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ABSTRACT

This study assessed the effects of social interaction with nondisabled peers on the motor and social responses of two preschool children with severe disabilities in separate inclusive child care settings. A multiple baseline design across motor response was used to assess the effects of the peer training intervention. Peer training included direction and explanation, role play with trainer, role play with other peers, role play with puppets, and games modified to be affection activities. The children with disabilities showed overall increases in targeted motor responses, maintenance of social and motor behaviors, as well as generalization of social behavior to peers who were not trainers. This investigation provides evidence that when encouraged by peers, young children with severe disabilities can improve motor responses and that the opportunity for motor as well as social development exists in the typical play and socialization experiences found in child care settings. (Author/DB)

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Abstract

This study addressed the effects of social interaction with nondisabled peers on the motor and social responses of preschool children with severe disabilities in two inclusive childcare settings. A multiple baseline design across motor response was used to assess the effects of the peer training intervention on motor and social behaviors. Increases in all preschool childrens' social behavior were observed consistent with the peer training intervention. The children with disabilities showed overall increases in targeted motor responses, maintenance of social and motor behaviors, as well as generalization of social behavior to peers who were not trainers. This investigation provides evidence that when encouraged by peers, young children with severe disabilities can improve motor responses and that the opportunity for motor as well as social development exists in the typical play and socialization experiences found in childcare settings.

The Effects of Peer Social Behavior on the Motor and Social Responses of Preschool Children with Severe Disabilities in Childcare Settings

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Many preschool children have severe motor disabilities that affect their ability to independently explore their environment, to engage in self-directed activities, and to maintain social interaction with others. For these young children it is necessary to implement motor training programs. Neuro-developmental therapy, behavior therapy, and more recently neurobehavioral therapy, have been the programs of choice. These programs are often delivered as one to one sessions at a therapy center or in a separate therapy room with an occupational or physical therapist, or by a professional in the child's home. This approach, although beneficial to many children, offers little opportunity for social interaction with peers without disabilities. Additionally, limited research is available to determine the efficacy of motor skills interventions used with young children with severe disabilities. Where studies exist they usually occurred in separate therapy settings and/or did not address the maintenance and generalization of motor skills (Campbell,1999; Horn, Jones, & Warren, 1999; Mahoney, 1999).

Educators have long been in agreement that the opportunity for social and motor development exists in the typical play and socialization experiences found in preschool and child care settings. In a review of practices in early childhood education, Kohler and Strain (1999) developed an outcome listing of studies supporting the use of typical peers as viable instructional resources at the preschool level. Furthermore, Craig, Haggart, & Hull (1999) present a discussion of "pull out" therapy as one that continues to present therapy services as medical, not educational and suggests an integrated therapy model to interpret disability ecologically. Specifically, an ecological approach suggests that in physical therapy a motor response, such as reaching would be viewed in the context of its use or function. In this way, intervention for reaching would occur within the typical activities of the child's day (Craig, Haggart, & Hull,1999).

The research presented in this paper utilizes a peer-mediated model of motor training for children with severe physical disabilities. This approach uses the socially directed behavior of training peers to increase motor responses and social responses of preschool children with disabilities within the natural play time of an inclusive child care setting.

To date, only two studies have assessed the impact of peer social behavior on targeted motor responses. Brady, Martin, Williams, & Burta (1991) examined the effects of social interactions with peers on specific motor skills such as head control and controlled reaching and manipulation by two school-aged boys with severe disabilities. Results indicated that the boys increased both their social and motor responding. In a follow-up study with two elementary-aged girls with severe disabilities, Anderson and Brady (1991) assessed the motor improvements under two different conditions: peer social interactions

and adult instruction. Results showed that peer interactions were as successful as adult instruction for one student (student learning to walk with adapted cane), and that peer interactions were slightly more effective than adult instruction in promoting head control. These studies support the anecdotal evidence that when motivated by peers, children can increase motor responses as a result of social stimuli. These two experimental studies occurred within the natural setting of elementary schools. The current study, the third in the series, addressed whether similar motor increases would occur with very young children in inclusive child care settings or whether increases would generalize to peers who were not part of the social and motor training.

