2008

A comparison of video and live modeling on the social reciprocity performance skills of children with autism spectrum disorders

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A COMPARISON OF VIDEO AND LIVE MODELING ON THE SOCIAL RECIPROCITY PERFORMANCE SKILLS OF CHILDREN WITH AUTISM SPECTRUM DISORDERS

Thesis

Submitted To

The School of Education and Allied Professions

UNIVERSITY OF DAYTON

in Partial Fulfillment of the Requirements for

The Degree

Educational Specialist in School Psychology

by

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UNIVERSITY OF DAYTON

Dayton, Ohio

December, 2008

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ABSTRACT

A COMPARISON OF VIDEO AND LIVE MODELING ON THE SOCIAL RECIPROCITY PERFORMANCE SKILLS OF CHILDREN WITH AUTISM SPECTRUM DISORDERS

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The purpose of the present study is to determine any differences in the effects of video modeling versus live modeling on the social reciprocity performance skills of children with autism spectrum disorders. Several variables are involved, including the dependent variables such as skill acquisition and prompting type, and independent variables such as video or live condition. Based on previous research, it is expected that skill acquisition will occur most rapidly and completely in the video modeling condition. The results obtained from this study will contribute to the set of current interventions used to help instruct children with autism, and perhaps give educators a more effective method to utilize.

DEDICATION

To my family and friends who provided much encouragement and feedback throughout the course of this research and throughout the entirety of my graduate studies.

ACKNOWLEDGMENTS

I wish to express my sincere gratitude to the members of my committee, Dr. Sawyer Hunley, my chair, Dr. James Evans, and Dr. Susan Gfroerer, who gave their time and provided invaluable feedback in order to facilitate completion of this study.

I would also like to give special thanks to Dr. Julie Morrison who supplied her expertise and much needed guidance throughout a significant portion of this research.

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INTRODUCTION

Autism Spectrum Disorders

Autism is one of five "Pervasive Developmental Disorders," a subcategory of "Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence," as classified by the *Diagnostic and Statistical Manual of Mental Disorders*, or *DSM-IV-TR* (American Psychiatric Association, 2000).

The first criterion for a diagnosis of autism is an impairment in social interaction. This is operationalized as impairment in nonverbal behaviors, failure to develop peer relationships, lack of spontaneous seeking to share enjoyment with others, and lack of social or emotional reciprocity. The second criterion involves impairments in communication, further defined as delay in, or lack of, the development of social language, difficulty in initiating or sustaining conversation, repetitive use of language, and lack of spontaneous make-believe play appropriate to developmental level. The third criterion is characterized by restricted repetitive and stereotyped patterns of behavior, interests, and activities, which includes preoccupation with restricted patterns of interest, inflexible adherence to nonfunctional routines or rituals, repetitive motor mannerisms, and preoccupation with parts of objects (APA, 2000). Lastly, for a diagnosis of autism there must be, "Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play" (APA, 2000, p. 61).

Although these criteria must be met in order to diagnose autism, there is variability in the degree to which each criterion impacts functioning. The fact that autism has been found to span from the profoundly retarded to the intellectually gifted has earned it the revised name, Autism Spectrum Disorders (ASD), indicating wide variations within the disorder. At the high end of the spectrum lies Asperger's disorder. The diagnostic criteria for Asperger's disorder, according to the *DSM-IV-TR*, are very similar to the criteria for autism. The main difference is that there are no clinically significant delays in language development and there is no delay in cognitive development, self-help skills, nonsocial adaptive behavior, and curiosity about the environment (APA, 2000). In addition, children who have Asperger's Disorder differ from those with other pervasive developmental disorders in that they generally have average to above average intelligence (Hagin, 2004).

The etiologies of all autism spectrum disorders remain unconfirmed. Most evidence points to a neurobiological explanation, revealing brain abnormalities like cerebellum size and differences in the number of Purkinje cells (a specific type of neuron), as well as genetic trends within families (Hagin, 2004), or events that the mother experiences prior to the child's birth like immunizations or exposure to chemicals in the environment. Possible causes of imitation problems range from dyspraxia, which involves impairments in the ability to plan and execute new or complex movements, to motor difficulties (Rogers, Hepburn, Stackhouse, & Wehner, 2003), and lack of typical social functioning (APA, 2000).

