

EVALUATION OF A TRAINING PACKAGE FOR TEACHING SOCIAL SKILLS IN AN
INCLUSIONARY PRESCHOOL ENVIRONMENT

Carrie H. Haycraft, B.B.A.

Thesis Prepared for the Degree of
MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

August 2005

APPROVED:

Jesus Rosales-Ruiz, Major Professor
Shahla Ala'i-Rosales, Committee Member
Cloyd Hyten, Committee Member
Richard Smith, Chair of Department of
Behavior Analysis
David Hartman, Dean of the School of
Community Service
Sandra L. Terrell, Dean of the Robert B.
Toulouse School of Graduate Studies

Haycraft, Carrie H. Evaluation of a Training Package for Teaching Social Skills in an Inclusionary Preschool Environment. Master of Science (Behavior Analysis), August 2005, 78 pp., 2 tables, 4 figures, references, 10 titles.

Effective training procedures are necessary when teaching behavior analytic techniques because the techniques are so complex and precise; and there is a correlation between the changed skills in the trainees to be beneficial to the client. Instructors who may previously exhibit effective teaching techniques in a one-to-one setting may not exhibit those techniques in an inclusive setting. This study examines the effects of a training package and an instruction on the performance of experienced instructors, and desired responding from both preschool-aged children with autism and typically developing peers. The training took place with 3 triads of one instructor, one child with autism, and one peer in a center-based inclusionary preschool. Instructor skills targeted were prompt and consequence delivery for the target social skills, getting attention and responding to peers. Corroborative data on children's responding were obtained.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	iii
LIST OF FIGURES.....	iv
INTRODUCTION.....	1
METHODS	6
Participant	
Setting & Materials	
Measurement	
Procedures	
Design	
RESULTS.....	19
DISCUSSION.....	30
APPENDICES	42
REFERENCES.....	78

LIST OF TABLES

	Page
1. Group Combinations.....	35
2. Interobserver Agreement.....	36

LIST OF FIGURES

	Page
1. Group 1 measures.....	38
2. Group 2 measures.....	39
3. Group 3 measures.....	40
4. Environmental arrangement	41

INTRODUCTION

Training presents several challenges to supervisors and program developers within inclusive preschool programs. Three studies exemplify these challenges. The first study, Kohler (2001) discussed the challenges faced by staff using naturalistic teaching techniques. One challenge is that these techniques rely heavily on environmental arrangement and the child's motivation; thus, requiring teachers to make a range of conditional judgments directly related to the on-going environment. Similarly, Schepis (2000) discussed the difficulties of children receiving effective instruction within inclusive preschool settings and suggested that this may be due in part to a lack of no formal experience or training in instructional methods for use with young children who have disabilities. The authors also found that even when preschool staff received pre-service or in-service training in areas such as teaching skills to young children, the training they provided was often ineffective in significantly improving the staff's actual performance. Schepis (2001) is an expansion of the previous finding in Schepis (2000). In this study, the authors evaluated the effects of training support staff to embed instruction within the existing activities in an inclusive preschool setting. They also evaluated the child's performance to determine whether or not additional staff training had an effect on child performance.

Although, there is an overall lack of research on training support staff to provide instructional and related services in early intervention settings, especially in inclusive settings. There is an established literature on teacher training in general. Harchik (1989) and Demchak (1987) provide a summary of empirically based training literature in segregated settings. The training approaches evaluated by both authors included direct instruction, roleplay, on the job training, modeling, and organizational support. These training approaches were used to teach basic behavior principles, prompting strategies, consequences delivery strategies, and discrete trial training. According to Harchik (1989) and Demchak (1987), modeling, role-play, and feedback, used in conjunction, was identified as the most successful training approach.

In particular, the present study was interested in training teachers in inclusive settings of children with autism social behaviors. According to the New York Clinical Practice Guidelines (1999) children diagnosed with autism are said to exhibit qualitative impairments in social interaction; including, poor eye contact, not initiating play with peers, inability to sustain play with peers, or not taking part in groups. These skill deficits often cause children diagnosed with autism to stand apart from their peers in group settings. The growing literature shows that children diagnosed with autism or a related disorder make considerable progress with instructional techniques derived from applied behavior analysis. (Anderson & Romanczyk, 1999).

McConnell (2002) provides a literature review of the current social skills literature. The author reviewed research that evaluated the effects of different interventions (ecological variations, collateral skills interventions, child-specific interventions, peer behavior, and comprehensive interventions) on the social behavior in individuals diagnosed with autism. The author found that in all of the intervention techniques used, under some conditions, produced a significant impact on the targeted social behavior. However, "empirical support for various intervention components appears strong, the literature still requires practitioners to assume a significant burden in developing a logistically feasible yet sufficiently powerful package for use in their classroom." (McConnell, 2002).

One study that attempted to look at social skills in an inclusive setting was Kohler (2001). The authors found staff did not perform social skills teaching techniques until feedback was delivered specifically on these skills. In baseline, the authors met with the teaching staff and familiarized them with naturalistic teaching techniques for approximately 45 minutes. Once intervention started, all the teachers received daily feedback and assistance on how to use the naturalistic teaching techniques in a 45 min meeting. Finally, the teaching staff received written feedback forms prior to each session and was free to approach authors with questions or comments. The results showed that teachers were familiarized with the naturalistic teaching techniques at the onset of the study but little success was observed in the teacher's facilitation of children's social

skills during the initial baseline phase. After daily feedback and instruction on how to use the techniques to facilitate the children's interest in social interaction all children increased in social interactions, and the teacher's generalization of skills occurred in other classroom areas as well. Three to seven recommendations were given to the teacher during the session, but this feedback was given on judgments and observations rather than frequency of specific teaching tactics. Therefore, it is not clear what was the impact of the technical assistance. (Kohler, 2001).

In Schepis (2000) staff learned discrete-trial teaching techniques; however, they were unable to learn how to teach within the natural context of natural routines and in a manner that minimized disruptions during ongoing activities. A follow-up to this study was then performed (Schepis 2001). Effective teaching was demonstrated in embedded instruction within the existing activities of the classroom. Similar to the Kohler (2001) study, the authors determined that even though staff had demonstrated competence in the skills they were implementing they were unable to transfer those skills to the natural environment until on-the-job feedback was provided.

In summary, there were three articles that evaluated the effects of staff training in an inclusive environment. (Kohler, 2001; Schepis, 2000; Schepis, 2001). There are established bodies of literature supporting staff training (Harchik, 1989; Demchak, 1987) and social skills training (McConnell, 2002;

Strain, 1986). However, there is a lack of research addressing staff training of social behaviors for children with autism in an inclusive environment. Also, what these training effects have on the teacher's behavior as well as the child's behavior.

The current study was designed to answer two questions: to determine the effects of a training package (instructions, roleplay, & feedback) on teacher behavior (prompting social skills for typically developing children and children with autism) in an inclusive environment (an integrated preschool during play activities). Second, to evaluate the effects of the training package on child responding (i.e., the peer initiating to the child with autism and the child with autism responding to the peer).

METHOD

Participants

There were three groups of participants in this study. Each group consisted of one instructor, one peer, and one child diagnosed with autism or related disorder. The instructors were undergraduate and graduate students in the Department of Behavior Analysis at the University of North Texas and employees of the Dallas-Fort Worth Center for Autism (DFWCFA). All instructors had exhibited effective direct teaching skills in a one-to-one setting. This was determined by passing trainer checklists 1-2 required by the DFWCFA. Other things the checklist examined skills such establishing a relationship and teaching in discrete trial format. See Appendix C for the instructors' checklists.

The peers, ages 3.6-5, were all enrolled in the Texas Star Academy, a preschool linked to the DFWCFA. All were assumed to be typically developing children and attended the school four days a week. There were a total of 5 peers used in the study because 2 of the peers left the preschool mid-year for personal reasons. Table 1 shows the final combination of all triads from the beginning of study to completion.

The children diagnosed with autism or related disorders were enrolled in the center four days a week and have varying other concurrent treatments. The child with autism in group 1 was diagnosed with Pervasive Developmental

Disorder by a pediatric neurologist, and was enrolled in the center for 12 months. In addition to his center program, he was in an intensive ABA home program approximately 8-10 hours a week, saw a speech-pathologist for 4 hours/month, saw a occupational therapist for 2 hours/month, and received dietary intervention on a gluten-casein free diet. His rate of mastered targets for the center was an average of 13/week. His verbal repertoire consisted of 400-500 words, and phrases with a mean length of utterance of 4-5 words.

The child with autism in group 2 was diagnosed with severe and profound autism by his pediatrician and has been enrolled in the center for 12 months. In addition to his center program, he was in an intensive ABA home program for approximately 8-10 hours/week, saw a speech pathologist and an occupational therapist for a combined 8 hours/month, and received dietary intervention of a gluten-casein free diet. His rate of acquisition of mastered targets for his center program was 1.5/week and his functional form of communication was sign language with a repertoire of approximately 3-5 signs.

The child in group 3 was diagnosed with autism by a licensed psychologist and clinical neuropsychologist and was enrolled in the center for 8 months. He had no previous ABA intervention and had no home program, but received dietary intervention on a gluten-casein free diet. His rate of acquisition of mastered targets for his center program was an average of 12/week. His verbal

repertoire consisted of 500-600 words and phrases with a mean length of utterance of 6-7 words.

In addition to the participants there were three experimenters (one for each group). All experimenters were either recent graduates or in the final stages of graduating from the graduate program of the department of behavior analysis at the University of North Texas and were themselves current employees of DFWCFA. The experimenters had varied backgrounds and experiences with behavior analytic teaching techniques, and had passed the trainer checklists required by the DFWCFA to demonstrate effective direct teaching skills in a one-to-one setting.

Setting and Materials.

The experiment was conducted in three separate rooms at the DFWCFA. All data collection took place in the play room. The play room was arranged to facilitate different types of toy play, social interaction, and language. This area had approximately 4-7 other typically developing children, 1-2 preschool teachers or teacher assistants, 0-1 instructors for children with autism, and 0-1 other children diagnosed with autism. It contained open bookshelves with containers either on the shelves or floors with an assortment of play materials. All the play materials were divided into 6 categories: blocks, dolls and figurines, manipulatives, play scenes, play themes, & vehicles. The toys were on a rotation schedule to promote language and varied types of toy play see Gudmundsdottir

(2001). There were toy materials present from each category daily, with some permanent materials. (See Appendix A). The training rooms were used to teach the instructors the target behaviors. These rooms were located away from the social room. One room contained closed shelves and cabinets, cribs, baby rockers, a diaper-changing table, and baby toys. The other room contained 3 large tables, stacks of chairs, and a copier. In both rooms, toy materials from the previous day's toy rotation were brought in for the children to play with. The experimenter, instructor, peer, and child with autism were the only ones present in the training rooms. The children were given access to the toys while the instructor and experimenter conducted the role-play portion of the training package.

Measurement

The dependent variables used in this study were the number of prompts and consequences delivered by the instructor contingent on the peer's getting attention and on the child with autism for responding, the number of attention getting responses made by the peer, the number of responses made by the child, and the environmental arrangement.

