning levels, receptive communication preferences, and the severity of their additional handicapping conditions.

There was a concomitant reduction of self-stimulatory, abusive, and tantrum-like behaviors exhibited by each subject. Peer association tendencies emerged in three of four subjects in this study and attachment relationships were developed between each subject and her

principal caregiver.

Overall, the evidence collected during the intervention period, combined with follow-up anecdotal data on the pre-language development progress of the four subjects, lends support to the utilization of the eclectically-based Van Dijk approach with severely handicapped populations. It is the flexibility of this movement-based intervention program that lends itself for adaptation for such a variegated handicapped population.

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