Although it is crucial to continue research into the causes of autism, it is also necessary to focus on effective interventions that can be useful now to those with autism.

By discovering how children with autism best learn and process information, improved methods of therapy and teaching can be developed (Volkmar, Lord, Bailey, Schultz, & Klin, 2004). The purpose of this research is to examine recent literature on one promising method of intervention, that of using modeling, or imitation, to teach children with autism academic, behavioral, social, and daily life skills.

CHAPTER I

Literature Review

Theoretical Background of Imitation/Modeling

Imitating the actions of others is commonly observed in most newborns and becomes more complex during the first two years of life (Rogers et al., 2003). Imitation, also referred to as modeling or observational learning, can be defined as performing an act whose stimulus is the observation of the act performed by another person ("Imitation", n.d.). Some researchers have viewed imitation as fixed patterns of behavior, almost like reflexes or involuntary movements; however, recent evidence supports the idea that infant imitations are voluntary, involve effort, and have specific functions (Rogers et al., 2003). Imitations of body movements, facial expressions, and vocalizations serve to develop a sense of communication with social partners, and facilitate social learning, peer interactions, and the sharing of emotions. Rogers et al. (2003) stated, "Motor imitation may serve as a gateway for experiencing a lifelong sense of connectedness with other people, a foundation for shared experiences of activities, emotions, and thought" (p.763).

The fact that imitation is a natural part of human development was key to early research on learning. One of the leading researchers on the topic of learning and imitation is Albert Bandura. One of Bandura's earliest contributions to the literature addressed modeling of aggressive behavior and led to his classic Bobo doll study. The study

showed that children who observed a model taking out aggressions on a plastic Bobo doll displayed the same aggressive behavior when left alone with the doll in a new situation, whereas children who did not see the aggressive model showed no aggression towards the doll (Bandura, Ross, & Ross, 1961). This learning happened easily, without extra behavioral reinforcement. The Bobo doll study showed how naturally children imitate the behaviors of models thereby providing a new direction for research. According to Zimmerman and Schunk (2003), as Bandura continued his studies on modeling, he broadened his focus to include the role of social modeling in children's cognitive and linguistic development. Bandura and his fellow researchers examined how modeling, especially by peers, could encourage prosocial behavior, such as empathy, sharing, and altruism, in children (Zimmerman & Schunk, 2003). The details of Bandura's social cognitive theory, as it came to be called, are beyond the scope of this review, but a main element, observational learning, is crucial to understanding current ideas in learning and education. According to Baron and Byrne (2003), observational learning, "…occurs when individuals acquire new forms of behavior or thought simply by observing the actions of others" (p.121). In other words, it happens through modeling.

Modeling has become a concept that both educators and psychologists feel could lead to particularly effective behavior interventions for all children. It holds great promise as a target for intervention for children with certain pervasive developmental disorders, such as autism.

Variations of Imitation

Live modeling. A study conducted by Garfinkle and Schwartz (2002) examined the effectiveness of a specific intervention plan, centered on the concept of peer

imitation, which was adapted for use in a preschool classroom. Four preschool-age children participated in the study, three with autism and one with general developmental delays. The intervention plan consisted of four steps including teacher instructions to the small group, selection of a leader, prompts to promote imitation, and praise of imitative acts (Garfinkle & Schwartz, 2002). The assistant teacher was responsible for implementing the intervention in each of the three preschool classrooms that the four children attended. Each day, the four steps of the intervention plan occurred during small-group time and lasted about 10 minutes. The teacher first explained that there would be a leader during small-group time and that everyone else in the class was to do exactly what the leader did. Next, the teacher asked for a volunteer leader, or personally selected a child to be the leader, ensuring that each child, including the four target children, had the chance to be a leader. Then, the teacher would verbally prompt the other children to imitate the leader's behaviors. If the children succeeded in imitating the leader, the teacher would provide praise (Garfinkle & Schwartz, 2002).

The results of the intervention showed an improvement in the imitation behaviors of all four children. Imitation was variable in that it did not occur with every prompt, but all the participants were able to display some imitative behaviors with and without verbal prompts. As the study progressed, the number of prompts each child needed decreased. The teachers who participated in the study reported very positive outcomes. The results indicate that each target child exhibited more imitations and awareness of peers, more social initiations toward peers, and better play skills (Garfinkle & Schwartz, 2002). The typically developing classmates also benefited from the intervention with improved

imitation skills, and displayed more accepting and aware attitudes towards the children with disabilities.