Prompts for getting attention and child responding. Prompts were defined in three different ways depending on the topography of the prompt: physical, verbal, or gestural. A physical prompt was defined as using a hand over hand procedure to guide the child to the correct response. A verbal prompt was

defined as using a vocal model to cue the child to the correct response or telling a child to perform a toy play response or interaction response. A gestural prompt was defined as using a point, head nod, or eye gaze to cue the child to the correct response. All types of prompts were included with no distinction made in data collection. Prompts for peer getting attention were defined as prompts delivered that resulted in the peer orienting his or her face to the child's face, emitting vocal behavior, and touching the child's body. Prompts for children with autism responding were defined as prompts delivered that resulted in the child orienting his or her face to the front of peer's face, or to the toy the peer is holding, emitting a verbal statement or engaging in actions requested by the peer within 3 seconds after the peer has either touched the child with his or her hand, or emitted a vocal behavior directed to the child (in attention getting).

Consequence delivery for getting attention and child responding. There were two types of consequences: tangible items and praise. Both types of consequence delivery were scored with no distinction made in the data collection. Consequence delivery for peer getting attention was defined as follows: tangible items or praise delivered contingent on the peer orienting his or her face to the child's face, emitting vocal behavior, and touching the child's body. Consequence delivery for child responding for the child with autism was defined as tangible items or praise delivered contingent on the child with autism orienting his or her face to the front of peer's face, orienting his or her face to

the toy the peer is holding, emitting a verbal statement, or engaging in actions requested by the peer within 3 seconds after the peer has either touched the child with his or her hand, or emitted a vocal behavior directed to the child.

Prompt and consequence delivery for complimenting. The number of prompts and consequences delivered by the instructor for complimenting were measured to determine if any generalization effects occurred without direct training. Prompts for complimenting were defined as prompts delivered contingent on a peer making a verbal statement indicating affection, attraction to the child or child's toys, or praise. Consequence delivery for complimenting included tangible items or praise delivered contingent on a peer making a verbal statement indicating affection, attraction to the child or child's toys, or praise.

Getting attention. Getting attention was measured to determine the frequency that the peer would get the child with autism's attention and was also being trained by the instructor. It is defined as the peer orienting his or her face to the child's face, emitting a vocal behavior, and touching the child's body.

Child responding. Child responding is defined as the child orienting his or her face to the front of the peer's face, orienting his or her face to the toy the peer is holding, emitting a verbal statement or engaging in actions requested by the peer within 3 seconds after the peer has either touched the child with his or her hand, and emitted a vocal behavior directed to the child.

Environmental arrangement. This measure was taken to determine whether or not the environmental arrangement was conducive to play and social interaction. The environment was considered as arranged when the child with autism and peer are within proximity (4 ft. of each other) and play materials are available within proximity (4 ft. of each other) for the children to use. For parallel play, children's back must not be facing each other. The measure was scored at the end of each 30-second interval for the entire interval, when the environment was arranged.

A video recorder was used to record experimental sessions. Instructor measures were recorded upon viewing the tapes. At any time a data collector could not hear a comment made by the instructor, or if the participants were not in the camera's view the interval was marked inaudible and not scored for reliability. The primary observer's data was then used. All child behaviors were scored in vivo with no marks for inaudibility. Data collection instruments are listed in Appendix D.

Interobserver Agreement. Interobserver agreement was calculated for 45% of all experimental sessions using the observation protocol listed in Appendix B. Before any data was collected, video examples and non-examples were shown and discussed. Once agreement was met, the data observers then scored tapes independently. The occurrences of the behaviors were recorded and frequencies calculated (number of occurrences of target behavior were recorded by each

observer, the smaller number was divided by the larger, and that number was multiplied by 100) and averaged 92% across the entire experiment and all three instructors. Table 2 illustrates the breakdown of agreement with the instructors, peers, and children with autism.

Procedures

Baseline. During baseline, the instructors were observed in the play room. The experimenter and/or data collector took measures approximately 2 minutes after the group arrived in the room. Then, the experimenter delivered the instruction to the instructor: “We are working on (peer) and (child with autism) interactions. For (child with autism) work on responding to (peer). For (peer) we are working on getting (child with autism)’s attention and complimenting (child with autism)’s play. These will be posted in the room for you to see.” The time length of data collection throughout the study was 5 minutes and the target behaviors were posted on the wall for the instructors reference. Upon completion of the 5 minutes, the instructors were told “thank you” and given no other feedback. The instructor, experimenter, peer, and child with autism returned to their daily schedule. The phase ran until collected measures were stable, or without large fluctuation. The baseline experimenter outline is included in Appendix B.

Prompt package. The prompt package was implemented to teach the instructors how to effectively prompt the peer and child with autism to engage in

the target behaviors. The prompt package was broken up into 3 components: definition and role-play, modeling, and feedback. The first component took place in the training room and instructors and trainers were given approximately 20 minutes. During this time, the instructors practiced behavior definitions and role-plays of effectively prompting peer getting attention and child responding. The experimenters started the practice session by explaining the different types of prompts used to prompt social interaction between the peer and child with autism. After this, the experimenter read the target definition and asked the instructor to identify key components of the definition. This continued until the instructor was able to repeat the key components of the target definition. Then the experimenter and instructor rehearsed six role-plays practicing the target behaviors and different prompting procedures. For example, the experimenter and instructor would role-play prompting a peer to get a child with autism's attention and role-play prompting the child with autism to respond to the peer. See Appendix B for exact role-plays and the prompt package experimenter outline. If the experimenter and instructor completed the first component of the prompt training package prior to the time allotted the experimenter was paired with the peer and the instructor paired with the child diagnosed with autism or related disorder and both groups played with the provided toy materials. It was not recorded whether or not the experimenters used the entire 20 minutes to practice, or just a few minutes to practice. Upon completion of this time the

participants returned to the play zone for the second and third components of the prompt package: modeling and feedback. The experimenter began by modeling the targeted behavior for 2 minutes, then the experimenter stepped out and the instructor practiced. During the instructor's practice time (2 minutes) the experimenter gave immediate feedback to the instructor. Finally, the experimenter stepped out and baseline conditions were repeated. The instruction was delivered, target behaviors posted, and measures collected. The phase ran until collected measures were stable, or without large fluctuation.

Consequence delivery package. The consequence delivery package was introduced to teach the instructor to deliver consequences contingent on the target behaviors, peer getting attention and child responding. The consequence delivery package was broken up into 3 components: definition and role-play, modeling, and feedback. The first component took place in the training room and instructors and trainers were given approximately 20 minutes. During this time, the instructors practiced behavior definitions and role-plays of effectively delivering consequences for peer attention getting and child responding. The experimenters started the practice session by explaining the different types of reinforcers that can be delivered, tangible and praise. After this, the experimenter read the target definition and asked the instructor to identify key components of the definition. This continued until the instructor was able to repeat the key components of the target definition. Upon completion of this

time, the experimenter and instructor rehearsed six role-plays practicing the target behaviors. For example, the experimenter and instructor would role-play delivering consequences for a peer getting a child with autism's attention or a child with autism responding to a peer's attention getting behavior. See Appendix B for exact role-plays and consequence delivery experimenter outline. If the experimenter and instructor completed the first component of the consequence delivery training package prior to the time allotted the experimenter was paired with the peer and the instructor paired with the child diagnosed with autism or related disorder and both groups played with the provided toy materials. It was not recorded whether or not the experimenters used the entire 20 minutes to practice, or just a few minutes to practice. Upon completion of this time the participants returned to the play zone for the second and third components of the consequence delivery package, modeling and feedback. The experimenter began by modeling the targeted behavior for 2 minutes, then the experimenter stepped out and the instructor practiced. During the instructor's practice time (2 minutes) the experimenter gave immediate feedback to the instructor. Finally, the experimenter stepped out and baseline conditions were repeated. The instruction was delivered, target behaviors posted, and measures collected. The phase ran until collected measures were stable, or without large fluctuation.

Reversal. A return to baseline conditions occurred determining if the subjects' behavior would maintain with the removal of the training packages.

During the reversal, the instructors were observed in the play room. The experimenter and/or data collector took measures approximately 2 minutes after the group arrived in the room. After the 2 minutes, the experimenter delivered the instruction to the instructor: "We are working on (peer) and (child with autism) interactions. For (child with autism) work on responding to (peer). For (peer) we are working on getting (child with autism)'s attention and complimenting (child with autism)'s play. These will be posted in the room for you to see." The data was collected in the 5 minute time period and the target behaviors were posted on the wall for the instructors reference. Upon completion of the 5 minutes, the instructors were told "thank you" and given no other feedback. The instructor, experimenter, peer, and child with autism returned to their daily schedule. When the behaviors did not maintain, an instruction intervention was implemented.

Instruction. After observing a decrease in the subjects target behaviors, an instruction phase was added to the design. The instruction gave the instructors a target number or goal to determine if it would reinstate their previous levels of responding. This consisted of: "You have been doing a wonderful job and what we are going to try to do today is deliver 5 effective prompts for peer getting attention, then child responding if necessary and delivering consequences for each of those behaviors." Upon completion of this time, baseline conditions

were repeated. No definitions, role-play, or feedback was given at this time. See Appendix B for the instruction experimenter outline.

Design

A multiple baseline design across instructors and across instructor behaviors was used. The instructors began in baseline and remained in this phase until collected measures were stable, or without large fluctuation. The next condition introduced was the prompt package. Once the measures were stable, the consequence delivery package was introduced. After consequence delivery training Instructors 1 and 2 returned to baseline to determine if the increase in target behaviors would maintain. Since the behavior decreased, an instruction was introduced in the last condition. Only Instructor 3 participated in the first three phases. The intervention packages were implemented exclusively, not cumulatively, meaning feedback was only given in reference to the target behaviors being taught during each phase. The effects of an instructor-training package were evaluated on social skills instruction.

RESULTS

For all graphs illustrated, solid lines crossing two graphs indicate changes in conditions in the multiple baseline design and hatched lines indicate when independent variables were manipulated in the multiple baseline design.

Figure 1 shows the number of prompts and consequences delivered by Instructor 1 and prompted and unprompted responses by the peer and child. The top graph shows the number of prompts delivered by Instructor 1 (closed circle), the number of prompts followed by Peer 1 (open circle), and the number of unprompted attention getting responses made by Peer 1 (triangle). The second graph shows the number of prompts delivered by Instructor 1 (closed circle), the number of prompts followed by Child 1 (open circle), and the number of unprompted responses made by Child 1 (triangle). The third graph shows the number of opportunities that Instructor 1 had for delivering a consequence to Peer 1 (closed circle) and the number of consequences delivered to Peer 1 (open circle). The fourth graph shows the number of opportunities that Instructor 1 had for delivering a consequence to Child 1 (closed circle) and the number of consequences delivered to Child 1 (open circle).

