

379
N81
No. 7603

CONTROL OVER THERAPIST INTERACTIONS AS A
REINFORCER FOR A CHILD WITH AUTISM

THESIS

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

William H. Edwards, B.A.

Denton, Texas

August, 1999

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This study evaluated whether therapist terminations of social interactions would decrease social terminations and increase social initiations during play activities with a child with autism. The assessment took place in two conditions. The first condition, *instructed* involved social interactions with instructions delivered, and the second, *uninstructed*, involved social interactions without instructions delivered. These conditions were analyzed with a multiple baseline across-conditions design. Interaction duration, initiations, instructions, and child terminations were recorded. This study showed that the therapist-removal procedure resulted in a complete decrease in child terminations, and an increase in the number of initiations and the duration of the child-therapist interactions during the uninstructed condition. Similar effects were seen in the instructed condition, but to a lesser degree.

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INTRODUCTION

Individuals diagnosed with autism often engage in low frequencies and unusual topographies of social interaction (Dunlap & Robbins, 1991; Koegel & Koegel, 1995; Odom & Strain, 1986). Children with autism display behaviors such as looking away from others, playing alone, rocking or hand flapping, and other behaviors that would make others less likely to interact (Koegel & Koegel, 1995). Research has examined some procedures to increase social interactions of children with autism in home, community, and classroom settings. The focus of the research on social skills in autism can be divided into three areas: a) social skills training to remediate deficits, b) increasing reinforcement for desired social responding in the natural environment, and c) decreasing the aversiveness of interactions (Goldstein & Cisar, 1992; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; Koegel & Koegel, 1995)

The issue of training skills needed to adequately participate in social interactions has been addressed in many ways (Koegel & Koegel, 1995). Koegel and Koegel provide a summary of several procedures designed to increase social skills and decrease social isolation for those diagnosed with autism. These procedures involve teaching specific social skills such as greetings, responding to peer initiations, language use in social settings, or play skills. For example, Goldstein and Cisar (1992) taught social interaction skills to preschoolers with autism using "sociodramatic scripts." The scripts (motor and verbal actions) consisted of scenarios based on particular themes (e.g., children taking on the role of a carnival attendant and game participant). During script training the children were taken to an analogue setting (i.e., in either the classroom without the other children,

or to another room). Prompting and verbal praise were delivered by the experimenter to each of the children contingent on the child following his/her role. After training, the children were placed back into their classroom and social interactions were assessed during free play periods with the same scenario play materials. During these play periods prompting was delivered, if necessary, by the classroom teacher. The classroom teachers were instructed to deliver general prompts (e.g., prompts related to the scenario topic) and not to use specific prompts (i.e., tell the children what behaviors to emit). This procedure was effective in increasing the overall number of social interactions between children with autism and their peers, as well as producing greater variability in the form of those interactions.

Some research has focused on arranging the natural environment to ensure the reinforcement of social interactions of children with autism. For example, McGee, et al., (1992) evaluated the effects of peer implemented incidental teaching on the reciprocal interactions of children with autism. Typical children were taught a four component incidental teaching procedure that included: a) waiting for the targeted child to initiate a request (e.g., reach for a ball), b) asking the targeted child for the label of the item (e.g., "Say ball"), c) giving the targeted child the item after the child labeled it, and d) praise the correct answer (e.g., "That's the ball"). After training, the children were exposed to a free play period and were instructed to use the incidental teaching procedures. Typical children were given items previously identified as high preference for the children with autism. Data were collected on reciprocal interactions between the children in the free play setting. As a result of these procedures, interactions between the children with autism and their peers increased during the free play period.

Research addressing the issue of decreasing the aversiveness of social interactions has examined the type of activities conducted during the those interactions (Koegel, Dyer,

& Bell, 1987; Koegel & Egel, 1979; Koegel & Frea, 1993; Koegel & Koegel, 1995; Koegel & Mentis, 1985). It has been suggested that by allowing children to engage in preferred activities and in preferred ways, the overall aversiveness of the interactions will be lessened (Koegel & Koegel, 1995). In these studies, the child is given the opportunity to determine the types of teaching interactions that take place or the items used during the interactions. This arrangement is commonly referred to as “shared-control” because both the therapist and the child retain some control over the types of interactions. The experimental arrangements vary across studies such that the child might be allowed to determine activities, select among an array of preferred items to be delivered as consequences, or terminate activities contingent on emitting certain responses. Outcomes of this research suggest that, under these conditions, learning occurs at more rapid rates, generalization occurs more frequently, and that children are more likely to continue to engage in learning situations with adults and peers (Dunlap, 1984; Dunlap & Koegel, 1980; Dyer, Bell, & Koegel, 1987; Koegel & Koegel, 1995).