Venn and Wolery (1992) conducted a study to determine whether or not progressive time delay, in which increasing time delays occur before prompts are given, was a useful approach to teaching preschoolers with autism during arts/crafts activities. Three males with autism participated in the study implemented in a general education preschool classroom. The children in the class all rotated through arts/crafts so that there were no more than four children, one of whom with autism, at the craft table at one time. Five different imitation prompts were given during each arts/crafts time, where the teacher would instruct the child with autism to watch what a peer was doing and to try it themselves. During each of the five trials, possible child responses were observed including unprompted full imitations, prompted imitations, approximations, and errors/no responses (Venn & Wolery, 1992). There were also two different time trials utilized, one with no delay, or zero seconds, and one with a delay at either two, four, or six seconds. In the no delay trials, after instructing the child to imitate their peer, the teacher would immediately assist the child in responding appropriately. In the delay trials, the teacher would wait the appropriate time interval to allow an independent response before providing assistance.

The results of the Venn and Wolery (1992) study indicated that the trials with time delay produced very high, almost errorless, levels of peer imitation to novel arts/crafts activities. Data indicated that there were increases in full imitations and decreases in error/no response in all the subjects after the interventions were implemented (Venn & Wolery, 1992). The main limitation of this study was that the reported results

provided no indication of how the participants performed in the zero second trials. It seems logical to assume that they produced less imitation than the time delay trials because the study set out to prove the utility of progressive time delay; however, that would still be only an assumption. As a conclusion to this study then, it can only be said that time delay increases imitation, but it cannot be said that no time delay fails to produce imitation.

A subsequent study by Venn, Wolery, Werts, and Morris (1993) was similar to that of Venn and Wolery (1992). Again, three preschool males with autism participated in arts/crafts activities embedded with the teaching strategy of progressive time delay. Supporting the findings of the previous study, the time delay method produced imitation of novel peer behaviors, almost without error. Generalization, with cues, to other activities also occurred, although it was not discovered whether generalization would occur without cues. Venn et al. (1993) concluded their research with a discussion of implementing progressive time delay procedures in activities in preschool classrooms containing children with and without disabilities.

Even though there has been some research on modeling as a technique for teaching academic skills to those with autism and other developmental disabilities, whether or not modeling can be used to teach specific reading skills has not been fully investigated (Rehfeldt, Latimore, & Stromer, 2003). A study by Rehfeldt et al. (2003) explored whether children and adults with autism could develop classes of reading skills by observing a model. A class of reading skills forms when a child is directly taught one reading skill, such as matching dictated names to pictures and to their equivalent printed words, and also demonstrates related skills like oral reading or picture labeling that were

not directly taught. In the first of two experiments, all the participants, including one eight-year-old boy and two adult males, were directly trained on classes of reading skills. All of the participants also watched different classes of similar skills demonstrated by a model that had no disabilities. From the direct training, the three subjects showed full learning of the skills. When observing a model, however, none of the subjects showed full learning of the skills, although there was some partial acquisition of the tasks (Rehfeldt et al., 2003).

In the second experiment in the Rehfeldt et al. (2003) study, three boys, two nine-year-olds and one seven-year-old, were taught several classes of reading skills and observed a non-disabled model perform a similar set of skills. When directly trained, all of the participants fully learned the reading skills. In contrast to the first experiment, however, the participants fully learned at least one of the skills demonstrated by the model. Rehfeldt et al. (2003) concluded that observational learning is a useful way to develop certain skills in individuals with autism. Although the participants did not fully acquire all the skills performed by the models, some of the skills not taught during direct training were learned through observational learning. Together these results suggest that using observational learning to teach children and adults with autism and other developmental disabilities is promising in situations where direct training might not be feasible (Rehfeldt et al., 2003).