During baseline, Instructor 1 delivered an average of 3.1 prompts/session (range 0-6) to Peer 1 and the number of prompts followed averaged 1/session (range 0-2). There was only one unprompted response by Peer 1 during the six baseline sessions. Instructor 1 delivered an average of 1.4 prompts/session

(range 0-2) to Child 1 and the number of prompts followed averaged .14/session (range 0-1). There were no unprompted responses made by Child 1. There were very few opportunities for consequence delivery during baseline for Peer 1 (range 0-3) or Child 1 (0-1) and virtually no consequences were delivered to Peer 1 (range 0-1) or Child 1 (0).

The prompt training package was introduced at the start of session 7 and showed a dramatic increase in the number of prompts delivered to Peer 1 (average 11.5/session; range 8-14) and the number of prompts followed by Peer 1 (average 7/session; range 3-13). The package also showed an increased but variable responding in Peer 1's unprompted responding (average 1.1/session; range 0-3). The package had similar increases in the number of prompts delivered to Child 1 (average 6.1/session; range 3-8) and the number of prompts followed by Child 1 (average 3.5/session; range 1-5). It also showed an increase in Child 1's unprompted responding (average 5.1/session; range 3-9).

The introduction of the prompt package increased the number of opportunities for consequence delivery for Peer 1 (average 8/session; range 3-16) and showed variable responding for the number of consequences delivered by Instructor 1 (average 3.8/session; range 1-9). It had similar effects on the number of opportunities for consequence delivery for Child 1 (average 8.6/session; range 4-13) and the number of consequences delivered by Instructor 1 (average 1.3/session; range 0-4).

In session 13 the prompt delivery package was removed and the consequence delivery package was implemented. Removing the prompt package produced variable responding for the number of prompts delivered to Peer 1 (average 10/session; range 5-14) and the number of prompts followed by Peer 1 (average 4.1/session; range 0-8). Peer 1's unprompted responses remained low (average 1.1/session; range 0-2). The number of prompts delivered to Child 1 remained variable (average 4.5/session; range 2-7), while the number of prompts followed remained low, (average 1/session; range 0-2). The number of unprompted responding from Child 1 remained relatively stable, (average 4.1/session; range 0-7), with one outlying low point (0).

During the consequence delivery package, the opportunities for consequence delivery increased for Peer 1 (average 5.3/session; range 1-8) and the number of consequences delivered to Peer 1 were very close and overlapped on several days (average 4.8/session; range 0-8). The results were similar for the opportunities for consequence delivery for Child 1 (average 5.1/session; range 0-9) and the number of consequences delivered to Child 1 (average 3.6/session; range 0-7).

In the 19th session there was a return to baseline to determine if the number of prompts and consequences delivered would maintain without the intervention. The number of prompts delivered to Peer 1 (average 6.6/session; range 4-10), prompts followed (average 1/session; range 0-2), and unprompted

responses (average .3/session; range 0-1) all decreased dramatically.

Responding was similar for the number of prompts delivered to Child 1 (average .3/session; range 0-1), prompts followed (average .3/session; range 0-1), and unprompted responses (average 1/session). The number of opportunities for consequence delivery for Peer 1 (average 1.3/session; range 1-2) and Child 1 (average 1.3/session; range 1-2) and the number of consequences delivered to Peer 1 (average 1/session; range 0-2) and Child 1 (average .3/session; range 0-1) all decreased.

When an instruction was delivered in session 22, prompt delivery to Peer 1 stabilized at frequencies between baseline and the prompt package (average 7/session; range 6-8). Prompts followed increased (average 3.6/session; range 3-5). The number of unprompted responses from Peer 1 shows an increasing trend (0, 3, 6). The number of prompts delivered to Child 1 increased (average 3.3/session; range 3-4) and shows a decreasing trend in the number of prompts followed (3, 2, 1). However, there is an increase in unprompted responses (average 5.3/session; range 3-7). The opportunities for consequence delivery to Peer 1 (average 6.3/session; range 5-8) and the number of consequences delivered to Peer 1 (average 4.6/session; range 4-5). Similar results are shown for the opportunities for consequence delivery to Child 1 (average 7.3/session; range 6-9) and the number of consequences delivered (average 3.6 (range 3-4).

Figure 2 shows the results for Instructor 2. During baseline, Instructor 2 delivered an average of 1.1 prompts/session (range 0-2) to Peer 2 and Peer 2 followed no prompts. The number of unprompted responses made by Peer 2 was also zero. Instructor 2 delivered an average of .3 prompts/session (range 0-1) to Child 2 and no prompts were followed. There were also no unprompted responses made by Child 2. There were very few opportunities for consequence delivery during baseline for Peer 2 (range 0-1) and no opportunities for Child 2. Instructor 2 delivered no consequences to Peer 2 or Child 2.

The prompt training package was introduced at the start of session 9 and showed a dramatic increase in the number of prompts delivered to Peer 2 (average 9.3/session; range 8-12) and the number of prompts followed by Peer 2 (average 3.3/session; range 3-4). However, Peer 2's unprompted responding remained at zero. The package had similar increases in the number of prompts delivered to Child 2 (average 3.3/session; range 2-4) and the number of prompts followed by Child 2 (average 1.6/session; range 1-2). An increase was also shown in Child 2's unprompted responding (average 1.3/session; range 1-2).

The introduction of the prompt package increased the number of opportunities for consequence delivery for Peer 2 (average 3.3/session; range 3-4), but did not increase the number of consequences delivered by Instructor 2 (0). It had a similar affect on the number of opportunities for consequence

delivery for Child 2 (average 3/session; range 2-4), but did not increase the number of consequences delivered by Instructor 2 (0).

In Session 12 the prompt package was removed and the consequence delivery package was implemented. Removing the prompt package produced variable responding for the number of prompts delivered for Peer 2 (average 5/session; range 2-7) and the number of prompts followed by Peer 2 (average 2.5/session; range 1-8) remained stable. Peer 2's unprompted responses remained low (average 1.7/session; range 0-3), but showed an increase from the previous condition. The number of prompts delivered to Child 2 remained stable (average 2.5/session; range 0-1), while the number of prompts followed remained stable several times overlapping with the number of prompts delivered, (average .6/session; range 0-1). The number of unprompted responding from Child 2 remained relatively stable, (average 1.3/session; range 0-4).

During consequence delivery package the gap between opportunities for consequence delivery for Peer 2 (average 4.3/session; range 2-9) and the number of consequences delivered to Peer 2 (average 2.5/session; range 1-5) tightened significantly. The gap tightened even closer for consequence delivery for Child 2 (average 3.7/session; range 1-8) and the number of consequences delivered to Child 2 (average 3.1/session; range 0-6), overlapping on several days and remaining very close. This indicates a consequence being delivered for nearly every target response made by Child 2. The change in series in session

16 signifies a change in the peer. The change appeared to have no effect on responding of Instructor 2 or Child 2.

In session 18 a return to baseline was introduced to determine if the number of prompts and consequences delivered would maintain without the intervention. The number of prompts delivered to Peer 1 averaged 2/session; range 4-8), prompts followed averaged 1/session, and unprompted responses, 0, decreased dramatically. Responding was similar for the number of prompts delivered to Child 2 (average .5/session; range 0-1), prompts followed (0), and unprompted responses (average 1/session). This condition also decreased the number of opportunities for consequence delivery for Peer 2 (average 1/session) and Child 2 averaged 2.5/session (range 2-3) and the number of consequences delivered to Peer 2 averaged 1/session and Child 2 averaged .5/session (range 0-1). Because of the decline in both number of prompts and consequences delivered at the start of session 20 an instruction was delivered to attempt to return levels of responding to previous levels. This succeeded in maintaining steady levels of responding for prompt delivery to Peer 2 (average 7.6/session; range 7-9) with increased rates of prompts followed averaged 4/session. However, the number of unprompted responses from Peer 2 remained at zero. This condition also showed an increasing trend in the number of prompts delivered to Child 2 (1, 2, 3) and showed an increase in the number of prompts followed (average 2/session; range 1-3). However, there was a decreasing trend in the number of

unprompted responses (4, 1, 0). The number of opportunities for consequence delivery to Peer 2 (average 4/session) and the number of consequences delivered to Peer 2 (average 2.3/session; range 2-3) maintained steady responding. Both opportunities for consequence delivery to Child 2 (average 3.3/session; range 2-4) and the number of consequences delivered (3, 2, 1) appear to be on a decline.

Figure 3 shows the results for Instructor 3. During baseline, Instructor 3 delivered an average of 2 prompts/session (range 0-8) to Peer 3 and Peer 3 followed no prompts. The number of unprompted responses was also zero. Instructor 3 delivered an average of .87 prompts/session (range 0-5) to Child 3 and no prompts were followed. There were also no unprompted responses made by Child 3. There were no opportunities for consequence delivery during baseline for Peer 3 or Child 3; therefore, no consequences were delivered to either child.

The prompt training package was introduced at the start of session 9 and showed a dramatic increase in the number of prompts delivered to Peer 3 (average 13.2/session; range 11-18) and the number of prompts followed by Peer 3 (average 8.4/session; range 4-14). The package showed variable responding in Peer 3's unprompted responding (average 2.1/session; range 0-5). The package also showed variable responding in the number of prompts delivered to Child 3 (average 4/session; range 0-12) and the number of prompts

followed by Child 3 (average 3.25/session; range 1-8). Child 3's unprompted responding remained low (average .6/session; range 0-2). The arrows on the graph in this condition indicated days when the experimenter did not model prompts delivered to Child 3, sessions 9 and 11. The results that no prompts were modeled or delivered those days show strong experimental control.

The introduction of the prompt package increased the number of opportunities for consequence delivery for Peer 3 (average 10.2/session; range 4-18), but did not increase the number of consequences delivered by Instructor 3 (average .2/session; range 0-1). It had similar effects on the number of opportunities for consequence delivery for Child 3 (average 3.2/session; range 0-8), again had little effect on the number of consequences delivered by Instructor 3 (average .2/session (0-1).

In Session 14 the prompt delivery package was removed and the consequence delivery package was implemented. Removing the prompt package produced stable responding for the number of prompts delivered to Peer 3 (average 13.4/session; range 10-18) and the number of prompts followed by Peer 3 (average 7.4/session; range 5-10). Peer 3's unprompted responses remained low (average .2/session; range 0-1). The number of prompts delivered to Child 3 was variable (average 2.8/session; range 0-9) while the number of prompts followed remained low (average 1.2/session; range 0-2). The number

of unprompted responding from Child 3 showed a dramatic increase (average 5/session; range 4-7).

During the consequence delivery package, the gap between opportunities for consequence delivery for Peer 3 (average 7.6/session; range 5-10) and the number of consequences delivered to Peer 3 (average 3/session; range 1-5) tightened significantly during this condition. The gap also tightened for consequence delivery for Child 3 (average 6.2/session; range 4-8) and the number of consequences delivered to Child 3 (average 2.8/session; range 1-7). The change in series in session 16 signifies a change in the peer. The change appeared to have no effect on responding of Instructor 3 or Child 3.

Figure 4 displays the percentage of intervals the environment was conducive to play or social interaction during sessions carried out by Instructors 1, 2, and 3.