This line of research is illustrated in a study by Koegel et al. (1987) examining the influence of child-preferred activities on the social behavior of children with autism. Children were exposed to two conditions; one in which the child selected the play activity and another in which the child had no control over the selection of the activity. Each session consisted of the child engaging in a play activity with an adult. During each condition a therapist would prompt the child to “play with the person.” The results of this investigation show that behaviors such as looking away from the adult, moving away from the adult, pushing the adult away, closing eyes, or not coming when called decreased during activities chosen by the children, and increased during activities selected by adults. Duchan (1983) observed similar results in describing the communicative behavior of children with autism and suggested that the apparent aversive features

associated with adult-child interactions could be related to the frequency of adult requests or demands during interactions.

In the studies mentioned above, there is an implicit assumption that low frequencies of social interactions are the result of a lack of skills on the part of the learner, a lack of maintaining variables, or the aversiveness of interactions. The latter account is suggested when children engage in what appears to be escape or avoidance behaviors. Another possibility that has not been explored in the literature is that terminating social interactions can be maintained by positive reinforcement. That is, the children's social terminations may be maintained, not by removing a task or other type of demand, but by exerting control over social interactions (i.e., doing what the child says).

This possibility is suggested by the shared-control research mentioned above, as well as by the literature on oppositional behavior. Although the issue of control has been broadly addressed within the context of many phenomena, including social interactions (Skinner, 1974), there have been few examples in the applied literature.

In one study that addressed this issue, Wahler (1969) assessed the extent to which manipulating differential reinforcement (i.e., parental attention), and a combination of differential reinforcement and time-out affected the rates of oppositional behavior of typically developing children. During baseline, Wahler (1969) observed very high rates of oppositional behavior and very low rates of cooperative behavior. Data showed that parental attention contingent on appropriate behavior and withholding parental attention to oppositional behavior produced little effect on the rates of oppositional behavior. However, when the differential reinforcement manipulation and a time-out procedure were implemented concurrently, a sharp decrease in the rates of oppositional behavior was observed. Additionally, as the overall rate of oppositional behavior decreased, the rate of cooperative behavior increased. Given these results, the assumption that parental

attention was not a reinforcer is less tenable. In order for time-out to work as a punisher, time-in interactions would have to be more reinforcing than time-out. It may be that non-compliance was being maintained by interacting with the parents and that time-out removed those reinforcers. Thus, it is likely that interacting with parents maintained both cooperative and oppositional behaviors. Alternatively, it could be said that time-out from interacting with the parents served as an establishing operation, increasing the value of interacting with the parents thereby making cooperative behavior more likely than oppositional behavior (e.g., Michael, 1993; Smith, Iwata, Goh, & Shore, 1995; Vollmer & Iwata, 1991).

The present study examines the possibility that terminations of social interactions may be maintained by positive reinforcement provided by interactions with the therapist. Specifically, this study sought to evaluate whether therapist terminations of social interactions would decrease social terminations and increase social initiations during play activities with a child with autism.

METHOD

Subject

A 4-yr old male diagnosed with autism and oral apraxia was the participant. At the time the study was conducted, the child was participating in an intensive in-home treatment program that began when the child was two years old. The teaching program was designed to increase specific skills across a broad range of socially adaptive behaviors such as language, social interaction, and play, while also placing an emphasis on pre-academic skills and school preparation. The child received approximately 30 hours per week of in-home and community-based teaching. Between 10-15 specific skills were addressed in every session as components of complex behavior. These components included oral motor skills, fine and gross motor imitation skills, verbal imitation skills, expressive and receptive labeling, direction following, play skills, and the use of functional communication with the teachers. In addition, there was a great emphasis placed on the use of functional communication in daily routines with his family and peers.

At the onset of this investigation the range of behaviors displayed by the participant consisted of 20-30 expressive labels (e.g., saying “car” when shown a picture of a car), 10-15 one-syllable sight words (e.g., cat or dog,) over 200 receptive labels (e.g., pointing to a picture of a car when displayed as part of an array of stimuli). He also could match and sort two-dimensional stimuli according to categories, and engaged in some gross motor and fine motor imitation skills (e.g., drawing shapes and writing letters), and followed approximately 5-6 simple directions (e.g., “Give me” or “Sit down”). In

participant was selected because he had few social interactions, and when social interactions did take place they were extremely brief (i.e., less than 1-min). He frequently manipulated items and often engaged in many activities; however, this most often occurred in social isolation. For example, the child frequently jumped on a trampoline. If however, another person attempted to join him, or move to within close proximity (i.e., 2 ft), the child would move to another activity. Another example includes play activities with animal figurines. Again, if another person attempted to participate in play, the child would terminate the activity by moving away with the items, relinquishing the items completely, or by physically pushing the person away.

Setting

The experiment was conducted in a playroom located in the upstairs portion of the participant's home. This room also served as the primary location for therapy sessions. All experimental sessions were consistently conducted during the first 30-min of the experimenter's regularly scheduled therapy sessions. During experimental conditions no one other than the investigator and the subject was present in the room. However the parents and others could watch the sessions via a closed circuit television monitor downstairs. Approximately 65% of sessions were videotaped.