Participants.

Two preschool children with severe physical limitations participated in this study. Each had difficulty with basic motor responses and each attended an inclusive child care setting. Abby was two years and ten months old and Dennis was three years five months old. In addition to Abby and Dennis, twenty-seven preschool children without disabilities participated.

Abby. Abby was two years ten months with severe multiple disabilities, the result of cerebral palsy and microcephaly. Abby was nonambulatory and exhibited no speech and her vocalizations were limited to cries and whimpers. Abby did smile occasionally and attended to certain toys children playing nearby. Medical reports indicated possible vision impairment. Parents and therapists indicated that she did not grasp/release objects, but that arm movement which approximated reaching had been observed occasionally with her right arm. Additionally, her vitality was low, breathing sometimes labored due to respiratory problems and the respiration difficulty required postural drainage or suctioning and occasional hospitalization. Abby used a nebulizer at night to control wheezing and she received all nourishment from tube feedings. She held her head upright and moved it from side to side to look at what was going on around her. Abby attended a home child care. The study setting for Abby was an 8' x 8' playroom.

Dennis. Dennis was three years five months old, weighed twenty-two pounds and had severe multiple disabilities. At the time of his birth, he was the smallest baby to survive in his home state (1 pound, 4 ounces). Dennis was totally blind as a result of premature retina opathy and had a plastic prothesis for both eyes. He had cerebral palsy affecting his right side, and as a result, head, trunk and limb control were variable. Dennis manipulated toys with the index finger of his left hand. Parent and therapists indicated he did not extend his left arm to reach and instead moved his whole trunk forward to reach objects. Dennis said and imitated words but his speech was limited to one or two word phrases and an expressive vocabulary of twenty-five words. He recognized voices and called out names when he heard them. Dennis was enrolled in a large inclusive child care center and the study took place in a 10' x 10' play area of a larger room 40' x 20.'

Toys and materials used in this study were based on preferences of participants, recommendations of social interaction investigators (see Martin, Brady, & Williams, 1991). Specifically, toys/materials known to produce a higher level of social interaction were used, including puppets, toy vehicles and related hats, toy kitchen setting, etc.. For

three months prior to the study all toys and materials were available to the children during freeplay times to control for possible novelty effects.

Method

In this study a multiple baseline design across motor responses was used to determine the effects of peer social behavior on the motor and social responses of preschool children during the free play. Targeted motor responses for Abby were reach, grasp, release; for Dennis, raising his head, reaching and finding, and manipulation. Social responses consisted of (a) socially directed behavior of the training peers, Abby, Dennis, and confederates (b) actively social attending of Abby and Dennis only. Adult prompts consisted of any suggestion, recommendation, prompt or mand, any physical or gestural assist which directs a child to socially interact with or to direct his attention to another child. This investigation was comprised of five components: (a) baseline, (b) peer training, (c) the peer interaction intervention, (d) generalization to non-training peers, and (e) maintenance probes.

Baseline. Target child positioned with toys. Dennis was in a standing frame and Abby in a tumbleform feeder seat. No adult directions or prompts for the peers to interact were given; no reinforcement if the peers did interact with Dennis or Abby.

Peer Training. Peer training methods included direction and explanation, role play with trainer, role play with other peers, role play with puppets, games modified to be affection activities. Training reviews occurred throughout the study and involved brief practice opportunities because of the young age of the participants.

Peer Interaction Intervention. During regular freeplay time the Trainer is positioned to monitor all children, suggest toy or activity changes to peers, prompt as needed using the 20 second rule (if no social interaction for 20 seconds Trainer prompts training peers), interrupt the study in case of problems or emergencies. The training peers (i.e., the social stimuli) are the experimental control.