The top graph shows the results for Instructor 1. Responding in baseline was initially low (range 10%-30%); however, an upward trend started at the end of baseline (20%, 60%, 70%). Once the prompt package was introduced during session 7, the environment was arranged 100% during 3 sessions and below 80% the other sessions. The introduction of the consequence delivery package resulted in less fluctuation than in the previous condition with an average of 88.3%/session; range 70-100%). A return to baseline showed a decreasing trend for the environmental arrangement (100%, 80%, 50%), but with the introduction of the instruction in session 22, the environmental arrangement

percentages returned and stabilized to original levels (average 93.3%/session; range 80-100%).

The middle graph shows results from Instructor 2. The environmental arrangement for group 2 remained variable throughout the length of the study with no real trends or patterns emerging. Baseline starts with an upward trend (40%, 50%, 50%, 70%), followed by a decrease (20%), then another trend (50%, 100%, 80%). However, the introduction of the prompt package in session 9 show decreasing average 50%/session; range 40-60%). The consequence delivery package again produced variable arrangement averaged 71.6%/session; range 40%-100%). Interestingly, the return to baseline produced the most stable arrangements (100%, 100%), but the instruction condition in session 20 returns the environmental arrangement to previous levels seen in the prompt condition (average 56.6%/session; range 40-70%).

The bottom graph shows the results from Instructor 3. Initially in baseline the percentage of intervals the environment was arranged was variable with an average of 47.5%/session; range 0-100%), then the percentage stabilized for the completion of baseline and the remainder of the experiment averaged 97.5% session; range 90%-100%). There was a small fluctuation in the prompt package condition averaged 94%/session; range 80%-100%) that quickly stabilized and the consequence delivery condition showed stable responding (all 100%).

DISCUSSION

The results of this study show the training packages, as well as the instruction, were effective in increasing the number of prompts and consequences delivered to both children involved. The training of the instructor had a positive effect on both the peer and child with autism's target behaviors. The peer's number of prompted responding increased and the child with autism's unprompted responses increased. The study also showed that the gap in the number of prompts delivered by the instructor versus prompts followed by the child tightened over time. The results also show that there was a greater correspondence in the number of opportunities for consequence delivery versus the number of consequences delivered. This suggests that once the skill was acquired, the instructors were effective in recognizing when to deliver consequences and doing so appropriately. The packages did not have the same control over environmental arrangement. It had a positive effect upon group 1, but failed to have an effect on group's 2 and 3.

The study produced results similar to the staff training results demonstrated in Schepis (2000) and Schepis (2001), validating both procedures. Compared to Kohler (2002), Schepis (2000), and Schepis (2001), this training

package was effective in increasing both the peer and child with autism's target behaviors, as well as increasing the instructors target behaviors. The experimenters were able to increase all of these target behaviors in relatively few training sessions within an inclusive preschool environment. This study extends the inclusive environment literature effectively teach peers to increase the targeted behavior of children with autism. As the number of prompts increased to the peer, the number of unprompted responses increased in the children with autism.

The experimenters chose experienced instructors assuming the training would be less intense since the relationship of effective prompting and consequence delivery had already been demonstrated. However, as shown in baseline these skills did not generalize from the one-on-one setting to the inclusive environment. These results are similar to previous literature; however, with this lack of generalization was overcome with a programmed instruction in the inclusive environment. The instructors were told, "...deliver 5 effective prompts for getting attention, then child responding if necessary and delivering consequences for each of those behaviors."

This study raises several points of discussion. The first one being the difference of skill levels in the children diagnosed with autism. Children with autism in groups 1 & 3 had significantly more language than the child in group 2. This may have contributed to the difference in response levels among the

groups. There is a greater range of responding for groups 1 & 3 than in group 2. Nonetheless, the child in group 2 was able to demonstrate acquisition of the targeted social skills.

Another point of discussion is the differences in the experimenters. While all had passed the training checklists, no experimenters overlapped with other experimenters. Initially, during the prompt package, the primary experimenter sat in on 2 sessions of each of the other experimenters. On completion of this, no other observations occurred. This is notable due to the fact all experimenters were able to show and maintain experimental control. However, even though the three different experimenters were able to maintain control it did have a differential effect on the number of opportunities for in-vivo modeling and feedback. During the modeling and feedback portions (component 3) of the training packages the number of models and feedback to instructors was variable across different instructors and different experimenters. Meaning, some experimenters may have been modeling more examples and giving more feedback to instructors or vice versa. Some experimenters also noted that one instructor was conducting verbal rehearsals with the peer and child with autism immediately prior to the onset of the experimental session. There is no record of when these rehearsals took place or how often. This could have had an effect on the instructor's as well as the child's responding.

The effects of the instruction phase on reinstating previous levels of responding also raises questions. The fact that the package and instruction conditions had such similar effects questions whether or not the instruction package could come first and have the same effect or whether the training package was necessary prior to obtain those results, further research is necessary to evaluate this possibility.

The scheduling of the experiment proved to be difficult. Of the 36 possible sessions, group 1 attended 67% of the time, group 2 attended 61% of the time, and group 3 attended 50% of the time and had to be dropped due to scheduling conflicts. This aspect required the study to run longer across time because the sessions were not occurring frequently. All experimenters verbally reported that instructors complained about participation in the study; however, these were not recorded at the time and this was not reflected in the social validity measure. See Appendix F for the social validity measure.

A large weakness of the study is the failure to fade the instructor's involvement from the experiment. Ideally, peers would serve as prompts for the children with autism to engage in social interaction and the natural environment would produce reinforcing consequences to maintain this behavior; however, this was not achieved during this study. Further research is needed to fade these prompting procedures and demonstrate maintenance of the social behaviors of both the peer and child with autism.

True to most research, this study has raised more questions than answered. This study supports the literature that has established that social skills can and will be performed with rather intense training for the peer or instructor, and also demonstrated the child with autism's ability to respond spontaneously, independent of their skill level. The study extends the current social skills literature, as well as the current training literature by demonstrating research in inclusive settings without disrupting the daily routine of a preschool setting. It was also able to demonstrate child measures as well as instructor measures, both with positive effects.

Table 1

Group Combinations

Child	Group 1	Group 2	Group 3
	1	2	3
Peer	1	2 & 4	3 & 5
Instructor	1	2	3
Experimenter	1	2	3

Table 2

Interobserver Agreement

Group 1

Instructor Measures

Primary

Prompt for getting attention	89%
Consequence delivery for getting attention	97%
Prompt for child responding	94%
Consequence delivery for child responding	92%

Secondary

Prompt for compliments	89%
Consequence delivery for compliments	100%
Environmental arrangement	90%

Average Instructor Measures	93%
-----------------------------	-----

Child Measures

Secondary

Getting Attention	100%
Child Responding	91%
Compliments	100%

Average Child Measures	97%
------------------------	-----

Total Average	95%
----------------------	------------

Group 2

Instructor Measures

Primary

Prompt for getting attention	84%
Consequence delivery for getting attention	100%
Prompt for child responding	84%
Consequence delivery for child responding	100%

Secondary

Prompt for compliments	83%
Consequence delivery for compliments	100%
Environmental arrangement	93%

Average Instructor Measures	92%
-----------------------------	-----

Child Measures

Secondary

Getting Attention	78%
Child Responding	75%
Compliments	100%

Average Child Measures	84%
------------------------	-----

Total Average	88%
----------------------	------------

Table 2 (continued).

Group 3

Instructor Measures

Primary

Prompt for getting attention	87%
Consequence delivery for getting attention	100%
Prompt for child responding	94%
Consequence delivery for child responding	100%

Secondary

Prompt for compliments	92%
Consequence delivery for compliments	100%
Environmental arrangement	84%

Average Instructor Measures	94%
-----------------------------	-----

Child Measures

Secondary

Getting Attention	96%
Child Responding	82%
Compliments	88%

Average Child Measures	89%
------------------------	-----

Total Average	92%
----------------------	------------

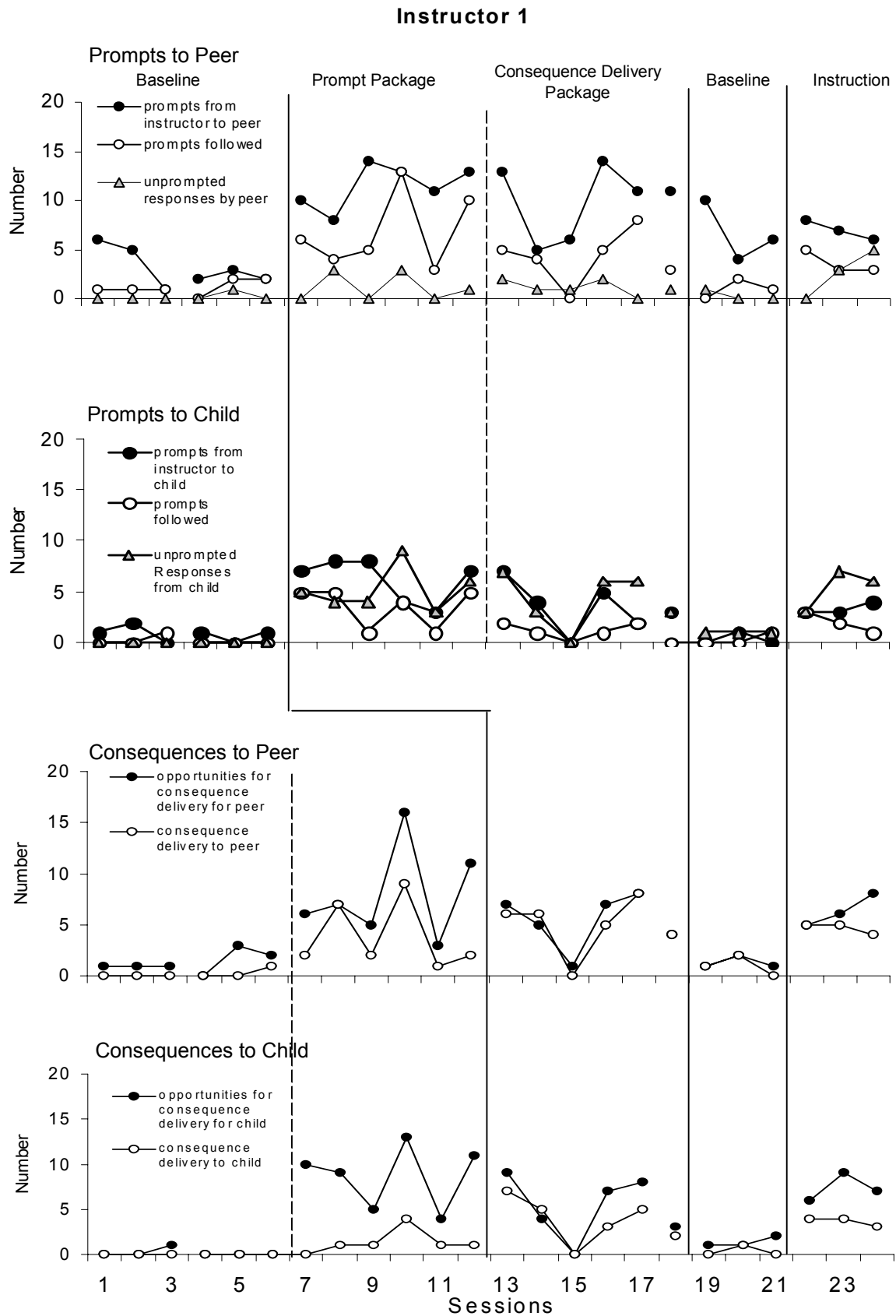


Figure 1. Group 1 measures.