Materials

In the therapy room there was: one table with two chairs, a vertical mirror extending above a miniature trampoline on the floor; a chalk board; two dry erase boards with markers; a container full of beans, animal figurines, and dolls; a container with train pieces; two cabinets containing therapy materials; a basketball hoop and ball; a hand-held timer for recording, and a video camera mounted just below the ceiling in a corner of the room.

Measures

Data were collected on terminating responses, initiations toward the experimenter, instructions, and the duration of interactions between the child and the experimenter. Appendix A describes both the observational code and the data collection sheet used in collecting data.

Terminating Responses (or Terminations) were defined as any verbal or physical gesture to move from within 1 ft of the therapist. Examples of terminations might be saying the word “move,” walking away from the therapist, forcible contact with the experimenter’s hand or arm, by his hand or arm, or kicking the experimenter with a foot or both feet.

Initiations were defined as any verbal or physical gesture by the child within 1 ft of the therapist to participate in, maintain an activity, or to remain in close proximity. The child had to remain in proximity for at least 1 s in order for an initiation to be scored. Examples of initiations might be the child saying, “Come here,” or, “Sit down.” Other examples might include the child approaching the therapist and taking his hand, or giving the therapist a hug.

Instructions were defined as verbal or physical models of appropriate speech or physical movements involving play items that occurred within 1 ft of the subject. For example, if the subject was playing with a doll, the experimenter would locate another doll, move to within 1 ft of the subject, and either say, “Hi,” model dancing, tell the child to “put the doll over there,” or engage in some combination of those types of models or instructions.

Interaction Duration was defined as the total amount of time the child remained within 1 ft of the experimenter. The maximum total duration possible for any session was 10-min or 600 s. Total duration data was calculated as the total amount of time the

child stayed within 1 ft of the experimenter throughout the entire session. For example, if the child remained within proximity for 1 min, then moved away for 5 min, then reentered proximity until the end of the session (i.e., 4 min), the total interaction duration would be scored as 5 min.

Observation was conducted via the video camera and monitor by the parents, as well as in person by the experimenter. Data were collected throughout the sessions for all conditions. The child's parent served as reliability observer and conducted reliability observations during 25% of each experimental condition during each phase of the experiment. Prior to the study, the mother participated in a series of 3 role-play sessions that simulated the experimental conditions. (see Appendix B) After 90% reliability was obtained during the role-play sessions, baseline data were collected. Interobserver agreement was calculated for each dependent measure and 92% overall reliability was obtained. Appendix C describes reliability measures for each behavior in detail.

Procedures

Baseline. Baseline measures were taken during two conditions: *Instructed* and *Uninstructed*.

In the *Instructed* condition, the experimenter approached to within 1 ft of the child once per min and delivered an instruction determined by the specific play item(s) the child was using. For example, if the child were playing with a doll of some kind, the experimenter would walk over to within 1 ft of the child and provide a model such as jumping up and down with a similar doll. It should be noted that the item(s) the child selected were never removed from the child; rather, the experimenter used additional items to provide the model. The experimenter remained within 1 ft of the child until one of the terminating responses occurred, at which time the experimenter would move to the opposite side of the room for the remainder of that minute interval. If no terminating

response(s) occurred however, the experimenter remained within 1 ft of the child for the duration of the session observing the child, and continued to deliver instructions every minute. Each session lasted 10 min, and instructions were delivered at minute intervals, and were delivered every minute for a maximum possible of 10.

The *Uninstructed* condition was similar to the *Instructed* condition except that no instructions were delivered. During this condition the child was allowed to select any play items or activities, and the experimenter approached to within 1 ft of the child every minute but did not deliver any instructions. For example, if the child was playing with a doll, the experimenter approached the child but did not model any type of behavior. If terminating responses occurred the experimenter moved to the opposite side of the room until the next minute began. If no terminating response(s) occurred the experimenter remained within 1 ft of the child for the duration of the session. Each session lasted 10 min.

When sessions began the child was playing alone and the experimenter was approximately 8 to 9 ft away standing in the corner or seated at the table. *Instructed* sessions always preceded *Uninstructed* sessions, and were separated by a 5 min interval during which no interactions took place between the experimenter and the child. The order of sessions and the interval between sessions was held constant across the experiment in order to maximize the likelihood that the child could discriminate between conditions.

Independent Variable. The independent variable was initiation, then termination, of interactions by the experimenter. After moving to within 1 ft of the child (and delivering an instruction during the *instructed* condition), the experimenter would move to the opposite side of the room until the next minute began. The independent variable was applied in two phases, a 2 s removal phase and a 3 s removal phase. During the 2 s

removal phase the experimenter approached the child and, after a 2 s latency, moved to the opposite side of the room. The 2 s therapist removal latency was initially selected for both conditions because baseline interaction duration data indicated that the child was unlikely to terminate the interaction before 2 s. Following the 2 s removal latency, the latency was increased to 3 s.