Generalization to Nontrained Peers (Confederates). During a concurrent 2-minute period period under baseline conditions, the socially directed behavior of the Confederates was recorded. At the same time, Dennis's and Abby's unprogrammed motor and social responses to the Confederates was recorded.

Maintenance Probes. Following the end of intervention, one week passed before maintenance probes were conducted every four days under baseline conditions. At this time there was no adult direction, prompts, or reinforcement for social or motor responses.

A partial sampling technique was used to collect data. Data were summarized as a percentage of the total possible number of intervals (40 intervals daily). Interobserver agreement was determined interval by interval, per category on 25% of observations for Abby (range 82-100%) and on 29% of observations for Dennis (range 75-100%).

Results

Both Abby and Dennis showed (a) overall increases in targeted motor responses, (b) maintenance of social and motor behaviors, as well as (c) generalization to peers who were not trainers. Additionally, increases in all participants' social behavior were observed consistent with the peer training intervention. These results support earlier findings that when encouraged by peers, children with severe disabilities can increase motor responses (Brady, et al. 1991). Additionally, these findings support the use of an ecological interpretation of disability as well as the use of inclusive settings such as home child care and child care centers for the provision of support services for preschool children with severe disabilities.

Discussion

Not reflected in the data were the observed dramatic changes in the topography of Dennis's and Abby's motor responses. Dennis's motor play became more complex. Specifically, after intervention he reached and/or manipulated with his right hand in over half the sessions and was observed using both hands at the same time. Before intervention his manipulation of the toys was repetitive and often without obvious purpose, but by the end of the study his manipulation was more purposeful. For example, if the peer trainers sang the ABC song, he would move the slide button on his toy directly to the place where it played the ABC song. Initially, Abby's reach responses involved only movement of her arm to the toy or object. As the study progressed it became obvious that Abby was coughing purposely to begin a chain of reach, grasp, and release responses. From the momentum of coughing she would pull her body forward and reach for toys hanging from the toy frame or touch a child playing in front of her. This sequence became more purposeful as the study progressed, occurring with increasing regularity and frequency.

This study investigated the use of a peer mediated motor training program that uses the socially directed behavior of training peers to increase motor responses and social responses of children with severe disabilities. Results support earlier studies that when encouraged by peers, children with severe disabilities can increase motor responses. Additionally, the opportunity to demonstrate, maintain, and generalize social and motor skills was provided during the typical play and socialization experiences of the child care settings, i.e., free play. Future studies should address: (a) the specific components of peer interactions that result in consistent motor responses; (b) the social interaction activities, such as circle or center activities, which are most durable with preschool children in promoting motor responses, (c) the adult prompt types that promote durable social interaction and collateral motor responses; (d) the use of adaptive motor responses as a means of social interaction by preschool children with severe disabilities (e) the use of a separate training phase, i.e., the peers and the child with disabilities trained together; and (f) the environmental factors that affect preschool children's social interaction, such as staffing patterns, toys, materials, and availability of space. In conclusion, results lend support for the use of peer-mediated motor training for preschool children with severe disabilities to increase targeted motor responses during the typical play and socialization experiences of inclusive child care settings.

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Increasing Motor Behaviors and Social Responses of Preschool Children with Severe Disabilities in Childcare Settings.

Sylvia S. Martin

Purpose. Integration into community services and the opportunity for motor development and social interaction have been identified as crucial factors in effective programs for children with disabilities. Opportunities for the social and motor development of young children exist in community childcare settings. This study investigated the effects of a peer social integration program on targeted motor skills (head righting, reaching, manipulation, etc.) and social responses of two preschool children with severe disabilities in two integrated childcare settings.