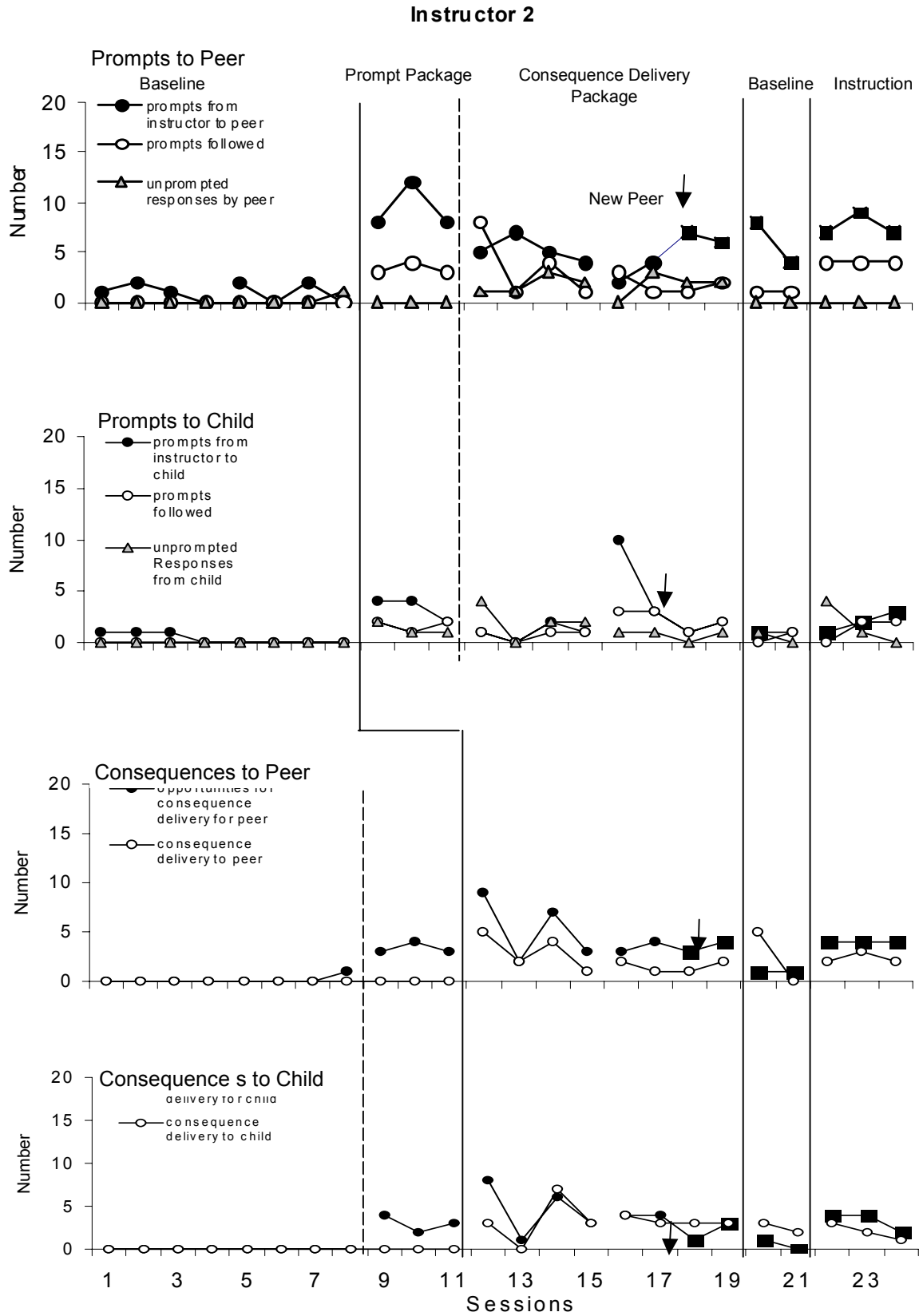


Figure 2. Group 2 measures.

Instructor 3

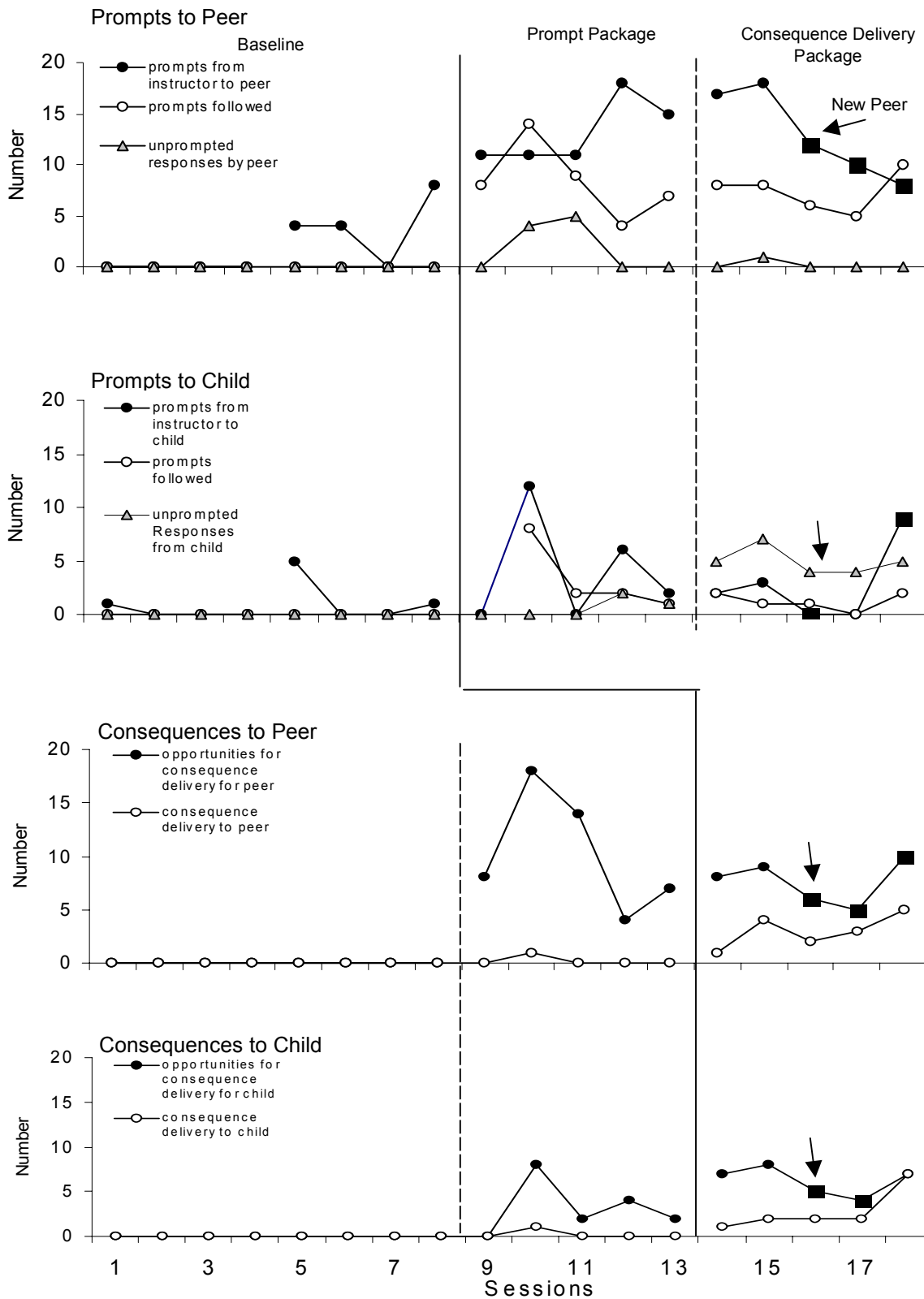


Figure 3. Group 3 measures.

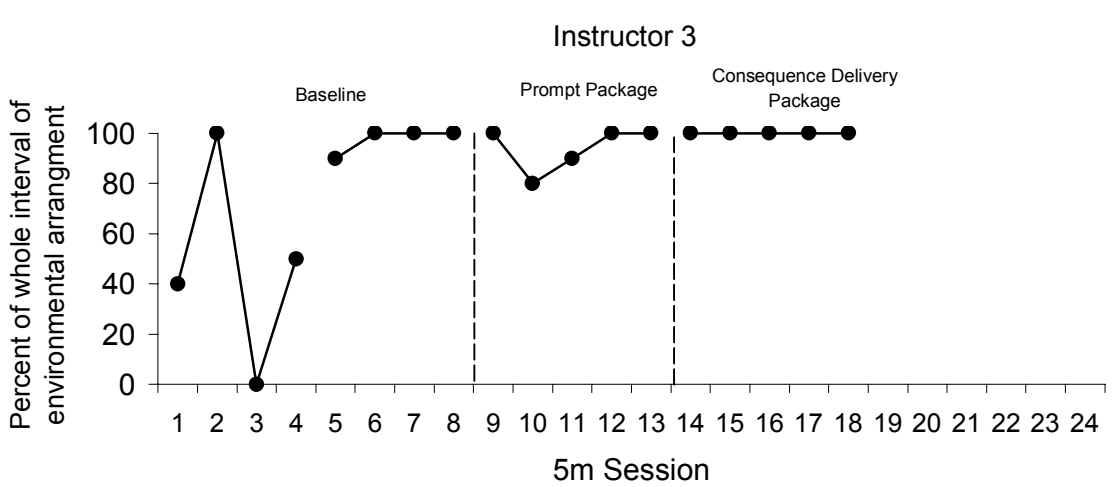
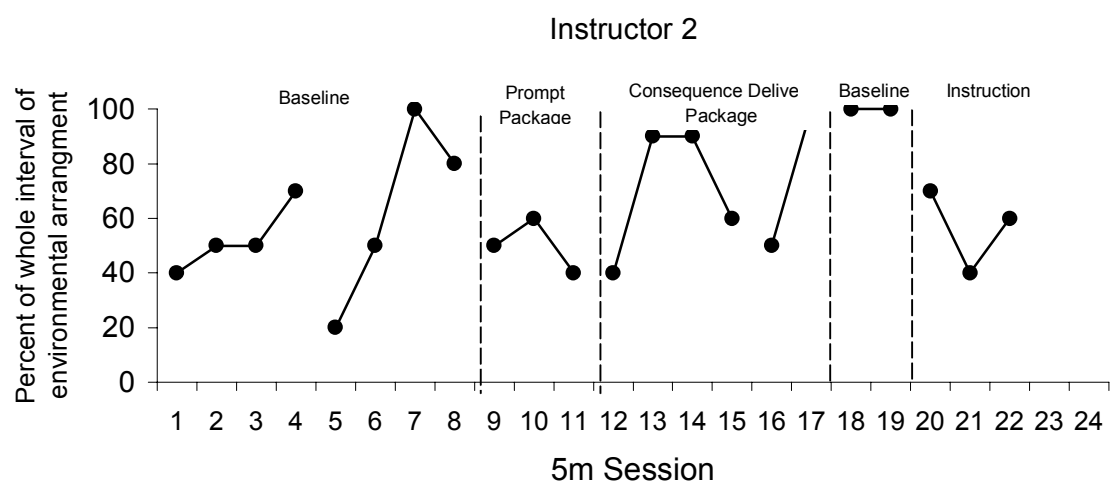
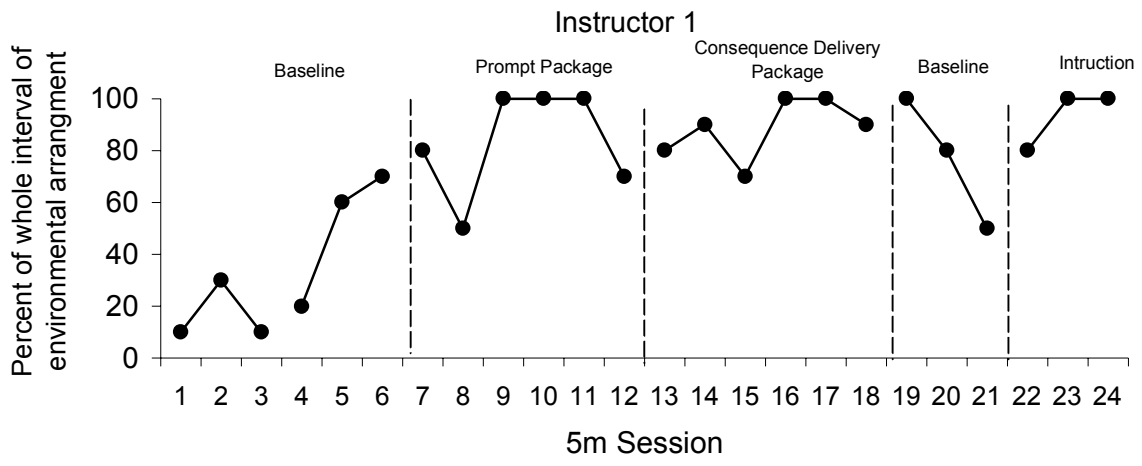