If the child terminated the interaction before 2 s in either phase, the interaction ceased for the duration of that minute, and another interaction was initiated at the beginning of the next minute. If the experimenter terminated the interaction, the experimenter remained at the opposite side of the room for the duration of that minute interval. However, if the child moved to within 1 ft of the experimenter during any portion of the minute interval, the interaction continued until any one of the terminating responses occurred, regardless of the duration of the interaction. If no terminating responses occurred the interaction continued throughout the duration of the session.

During the *instructed* condition, the same procedures as the *uninstructed* baseline were in effect with a slight variation. In order to maximize the opportunity to teach play skills during the experimental sessions, if initiations did occur during any minute, instructions/models were delivered every 30 s (rather than once per minute) for the duration of the minute interval unless a terminating response occurred. This increased the maximum number of possible instructions in the 10 min session to 20 (rather than 10 as in baseline).

Design. A multiple baseline across conditions design was used to evaluate the effects of teacher terminations and initiations on child initiations and interaction duration. The independent variable was first introduced in the *uninstructed* condition and, after responding stabilized in that condition, the independent variable was introduced in the *instructed* condition.

RESULTS

The top portion of Figure 1 shows the total number of terminations during each session in the *uninstructed* condition beginning at baseline and continuing to the 3 s removal phase. Baseline measures show that the child terminated every interaction. During the 2 s removal phase the number of terminations ranged from 1 to 5 per session. Once the removal latency was increased to 3 s the number of terminations decreased to zero for the entire phase.

The bottom portion of Figure 1 shows the total number of instructions delivered and interaction terminations in each session for the *instructed* condition. Baseline measures indicate that all 10 interactions were terminated during each session. During the 2 s removal phase, the total number of instructions delivered increased as the total number of terminations decreased. The total number of instructions given in each session increased sharply from 10 to 17. The total number of terminations in each session lowered slightly from 10 to 9. During the 3 s removal phase the total number of instructions in each session increased immediately to the maximum possible 20 instructions. The total number of terminations initially increased to 15, but decreased to 11 terminations by session 20.

Figure 2 shows the number of initiations in each session for both conditions. The top graph represents initiations that occurred during the *uninstructed* condition and the bottom graphs shows the number of initiations during the *instructed* condition. During the *uninstructed* condition in baseline, initiations began at zero, increased to 3 during the second session, and ultimately remained at zero for the last three sessions of the condition. Likewise, initiations for baseline during the *instructed* condition were also very low and ranged from 0-1. Implementing the 2 s removal phase in the *uninstructed*

condition resulted in an immediate increase in the number of initiations. At the beginning of the 2 s removal phase initiations were at 0, but subsequently increased sharply to 8 after only 3 sessions. Implementation of the 2 s removal in the *instructed* condition resulted in the number of initiations increasing from 1 to 3, more than doubling the number over baseline measures.

During the *uninstructed* condition, implementing the 3 s removal phase resulted in an immediate decrease in the number of initiations to a low level of 2. However, subsequent exposures resulted in the number of initiations sharply increasing to 9 and maintaining an increasing trend for the duration of the experimental conditions. Implementing the 3 s removal phase in the *instructed* condition initially resulted in a slight increase in initiations to 4. The subsequent levels of initiations remained at an average of 2.5 for the duration of the experiment.

Figure 3 shows the total interaction duration in seconds for both the *uninstructed* and *instructed* conditions for all 3 phases of the experiment. During the baseline of the *uninstructed* condition (top graph) the total interaction duration remained stable at a mean of 60 s (range: 45-100 sec). During the baseline of the *instructed* condition (bottom graph) the total interaction duration was lower than in the *uninstructed* condition at 10 s (range: 2-50 sec). During the 2 s removal phase the interaction duration immediately increased to levels between 400-500 s in the *uninstructed* condition. In addition, during the 2 s removal phase the interaction duration increased to levels between 50-80 s in the *instructed* condition. During the 3-s removal phase total interaction duration again increased to levels between 570-600 s and remained constant at 600 s for the remainder of the manipulations in the *uninstructed* condition. However, during the *instructed* condition the interaction duration increased to levels between 80-250 s.

DISCUSSION

This study showed that the therapist-removal procedure resulted in a decrease in the child's terminations, an increase in the number of initiations, and an increase the duration of the child-teacher interactions during the *uninstructed* condition. Similar effects were seen in the instructed condition, but to a lesser degree. There was also an increase in the number of instructions delivered in the *instructed* condition without a corresponding increase in terminations.

During baseline, the number of terminations always reached the maximum allowed by the procedures in the *uninstructed* and *instructed* conditions. Contrary to Duchan (1983), the rate of demands did not appear to be a relevant variable in controlling the child's behavior. Upon initial observation of baseline performance, it could be assumed that interactions with the therapist were aversive and the child's terminating responses were being negatively reinforced by the removal of the experimenter or by the termination of instructions. The fact, however, that the child immediately sought the therapist's interactions once the therapist removal phases began makes it difficult to make that argument. Nonetheless, it could be argued that the therapist removal procedure resulted in a decrease of the aversiveness of interacting with the therapist or established interacting with the therapist as a reinforcer. Thus, it could be said that the therapist removal served as an establishing operation increasing the reinforcing value of interacting with the therapist (e.g., Michael, 1993; Smith et al., 1995; Vollmer & Iwata, 1991).