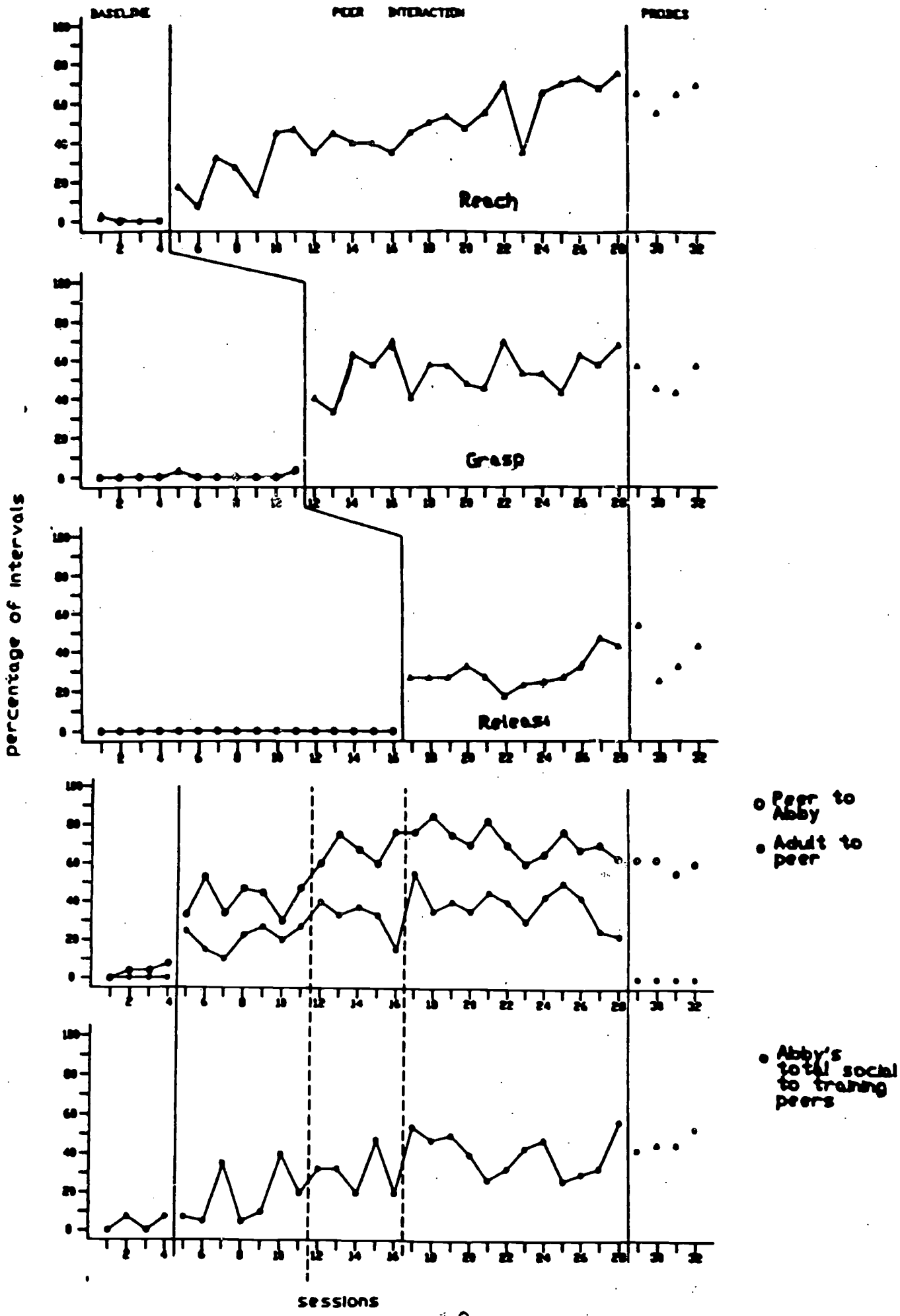
Questions. Does a peer integration program increase socially directed responses of preschool children with and without disabilities? Does a peer integration program increase the targeted motor responses of preschool children with severe disabilities? If there are increases in targeted motor responses, do these motor responses generalize to other preschool children who are not trainers?