Figure 4. Environmental arrangement.

APPENDIX A
TOY ROTATION MATERIALS AND ROTATION SCHEDULE

Rotated Material

Blocks (b)

Wooden blocks
Mega blocks
Legos
Lincoln Logs

Manipulatives (m)

Builders & Benders
Silly Guys
Tinker Toys
Mr. Potato Head
Alphabuilders

Vehicles (v)

Matchbox cars and Trucks
Train

Figurines and Dolls (f)

Dinosaurs
Animals
Action Figures
Family Dolls
Small Dolls

Play Scenes (s)

Car Mountain
Airport
Farm
City Mat
Pooh House
Castle
Train
Playground

Play themes (t)

Kitchen
Construction Workers (tools & bench)
Vet
Firefighters
McDonalds
Doctor
Gardening
Dress up
Camping

Permanent Materials

Wooden blocks (b)
Train (v)
Car Mountain (s)a
Kitchen (t)
Construction worker (t)

Toy Rotation
Week 1

	Permanent Materials	Rotation Materials			
Play Category		Monday	Tuesday	Wednesday	Thursday
BLOCKS	Wooden Blocks	Mega Blocks	Legos	Licolln Logs	Legos
MANIPULATIVES	Mr. Potato Head	Tinker Toys	Silly Guys	Alphabuilders	Builders & Benders
VEHICLES	Vehicles from City	Train	Train	Train	Train
FIGURINES AND DOLLS	Dolls	Dinosaurs	Animals	Action Figures	Animals
PLAY SCENES	Car Mountain	Airport	Farm	City	Ranch
PLAY THEMES	Kitchen & Constr. Workers	Doctor	Gardening	Dress up	Camping

Toy Rotation
Week 2

	Permanent Materials	Rotation Materials			
Play Category		Monday	Tuesday	Wednesday	Thursday
BLOCKS	Wooden Blocks	Mega Blocks	Legos	Licolln Logs	Legos
MANIPULATIVES	Mr. Potato Head	Tinker Toys	Silly Guys	Alphabuilders	Builders & Benders
VEHICLES	Vehicles from City	Train	Train	Train	Train
FIGURINES AND DOLLS	Dolls	Dinosaurs	Animals	Action Figures	Animals
PLAY SCENES	Car Mountain	Pooh House	Castle	Playground	City
PLAY THEMES	Kitchen & Constr. Workers	Vet (Puppy)	Puppets	Firefighters	McDonalds

APPENDIX B
OBSERVATION PROTOCOL AND EXPERIMENTER OUTLINES

OBSERVATION PROTOCOL

For all sheets, frequency of responses within each minute of a 5 minute sample is scored.

Scoring 5-minute samples

1. Review the observation protocol.
2. Read the definition, examples, exclusions, and scoring rules for each response that will be scored.
3. Complete datasheet header. (Label Peer, Teacher, Child, Phase, Observer, Session Date, Time, Scoring Date)
4. Set a timer to sound every minute.
5. Pause the video sample at 10 seconds before the 5-minute sample begins. Place pencils on minute one
6. Start the videotape
7. Start timer exactly when videotaped 5-minute sample begins.
8. Mark each response as instructed on datasheet
9. When timer beeps at 1-minute interval, move pencil down to next minute.
10. Score child sharing (accepting and offering) and peer sharing (accepting and offering) on one datasheet simultaneously. Then score complimenting below.
11. Score attention getting (peer behavior) and child responses on one datasheet simultaneously. Then score inappropriate behavior below.

Instructor Definitions

Environment Measure

Environmental Measure for interactive/parallel play:

The environment is arranged when child with autism and peer are within proximity (4 ft. of each other) and play materials are available within proximity (4 ft. of each other) for the children to use. For parallel play, children's back must not be facing each other. *Determining whether or not the environment is conducive to play. Scored at the end of each interval for the entire interval, when environment was arranged.*

Examples:

Toys are on table or floor

A child escapes the proximity, and the teacher brings him back within 6s counts as continuing proximity

Exclusions:

Having the peer and child with autism sit 5 feet across from each other at the table (outside of 4 ft. proximity)

Having a peer within 4 feet, engaged in the same activity with their back to the child with autism (back to face)

Having the children play with one toy, but outside of 4 feet (outside of 4 ft. proximity)

Having children within 4 feet, but obstruction at their eye level (e.g. another child) inhibits interactive play.

Instructor Measures

Prompting

Physical: The instructor uses a hand-over-hand procedure to guide the child toward the correct response.

Verbal: The instructor uses a vocal model to cue the child to the correct response or tells the child to perform a toy play response or interaction response(i.e. "buh" to cue the child to say "ball", "drive the car").

Gestural: The instructor uses a point, head nod, or eye gaze to cue the child toward the correct response.

Prompts for Getting Attention- Prompts delivered that result in the peer orienting his or her face to the child's face, emits vocal behavior, and touches the child's body.

Prompts for Compliments- Prompts delivered contingent on a peer making a verbal statement indicating affection, attraction to child or child's toys, or praise.

Prompts for Child Responding- Prompts contingent on the child orienting his or her face to the front of peer's face, orienting his or her face to the toy peer is holding or point at, emitting a verbal statement or engaging in actions requested by peer within 3 seconds after peer has either touched child with hand, or emitted vocal behavior directed to the child (in attention getting).

Examples:

Teacher says, "Tell Tom you like what he is doing"

Tell him, "I want to play with that"

Hand this to Paul, see if he like is

Ask Tom to come play.

Pass the blocks.

Teacher says, "Tell Tom you like his tower"

Say, "cool".

Go get your play partner

Invite your buddy to come play

Exclusions:

Social statements of questions (not specifying an interaction)

Any statements to warn danger. (e.g. "Watch your fingers!")

Let go get Tom's attention, okay? (Asks a yes/no question)

Where is your play partner? (Does not specify an interaction)

We need to get Tom. (Does not specify an interaction)

What did you guys do over the weekend?

Come here. (Does not specify an interaction)

Inaudible instructions (not scored as IOA)

Sit down over here, sit down over here.

Consequence Delivery

Tangible Items: will be immediately delivered contingent on correct responses or desired behaviors or an approximation to a correct response or desired behaviors that have occurred by the child.

Praise: will be immediately delivered contingent on correct responses or an approximation to a correct response that has occurred by the child, specifying the behavior the subjects are delivering praise for.

Consequence Delivery for Getting Attention- Tangible items or praise delivered contingent on the peer orienting his or her face to the child's face, emits vocal behavior, and touches the child's body.

Consequence Delivery for Compliments- Tangible items or praise delivered

contingent on a peer making a verbal statement indicating affection, attraction to child or child's toys, or praise.

Consequence Delivery for Child Responding- Tangible items or praise delivered contingent on the child with autism orienting his or her face to the front of peer's face, orienting his or her face to the toy peer is holding or point at, emitting a verbal statement or engaging in actions requested by peer within 3 seconds after peer has either touched child with hand, or emitted vocal behavior directed to the child (in attention getting).

Examples:

Accepting "ssss" for swing and having the child swing immediately after Child saying cookie spontaneously and you delivering the child a cookie. Child pretending to stir in a bowl and receives praise "great stirring", plus a tangible item.

"Great sharing", and access to materials, if preferred.

"I love the way you guys are playing!"

Reinforcing peer in an attempt to get attention, peer touched him and said "come here", but did not orient towards him. Teacher says, "nice trying to get his attention" (approximation of getting attention)

Exclusions:

Delivers reinforcer after data collection (not immediate)

In a neutral tone "good job" (does not specify response being reinforced)

Alright! (does not specify response being reinforced)

There you go! (does not specify response being reinforced)

Good listening!

Child Behaviors

Peer Measures

Getting Attention

Peer orients his or her face to the child's face, emits vocal behavior, and touches child's body.

Onset-When first of the three components (orienting, vocal behavior, touch begins)

Offset-When the last of the three components ends.

Multiple responses: 5 seconds must elapse between time of last vocalization to next vocalization before scoring next onset.

Examples

Peer orients face to child's face, puts hand on child's knee, and says, "N!"

Peer orients face to child's face, touches child, and says, "Do you want to play?"

Peer orients face to child's face, touches child, and says, "Let's play cars."

Peer orients face to child's face, taps child on shoulder, and says, "Hi!"

Peer orients face to child's face, puts hand on child, and says, "Hi, (M)!"

Peer orients face to child's face, touches child's elbow, and says, "Hi!"

Peer orients face to child's face, pats child's knee, and says, "Look!"