Similarly, during baseline the frequency of initiations was extremely low in both conditions, suggesting the possibility of a lack of reinforcement for initiating to the

experimenter, or that the child preferred to play alone. Strikingly, in both conditions, the removal phases resulted in an increase in initiations. These increases could also support the position that the removal procedure changed the therapist interactions from aversive events to reinforcing events. However, these explanations do account for the fact that the child continued to terminate to a lesser degree as well as began and continued to initiate in the *instructed* condition after the implementation of the therapist removal phases.

The question arises then, what could account for the maintenance of the child's initiations and terminations? One possibility is that both terminations and initiations were members of the same response class maintained by positive reinforcement. That is, both terminations and initiations controlled the social interactions. According to this analysis, the behavior of the child determined the behavior of the experimenter during baseline such that child terminations were high, initiation frequencies were low, and interactions occurred for an extremely brief duration. Subsequently, as more child initiations occurred during the experimental conditions, the child regained control over the interactions to the extent that the child as well as the experimenter then maintained shared control over the interactions. Additionally, it could be argued that the child did not have as much control over the interactions during the *instructed* condition as in the *uninstructed* condition throughout the experiment. This would account for the relatively lower number of initiations and reduced interaction duration.

An important implication regarding the findings of this study involves how social interactions are analyzed and the conclusions drawn from those analyses. It is sometimes the case that children with autism engage in very little social interaction and when another person attempts to participate in an interaction with one of these children the children might attempt to terminate the interaction in some way. Terminations do not necessarily

suggest that the child is escaping an aversive interaction. It could be that the child's responding is reinforced by control of the interaction. Both accounts are plausible. The second possibility, is however, less obvious and more likely to be ignored. Since the same function may be involved for different topographies, more research is necessary to develop techniques to isolate the controlling variables.

Another implication involves the notion of control and how it applies to the treatment of children with autism. The notion of shared-control has become prevalent in the literature (Koegel, Dyer, & Bell, 1987; Koegel & Koegel, 1995). In this teaching technique, both the child and the teacher retain some control over the environmental arrangements during the teaching situation. For example, the child selects the stimulus items, the stimuli are varied across presentations, stimuli are age-appropriate items that can be found in the child's natural environment, or the interactions are reciprocal such that the therapist and child alternate responding. Additionally, the contingencies placed on child responding are looser such that attempts to respond are reinforced and shaping occurs more often. This is in sharp contrast to contingencies programmed only for terminal responses. Lastly, the types of consequences utilized in a shared-control arrangement are naturally occurring (e.g., the opportunity to play with the item) and social, rather than edible items paired with social consequences (See Koegel & Koegel, 1995). It should be noted, however, that in the shared-control research, the studies have typically manipulated multiple variables simultaneously therefore the function of these variables is not clear. Further research is needed to clarify the role of control of interactions during teaching.

According to the literature, issues such as social skills training, lack of reinforcement available for interactions in the natural environment, or the possibility that interacting with others is aversive are all relevant variables affecting social interaction

(Goldstein & Cisar, 1992; Koegel & Koegel, 1995; McGee et al., 1992; Wahler, 1969)

However, the results of the present study suggest that positive reinforcement may also play a role in the occurrence of undesirable or low frequencies of social interactions. It is most certainly the case that each of these four variables can and do have some interactive relationship, however, more information is needed to adequately assess the extent to which positive reinforcement contingencies could maintain social behaviors in other contexts, under other conditions, and with multiple children.

APPENDIX A
OBSERVATIONAL CODE, DEFINITIONS AND DATA SHEET

Observation Code and Definitions

Terminations-Any verbal or physical movement from within 1 ft of the therapist.

Examples might include saying, “move,” pushing the therapist, walking away from the therapist, hitting the therapist, or kicking the therapist etc.

Nonexamples might include saying, “come here,” taking the therapist’s hand, or handing an item to the therapist etc.

**This data can only be scored once per minute.

Scored as: T

Initiations-Any verbal or physical movement within 1 ft of the therapist to participate in, maintain an activity, or to remain in close proximity.

Examples might include saying, “come here,” taking the therapist’s hand, giving an item to the therapist, or giving the therapist a “hug” etc.

Nonexamples might include saying, “move,” pushing or hitting the therapist, or walking away from the therapist etc.

**This data can only be scored if the child is within 1 ft of the experimenter.

Scored as: I

Observational Code and Definitions (Cont.)

Instructions-Verbal or physical models of appropriate speech or physical movements involving play items that occurred within 1 ft of the child.