Method. This investigation was comprised of five components: (a) baseline, (b) peer training, (c) the peer interaction intervention, (d) generalization to nontraining peers, and (e) maintenance probes. The study used a multiple baseline design across responses. Maintenance of motor skills was assessed by follow-up probes. Generalization across non-training peers was assessed in a concurrent baseline. A partial sampling technique was used to collect data. Data were summarized as a percentage of the total possible number of intervals (40 intervals daily).

Participants. Two young children with severe multiple disabilities participated in the study. Abby was two years and ten months old and Dennis was three years five months old. Each had severe physical limitations resulting in difficulty with basic motor responses and each attended an integrated childcare. In addition to Abby and Dennis, twenty-seven preschool children without disabilities participated.

Results. Increases in all participants' social behavior were observed consistent with the peer training intervention. Additionally, both Abby and Dennis showed (a) overall increases in targeted motor responses, (b) maintenance of social and motor behaviors, as well as (c) generalization to peers who were not trainers. These results support earlier findings that when encouraged by peers, children with severe disabilities can increase motor responses (Brady, et al. 1991). Additionally, these findings support the use of integrated community settings such as home childcare and childcare centers as viable sites for the provision of support services for preschool children with severe disabilities.

Brady, M. P., Martin, S. S., Williams, R. E., & Burta, M. (1991). The effects of fifth graders' socially directed behavior on motor and social responses of children with severe multiple handicaps. *Research in Developmental Disabilities*, 12, 1-16.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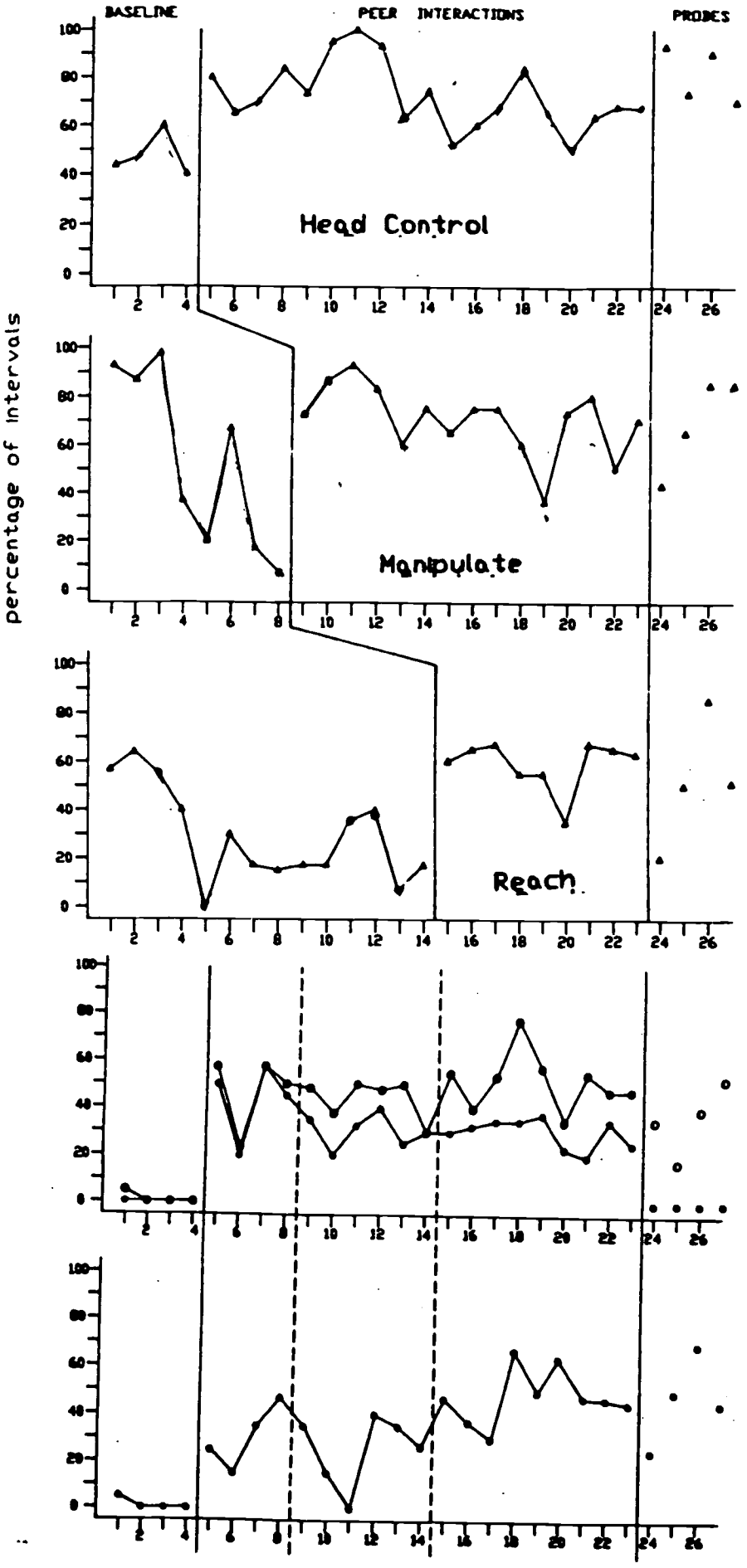
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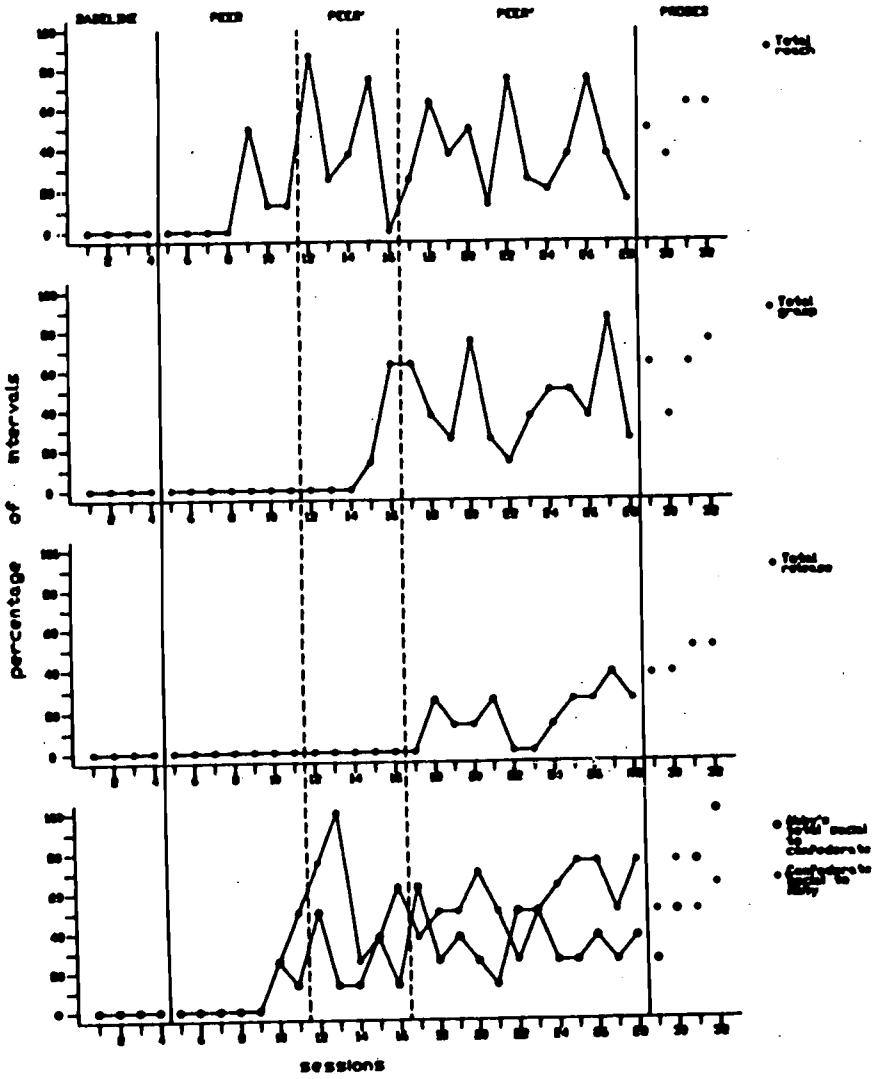