Exclusions

Peer stands 5 feet from child and says, "Hey, look at my car!" (No touching or orienting)

Peer and child are playing a game and peer says, "It's your turn", looking at the toy.(No touching or orienting)

Peer taps child on shoulder and emits inaudible (quiet) vocal response. (No orienting or appropriate vocal)

Peer walks past child, brushing child's body with hand. (No vocal or orienting or appropriate touch)

Peer orients face to child's face, pats child's knee, and holds up a toy in front of child. (No vocal)

Peer touches any part of child's body parts or leans on child's body while passing him or her. (No vocal or orienting)

Peer taps child on back and says, "Wanna play with me?"(No orienting)

Peer approaches child playing in a corner of the room and rests hand on child's shoulder while entering the play area. (No vocal or orienting)

Peer faces child and looks at child's face and does not touch or emit vocal behavior. (No touch or vocal behavior)

Child is playing with cars on floor. Peer approaches child and taps child's back. (No vocal or orienting to child's face)

Peer orients face to child's face, holds up toy, and says, "Here you go, your turn." Child takes toy. (No touching. Count as sharing for child and for peer.)

Complimenting

Peer makes a verbal statement indicating affection, attraction to child or child's toys, or praise.

New instance of complimenting occurs when 5 seconds has elapsed between the offset of the last compliment.

Examples

"Good boy!"

"Good job, "(name)!"

"Yea, (name)!"

"This is fun!"

"Cool car!"

"That was great!"

"Thanks for playing cars with me!"

"I like playing with you!"

"Wow! That's a big race track!"

"This soup tastes yummy!"

"That looks like a nice place to sit!"

Exclusions

"No, (name)"

"The car is red."

"Let's do it again."

Children smile at each other and no verbalization occurs.

"I don't like your shoes."

"This tastes yucky."

"I don't want to play with you."

Child says, "I like to play with John" to a teacher.

Child with Autism Measures

Child Responding

Child orients face to front of peer's face, orients face to toy peer is holding or point at, emits a verbal statement or engages in actions requested by peer within 3 seconds after peer has either touched child with hand, and emitted vocal behavior directed to the child (in attention getting).

Onset-Child begins orienting face towards peer's body, emits a verbalization or begins engaging in action requested by peer.

Offset-Child's face is oriented to peer's face, child has stopped emitting a verbalization or has stopped engaging in actions requested by peer.

Onset of the next response When 5 seconds have elapsed from the time the behavior ended. Next responding will be counted after offset of a peer attention getting behavior.

Multiple Responses: If two or more of these behaviors occur simultaneously, onset of the next response will be counted when 5 seconds have elapsed from the time last behavior ends.

Video Taping Protocol

Habituation to Camera

A video observer, camera and tripod will be set up in observation room for at least 3 consecutive sessions before the start of taped sessions, or until child and adult reactivity has been reduced from initial levels.

Preparing for Taping

At the beginning of each day, the triads tape (teacher, peer, child with autism) should be put into camera to tape sessions for that day. For all sessions, camera should be programmed to show the current date and time on the tape.

Taping Sessions

When to start: Wait for approximately 2 minutes after the triad is in the zone, before you start taping

How long to tape: Videobserver should tape for exactly 5 minutes and a couple of seconds (ca 10 sec).

Who to tape: While taping a session, video observer may walk around the area with the camera. The observer should attempt to record a view of all three subjects (teacher, child with autism (ASD) and a typically developing peer (TDC)), on the screen. If the peer or child with autism walks out of the recordable area, the observer should continue to record a view containing the teacher. The hands of the child with ASD and the TDC should be in view at all times whenever possible. Data cannot be scored from taped intervals in which the children's hands cannot be seen). The video observer should remain as quiet as possible during taping. If any child or adult that are present in the play area during taping, start interacting with the video observer, the observer should ignore them and continue recording.

After Taping

At the end of the taping, the observer should remove the tape from the camera, place tape in a designated box and record information about the taped session on a designated form in folder.

When starting a *new tape* the observer should record teacher initials and tape number in writing on the tape, and on tape. Information that should be recorded is the experimenter, number of tape, date of taping, session number, and initials of Target Child, Peer and Teacher.

Finally, at the end of the day the observer should charge batteries for next day's use.

Baseline Experimenter Outline

Instructions to Teachers

Please take ____ (child w. autism) and ____ (peer) to the play zone.

Work on these 3 behaviors with ____ (peer): Getting ____ (child w. autism) attention, sharing and complimenting ____ (child w. autism) play.

At the same time work on responding, sharing and playing with ____ (child w. autism)

Instruct preschool teacher or assistant not to pull peer away while camera is present.

Tell the instructor's to SPEAK UP!!!!

Prompt Package Experimenter Outline

Intervening on-Peer Getting Attention and Child Responding

Phase 1 (IN PRACTICE ROOM)-In the "other" room, for approximately **20 minutes** (the length of the 1:2 zone), have the prior day's toy rotation materials and all subjects.

Discuss how there are different types of prompts by reading the definition of a prompt and how any of these have the possibility for being effective for prompting peer getting attention.

verbal- The teacher uses a vocal model to cue the child to the correct response or interaction response

physical-the teacher uses a hand-over-hand procedure to guide the child toward the correct response

gestural-the teacher uses a point, head nod, or eye gaze to cue the child toward the correct response

Read the definition for peer getting attention, highlighting the key points

The teacher instructs the peer to orient his or her face towards target child's face, emit a vocal behavior, and touch the child's body.

Ask subject key components of peer getting attention (peer orienting towards child's face, emitting a vocal behavior, and touching the child's body). Repeat until able to answer correctly.

Role-Play! The experimenter will serve as the peer and the subject as the teacher. Offer these examples for the subject to use with the peer and act them out. In each example it is listed what behavior to omit to allow the subject to prompt. Repeat examples until subject is able to perform correctly.

"Go get your play partner." Omit peer touching child.

"Go get *child's* attention." Omit peer orienting to child.

"Invite your buddy to come play." Omit peer verbalization.

Move to Child Responding...

Read the definition for child responding, highlighting the key points

The teacher prompts the child with autism to orient his or her face to the front of peer's face, orient his or her face to the toy peer is holding or point at, emit a verbal statement or engage in actions requested by peer after peer has either

touched child with hand, or emitted vocal behavior directed to the child (in attention getting).

Ask subject key components of child responding (orient their face, respond verbally or engage in requested action). Repeat until able to answer correctly.

Role-Play! The experimenter will serve as the child with autism and the subject as the teacher. Offer these examples for the subject to use with the peer and act them out. In each example it is listed what behavior to omit to allow the subject to prompt. State scenario for subject since peer is absent in role-play.

Scenario 1: The peer has gotten the child's attention by inviting him to come play. He said, "*Child* come play!"

If prompting the child is necessary, you have the option to prompt the child to come play, or respond verbally, e.g. "okay". Omit both behaviors (following the request to come play and responding verbally and one or both behaviors are okay to prompt)

Scenario 2: The peer has gotten the child's attention by showing him a cool toy. He said, "Wow! Look at my spaceship!"

If prompting the child responding is necessary, you have the option to provide a verbal model of an appropriate phrase or give a gestural or physical model of clap hands/high five. Omit both behaviors following the scenario and one or both behaviors are okay to prompt.

Scenario 3: The peer has gotten the child's attention by playing a game. He said, "*Child*, it's your turn"

If prompting the child responding is necessary, you have the option to provide a verbal model or prompt the child to respond by taking a turn. Omit any behavior following the scenario and one or both of the behaviors are okay to prompt.

*****If you finish prior to the 20m allotted, then play with the toys in the room

in separate areas: experimenter with peer, Subject with child with autism. A

great time build rapport.

Phase 2 (IN PLAY ZONE)-BE FAST! In the social zone, you have **4 minutes** total (roughly 2m modeling and 2m coaching/feedback) to model behaviors and

give feedback. **Be sure to have potential reinforcers for both peer and child with autism!**

Establish contingency with peer. Essentially, you follow instructions and get your choice of cookie.

Explain 3 behaviors necessary in getting attention to peer: touching, orienting, and verbalizing to child with autism.

Model: Model at least 3 of these different topographies of attention getting, you can use these specific phrases or similar phrases:

Teacher says, "*Peer*, invite your buddy to come play"; child says, "*Child* come play!"

Teacher says, "Show your friend"; child says "Look *child with autism*, what a cool toy!"

Teacher says "Go get *child with autism's* attention"; child says "Hey, *child with autism!*"

Teacher says, "Get your friend to try"; child says "*child with autism* do this!"

Role-Play: "Now you try that." Let peer practice all three skills with that same example in step #3, prompting where necessary.

Do it: "Now peer, let's try that with child!", prompt where necessary. Include prompting for child responding. Be sure to give descriptive praise to both kids.

Step out and give constructive feedback to the subject on peer attention getting and child responding-that's it.

After 4m is up, give baseline instructions, step back, and record data.

Consequence Delivery Experiment Outline

Intervening on-Reinforcing Peer Getting Attention and Child Responding

Phase 1 (IN PRACTICE ROOM)-In the "other" room, for approximately **20 minutes** (the length of the 1:2 zone), have the prior day's toy rotation materials and all subjects.

Discuss the two ways we are identifying as reinforcer delivery: tangibles and praise.

Tangible Items: will be immediately delivered contingent on correct responses or desired behaviors or an approximation to a correct response or desired behaviors that have occurred by the child.

Praise: will be immediately delivered contingent on correct responses or an approximation to a correct response that has occurred by the child, specifying the behavior the subjects are delivering praise for.

Ask subject what 2 possible ways reinforcers can be delivered (tangible and descriptive praise)

Read the definition of delivering a reinforcer for getting attention

Tangible items or descriptive praise delivered contingent on the peer orienting his or her face to the child's face, emits vocal behavior, and touches the child's body.

Ask subject key components of reinforcing peer getting attention (peer orienting towards child's face, emitting a vocal behavior, and touching the child's body) and the key components of reinforcer delivery. Repeat until able to answer correctly.

Subject should answer along these lines: a tangible or descriptive praise will be delivered contingent on the peer orienting towards child's face, emitting a vocal behavior, and touching the child's body.

Role-Play! The experimenter will serve as the peer and the subject as the teacher. Offer these examples for the subject to use with the peer and act them out. In each example let the subject practice delivering reinforcers for your appropriate attention getting behavior. Repeat examples until subject is able to perform correctly.

Teacher (subject) says, "Let's get CWA to come play." Experimenter does so appropriately. Prompt for reinforcer delivery if necessary.

Teacher (subject) says, "Go get *CWA*'s attention." Experimenter does so appropriately. Prompt for reinforcer delivery if necessary.
Teacher (subject) says, "Show that to *CWA*." Experimenter does so appropriately. Prompt for reinforcer delivery if necessary.
Move to Child Responding...