Examples might include saying “watch me” while flying an airplane, or demonstrating the sounds and movements of a dump-truck etc.

Nonexamples might include just approaching the child, or greeting him directly rather than as a character etc.

**This data can be scored only one time per minute during baseline, and up to two times per minute if an initiation occurs during an interval while in the removal phases.

Scored as: In

Interaction Duration-The total amount of time the child remains within 1 ft of the experimenter.

For example, if the child remains within 1 ft of the experimenter for 1 min, then moves away for 5 min, then reenters proximity until the end of the session, 4-min, then the total interaction duration would be scored as 5 min.

**This data is collected on a continual basis and is not scored as interval data.

Data Collection Sheet

Date _____		Session _____				
Please circle one		REL	PRI	Obs. Name _____		
Minute	0--10	11--20	21--30	31--40	41--50	51--60
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Please Use The Following Symbols For Recording:

I = Initiation **Record Every Occurrence

T = Termination **Record Only 1/Interval

In = Instruction Delivered **Record Every Occurrence

Notes:

APPENDIX B
ROLEPLAY SEQUENCE

Role-Play Sequence

The parent participated in a pre-baseline training sequence that was designed to teach the data collection system for this experiment. The parent was required to meet criteria for the 4 targeted behaviors (i.e. terminations, initiations, instructions, and interaction duration), and was exposed to a series of role-play scenarios simulating the experimental conditions. The first scenario targeted the collection of termination data. The second scenario targeted the collection of initiation data. The third scenario targeted instruction and duration data collection. Once all scenarios were completed with the experimenter serving as the child, the parent then repeated the three scenarios and served as the child.

The criteria for completion was as follows:

- 1) To score each targeted behavior with 90% reliability across the 10-s intervals with the experimenter serving as the child and also collecting data, and
- 2) To score each targeted behavior with 90% reliability across the 10-s intervals while serving as the child, and the experimenter collected data.

Following each role-play a brief discussion took place where the parent could ask any questions.

APPENDIX C
INTEROBSERVER AGREEMENT CALCULATIONS

Interobserver Agreement And Calculations

Behavior	Recording Method	Reliability %
Terminations	Partial 1-min Intervals: $\frac{\text{Intervals Agreed}}{\text{Intervals Agreed} + \text{Disagreed}}$ Multiplied by 100	98%
Initiations	Exact Agreement (10-s Intervals) $\frac{\text{Intervals Agreed}}{\text{Intervals agreed} + \text{Disagreed}}$ Multiplied by 100	90%
Instructions	Exact Agreement (10-s Intervals) $\frac{\text{Intervals Agreed}}{\text{Intervals agreed} + \text{Disagreed}}$ Multiplied by 100	91%
Interaction Duration	Total Agreement (in seconds) $\frac{\text{Smaller \# Seconds}}{\text{Larger \# Seconds}}$ Multiplied by 100	89%
	Total %	92%

APPENDIX D
FIGURES

Figure 1. The top graph represents the total number of terminations in the Uninstructed condition. The bottom graph represents the total number of instructions and terminations in the Instructed condition.