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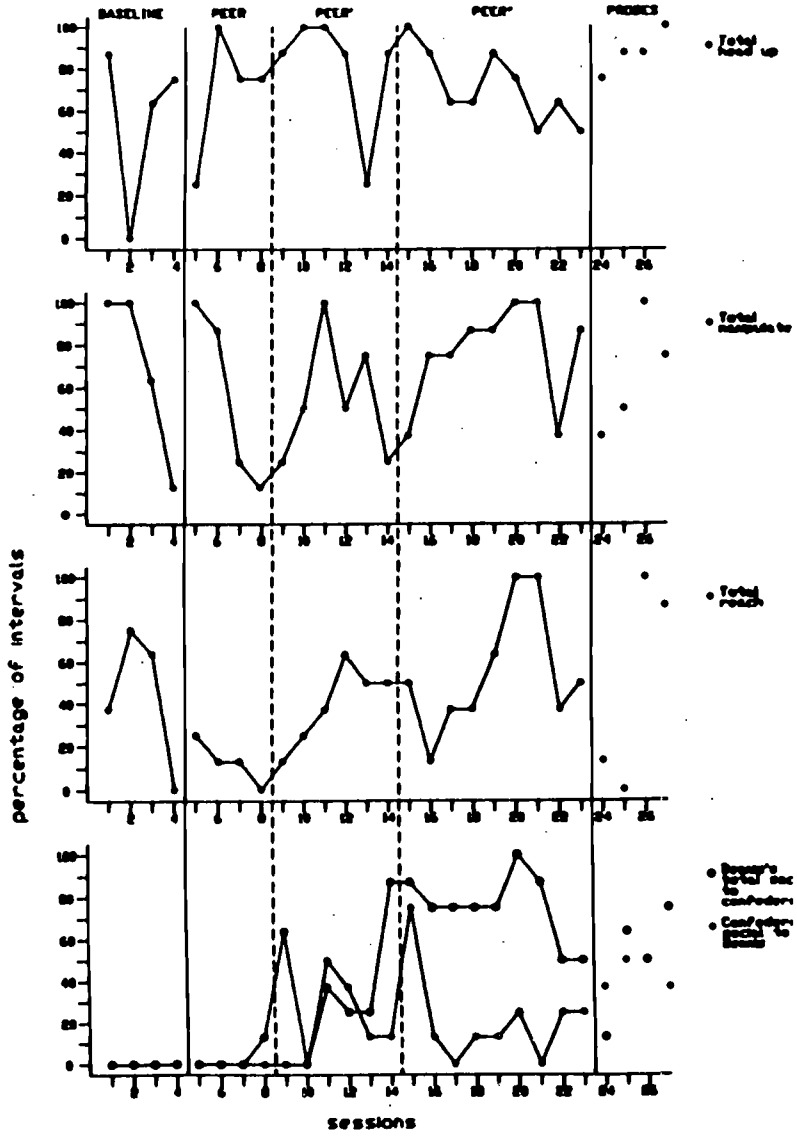

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