Read the definition for reinforcing child responding, highlighting the key points
Tangible items or descriptive praise delivered contingent on the child with autism orienting his or her face to the front of peer's face, orienting his or her face to the toy peer is holding or point at, emitting a verbal statement or engaging in actions requested by peer within 3 seconds after peer has either touched child with hand, or emitted vocal behavior directed to the child (in attention getting).
Ask subject key components of reinforcing child responding (child with autism orienting his or her face to the front of peer's face, orienting his or her face to the toy peer is holding or point at, emitting a verbal statement or engaging in actions requested by peer) and the key components of reinforcer delivery.
Repeat until able to answer correctly.
Subject should answer along these lines: deliver a tangible or descriptive praise contingent on the child with autism orienting his or her face to the front of peer's face, orienting his or her face to the toy peer is holding or point at, emitting a verbal statement or engaging in actions requested by peer

Role-Play! The experimenter will serve as the child with autism and the subject as the teacher. Offer these examples for the subject to use with the peer and act them out, allowing the subject to practice reinforcer delivery. State scenario for subject since peer is absent in role-play.

Scenario 1: The peer has gotten the child's attention by inviting him to come play. He said, "Hey *CWA* let's go!"

Experimenter responds as *CWA* and prompts if necessary for reinforcer delivery.

Scenario 2: The peer has gotten the child's attention by showing him a cool toy. He said, "Wow! Look at my spaceship!"

Experimenter responds as *CWA* and prompts if necessary for reinforcer delivery.

Scenario 3: The peer has gotten the child's attention by saying, "Watch this *CWA*!"

Experimenter responds as *CWA* and prompts if necessary for reinforcer delivery.

*****If you finish prior to the 20m allotted, then play with the toys in the room in separate areas: experimenter with peer, Subject with child with autism. A great time build rapport.

Phase 2 (PLAY ZONE)-BE FAST! In the social zone, you have **4 minutes** total (roughly 2m modeling and 2m coaching/feedback) to model behaviors and give feedback. **Be sure to have potential reinforcers for both peer and child with autism!**

Establish contingency with peer. Essentially, you follow instructions and get your choice of cookie.

Model with peer and child with autism: Model at least 3 of these different topographies of attention getting and reinforcer delivery (tangibles and descriptive praise), you can use these specific phrases or similar phrases: Teacher says, "*Peer*, invite your buddy to come play"; child says, "*Child* come play!"; child responds; deliver descriptive praise and/or tangible to both peer and CWA.

Teacher says, "Show your friend"; child says "Look *child with autism*, what a cool toy!"; child responds; deliver descriptive praise and/or tangible to both peer and CWA.

Teacher says "Go get *child with autism's* attention"; child says "Hey, *child with autism!*"; child responds; deliver descriptive praise and/or tangible to both peer and CWA.

Teacher says, "Get your friend to try"; child says "*child with autism* do this!"; child responds; deliver descriptive praise and/or tangible to both peer and CWA.

Step out and give constructive feedback to the subject on peer attention getting and child responding-that's it.

After 4m is up, give baseline instructions, step back, and record data.

Instruction Experimenter Outline

For Groups 1 & 2:

“You have been doing a wonderful job and today we are going to set a goal of delivering at least 5 effective prompts for peer getting attention and child responding and at least five consequence deliveries for both.”

Follow with baseline instructions.

APPENDIX C
TRAINER CHECKLISTS, LEVELS 1-3

Trainer: _____ Teacher: _____ Date: _____

Level 1 Tutor

Observation Time: _____

Maintaining Professionalism

1 2 3

Makes positive statements regarding child's progress			
Communicates with parents regarding programs and progress			
Maintains confidentiality regarding child, family, and progression of programs			
Responsive to feedback from staff, supervisors, and parents			
Present at scheduled times			
Prepares and returns materials			

Literature Competencies

Kaiser (Milieu)			
Koegel (NLP)			
Relevant chapters in the BIYCA or ME Book			
Leaf & McEachin (DTT)			

Establishing a Relationship

Attempts to develop rapport with the child			
a) Identifies potential reinforcers			
b) Delivers potential reinforcers noncontingently			
c) Pairs social behavior (smiles, tickles, hugs, talking) with reinforcer delivery			
Repeats vocalizations made by the child			
Makes minimal demands			
Ignores or works through challenging behavior			

Notes Child 1

Notes Child 2

Notes Child 3

Teaching in Discrete Trial Format		*Tally these behaviors when observed		
		1	2	3
*	Attends to eye contact with descriptive praise or potential reinforcers			
*	Conducts preference assessments prior to presentation of maintenance trials			
*	Gives clear and simple instruction once			
	Materials removed as response is made			
	Delivers reinforcer immediately for correct response			
	Delivers reinforcer of appropriate size			
	Conducts preference assessments in between trials			
	Utilizes an FR1 schedule of reinforcement when appropriate			
	Pairs tangible reinforcers with descriptive praise			
*	Uses appropriate prompting procedures when undesired response occurs			
*	Presents trial for opportunity for independent response after prompted trial			
Notes Child 1				
Notes Child 2				
Notes Child 3				

Teaching in Naturalistic Format				
	Arranges environment to promote language			
	Follows child's lead			
	Facilitates peer interactions			
	Repeats and expands child's vocalizations			
	Requires appropriate elaboration from child			
	Pairs tangible reinforcers with descriptive praise			
	Reinforces child's approximations with naturally occurring stimuli when possible			
Notes Child 1				
Notes Child 2				
Notes Child 3				

Trainer: _____ Teacher: _____ Date: _____

Completed Level 1 Tutor checklist

Observation Time: _____

Level 2 Tutor

Maintaining Professionalism

Child 1 2 3

Relevant literature is read and reviewed periodically			
Anderson & Romanczyk (DTT & NET) & Leaf & McEachin (Language & Social)			

Taking and Recording Data

Achieves 75 - 80% IOA with supervisor in 1 academic zone			
Achieves 75 - 80% IOA with supervisor with the child's 1:1 maintenance programs			
Records data within each 1-2 trials presented			
Records data on the monthly graphs if appropriate			

Teaching in Discrete Trial Format

Attends to eye contact with descriptive praise or with a preferred item at least _____ times in 10 minutes			
Attends to responding with descriptive praise or with a preferred item at a rate of _____ per minute			
Begins trials with no more than a _____ minute latency upon entering room			
Maintains flow of therapy			

Notes Child 1

Notes Child 2

Notes Child 3

Teaching in Naturalistic Format

Expands attempts to communicate			
Expands social attempts to reciprocate			
Maintains flow of therapy			

Notes Child 1

Notes Child 2

Notes Child 3

Trainer: _____ Teacher: _____ Date: _____
 Observation Time: _____

Completed Levels 1 & 2 Tutor checklist

Criteria for mastery:

Check list passed at 90% correct over two days, across two supervisors, & individually w/ each child

Level 3 Tutor

Maintaining Professionalism	Child 1	2	3

Establishing a relationship

Follows protocol for managing and redirecting problem behavior			
Maintains rapport with child			

Taking and Recording Data

Achieves 75 - 80% IOA with supervisor in 2 academic zones			
Achieves 75 - 80% IOA with supervisor with the child's 1:1 target programs			
Achieves 75 - 80% IOA with supervisor in the social zone			

Teaching in Discrete Trial Format

Attends to eye contact with descriptive praise or with a preferred item at least _____ times in 10 minutes			
Attends to responding with descriptive praise or with a preferred item at a rate of _____ per minute			
Begins trials with no more than a _____ minute latency from entering/representing a/each trial			
Maintenance trials are interspersed with acquisition skills			

Notes Child 1

Notes Child 2

Notes Child 3

Teaching in Naturalistic Format

Sets up opportunities to work on child's goals			
--	--	--	--

Notes Child 1

Notes Child 2

Notes Child 3

APPENDIX D
DATASHEETS

APPENDIX E
CONSENT FORMS

DFW Center For Autism
1026 West Rosemeade Parkway
Carrollton, Texas 75007
972-731-0410

The DFW Center for Autism, a program of HOPE *worldwide*, is a center to help children grow and develop to their fullest potential. At various times the children, teachers, therapists and student tutors will be photographed and videoed. These photos or videotapes will be used for several purposes: research documentation and evaluation, parental viewing, and to give visual images to published narratives by HOPE *worldwide*. The HOPE *worldwide* publications would include the HOPE *worldwide* Annual Respot, the HOPE *worldwide*-Texas Newsletter, Display Board for special events put on by HOPE *worldwide*-Texas, and the DFWCFA newsletter.

We request your consent to the following statement. Consent is on a completely voluntary basis. You may withdraw consent at anytime without penalty to you or your child. If you withdraw consent please state your request in writing to you or your child. If you withdraw consent please state your request in writing and date your request. A copy of this form will be provided to you for your records.

Please initial where you consent. Thank you for your valuable participation.

_____ Yes, I will allow photographs of my child/self to be used in display or printed materials published by HOPE worldwide or to be used for research purposes.

_____ No, I will not allow photographs or my child/self to be used.

_____ Yes, I will allow videotapes of my child/self in the above stated uses.

_____ No, I will not allow videotapes of my child/self to be used.

_____ Yes, I will allow my name or my child's name to be used in the above stated uses.

_____ No, I will not allow my name or my child's name to be used.

Name _____ Date _____

Parent's Name _____

Parent's Signature _____

APPENDIX F
SOCIAL VALIDITY QUESTIONNAIRE

17. What would you keep and what would you change about this study?

18. When you go on to train other individuals, how will you go about doing it?

19. What other kinds of support would you have liked during the study?

20. Please tell us anything else you feel is important.

REFERENCES

- Andreson S. R., & Romanczyk R.G. (1999). Early intervention for young children with autism: Continuum-based models. Journal of Association for Persons with Severe Handicaps, 24(3), 162-173.
- Demchak, M. (1987). A review of behavioral staff training in special education settings. Education and Training in Mental Retardation, 205-217.
- Gudmundsdottir, K. (2002). A measurement system for monitoring play in typically developing children and children with autism. Unpublished masters thesis, University of North Texas, Denton, Texas, USA.
- Harchik, A. E., Sherman, J. A., Hopkins, B. L., Strouse, M. C., & Sheldon, J. B. (1989). Use of behavioral techniques by paraprofessional staff: A review and proposal. Behavioral Residential Treatment, 4, 331-357.
- Kohler, F. (2001). Teaching social interactions skills in the integrated preschool: An examination of naturalistic tactics. Topics in Early Childhood Special Education, 1, 93.
- McConnell, S. (2002). Interventions to facilitate social interaction for young children with autism: Review of available research and recommendations for educational intervention and future research. Journal of Autism & Developmental Disorders, 32, 351-372.
- New York State Department of Health Early Intervention Program. (1999). Clinical practice guidelines report of recommendations. Autism/pervasive developmental disorders, early intervention for young children (ages 0-3). (NYS DOH Publication No. 4215). Albany, NY.
- Schepis, M. M., Ownbey, J. B., Parsons, M. B., & Reid, D. H. (2000). Training support staff for teaching young children with disabilities in an inclusive preschool setting. Journal of Positive Behavior Interventions, 2, 170-178.
- Schepis, M. M., Ownbey, J. B., Parsons, M. B., & Reid, D. H. (2001). Training support staff to embed teaching within natural routines of young children with disabilities in an inclusive preschool. Journal of Applied Behavior Analysis, 34, 313-327.
- Strain, P., & Odom, S. (1986). Peer social initiation: Effective intervention for social skill development of exceptional children. Exceptional Children, 52, 543-552.