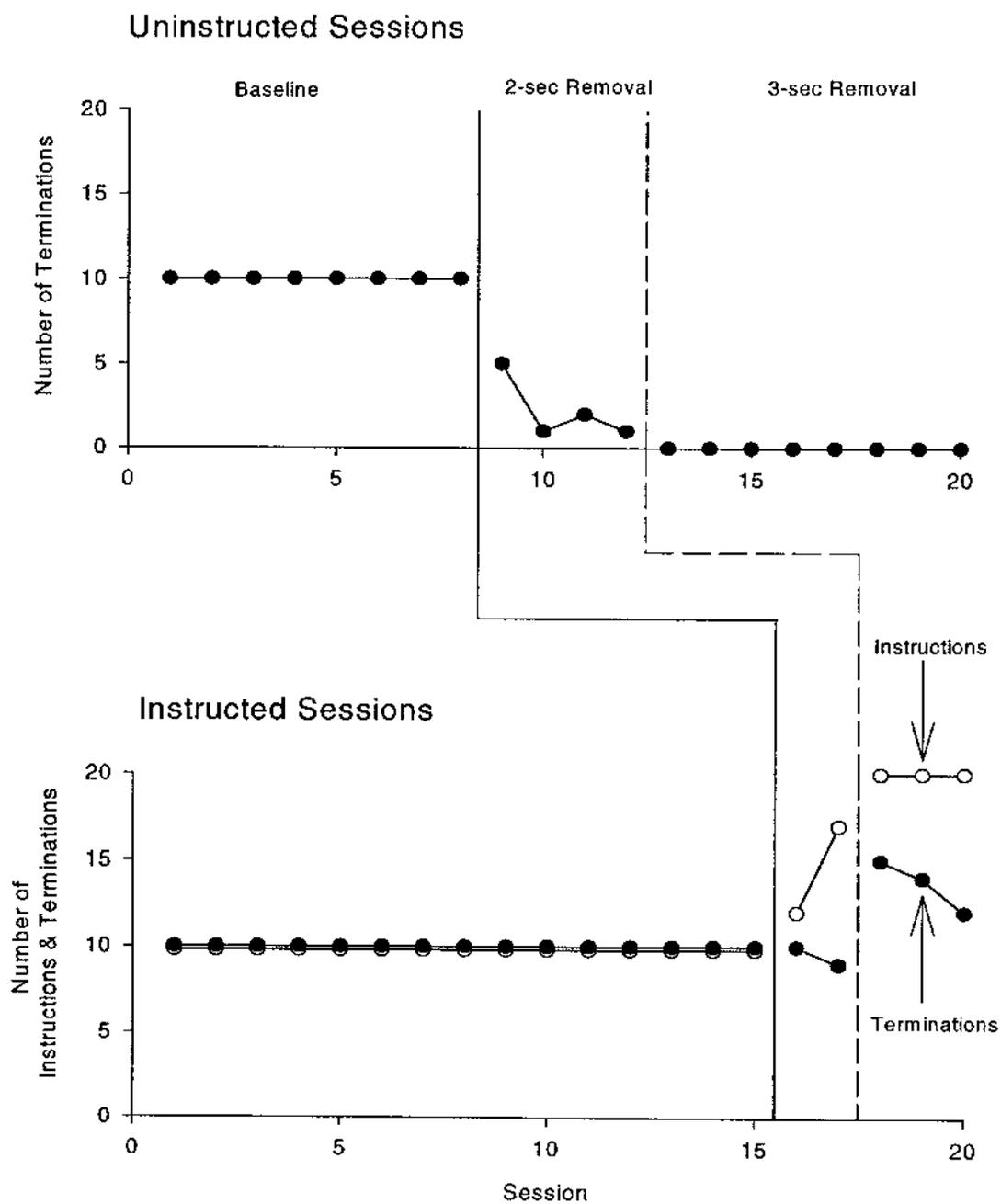


Figure 2. The number of initiations during the Uninstructed and Instructed conditions.

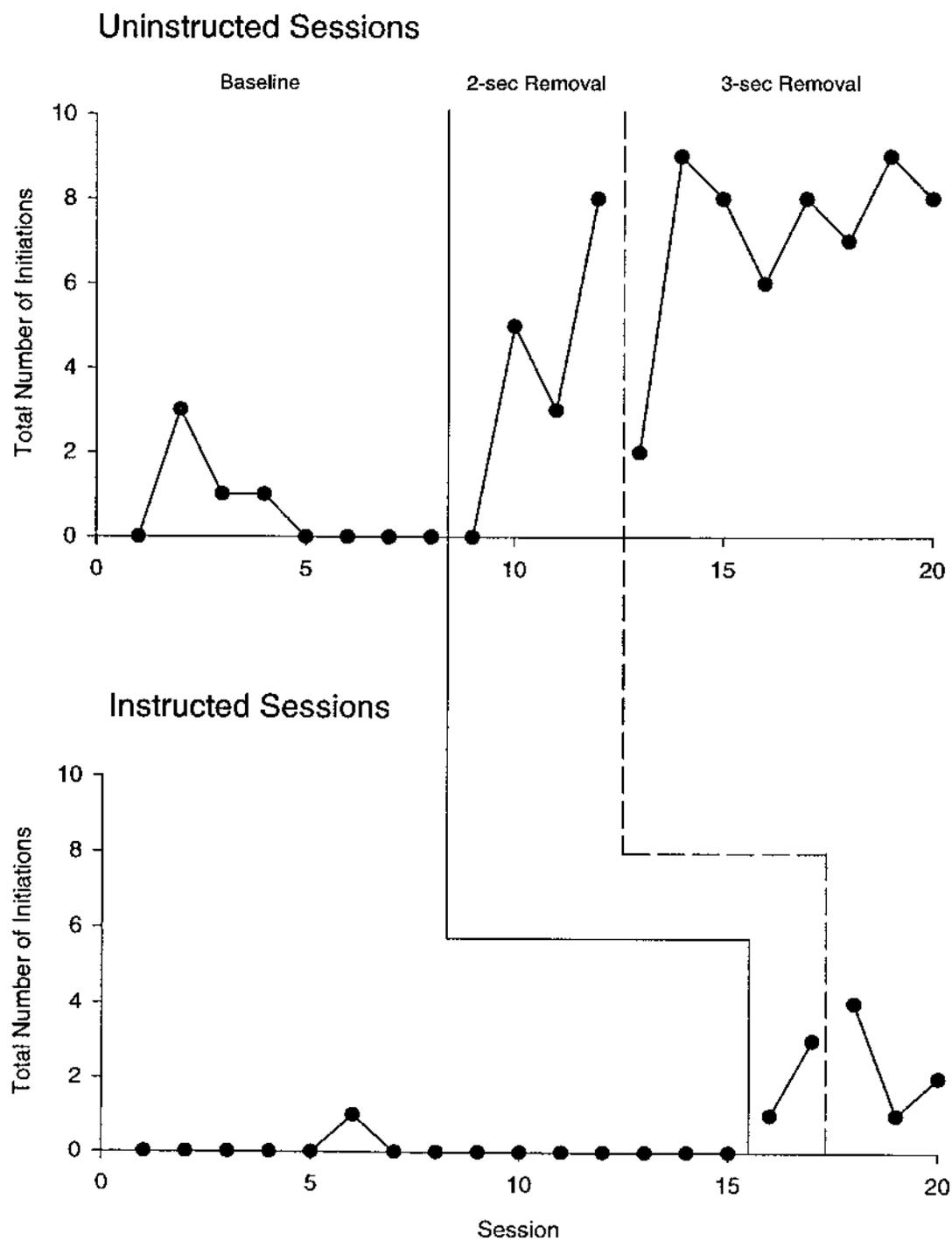
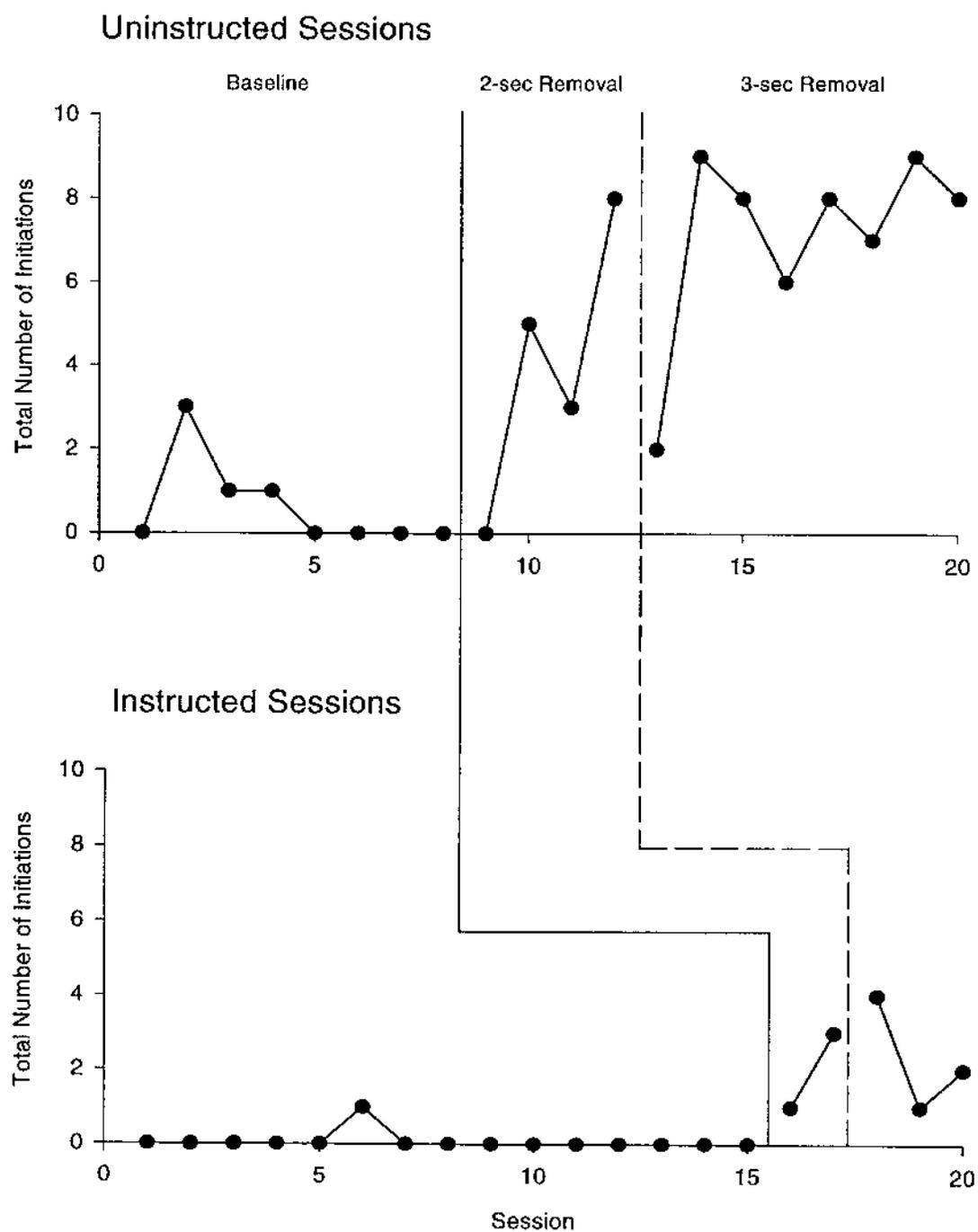


Figure 3. Interaction duration during the Uninstructed and Instructed conditions.



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