A study by Jones and Schwartz (2004) examined whether differences existed between different types of models for children with autistic spectrum disorder and explored the effectiveness of modeling as an educational intervention for those with ASD. Jones and Schwartz (2004) explain that, while it is commonly agreed upon that an

inclusive education is important for an autistic child and that observational learning is a benefit reaped from inclusion, there is not much research that examined how best to teach children with autism to become observational learners. According to Jones and Schwartz (2004), to become an observational learner, a child with autism needs to first observe a model performing certain activities, and then needs to reproduce similar responses when presented with similar stimuli and environmental cues. The suggestion is made that research supporting inclusive education should include information concerning modeling and imitation strategies that would be beneficial to children with ASD and other disabilities. The authors also explain that there is conflicting evidence in current literature as to the effectiveness of peer modeling (Jones & Schwartz, 2004). Though modeling has had positive results when it comes to learning appropriate social behavior, the findings have not been as positive when using modeling as a method of teaching behaviors pertaining to the curriculum.

The participants involved in the Jones and Schwartz (2004) study were three preschool-age children with ASD. Each child was paired up with a typically developing sibling model, an adult model, and a typically developing peer model, so that comparative analyses could be made between the three types of models. Throughout the study, each child with autism was given eight different stimulus sets, each one occurring for each type of model (Jones & Schwartz, 2004). All the children responded positively to all three models types, sibling, adult, and typically developing peer, and no preference among model types was seen. Even though there was not a clear preference among models, results showed that in six of eight stimulus sets, correct responding with either siblings or peers was equal to or higher than correct responding with adults (Jones &

Schwartz, 2004). This may show that, while modeling can be effective with all three types, it might have the potential to be most effective when the model is close to the age of the child with autism. This is a positive finding for those who would like to see peer modeling used more frequently within the classroom.

Video modeling. There are many instruction methods that rely on imitation and modeling to help children with autism spectrum disorders. One that is especially useful, in that it can generalize across instructional and home/community settings, is video modeling. According to Carothers and Taylor (2004), some benefits of using videotaped modeling to teach skills in a school setting are that it saves time, cuts out the need to make transportation arrangements, and is safer for students in that they do not have to leave the school campus. Many skills have been taught in the schools, like making purchases in grocery stores and other market-type places, and producing social responses in the cafeteria, through videotaped modeling. It is also useful in that it allows repeated viewings of a non-disabled student performing the desired behavior, which gives the child with autism more time to acquire the shown skill. Another benefit of videotaped modeling is that it can be easily transferred to other situations, like the home (Carothers & Taylor, 2004). Copies of the videos used in the school can be sent home for instruction, or siblings and other neighborhood kids can help make videos where tasks more specific to the home environment can be modeled (Carothers & Taylor, 2004). In general, there are many promising applications of videotaped modeling that can be used to teach a wide variety of skills.

One such application of videotaped modeling is video self-modeling (VSM). In this method, a participant is taped performing a behavior at a higher level than where he

or she normally functions. Video self-modeling has been used as a positive behavior intervention to change many types of unwanted behaviors in people of all ages, but it has not been widely investigated as to its effectiveness for children with disorders like autism (Buggey, 2005). Buggey (2005) examined the effects of VSM on behaviors such as language production, social initiations, tantrums, and aggressive pushing in children with autism. The participants included five children who ranged in age from 5 to 11 years and whose ASD varied from moderate Asperger's to mild autism. After a two-week baseline period, target behaviors for each child were determined. The children were then videotaped demonstrating the desired behaviors, and watched their own 3-minute videos with their teachers, each day for a ten-day period.

According to Buggey (2005), "The results indicated that all 5 participants exhibited immediate and significant gains and that those gains were maintained after cessation of treatment" (p.52). The behaviors taught through the videos in the classroom were reported to have generalized to other school settings. The teachers reported positive feelings about video self-modeling. One teacher commented that the intervention drastically changed the lives of the students with autism in that the tantrums displayed by two of the participants started to become self-regulated. Never before had one of the students stopped a tantrum and said "Sorry," a behavior that started to happen after the VSM interventions (Buggey, 2005). The parents of these two students noticed changes in behavior at home as reported to the teachers. Another positive result from VSM is that the students did not miss any instructional time and the results of the intervention were exhibited in the students without delay. Based on Buggey's (2005) findings, video self-

modeling seems to be a very effective intervention for those with ASD, and aspects of it, such as why it works and how else it can be used, are worthy of further investigation.

Most of the current research on video modeling is not on self-modeling, but on modeling through the use of same-age peers and adults. Peer models have shown to be more effective than adult models when teaching children with ASD (Apple, Billingsley, & Schwartz, 2005). Peer modeling has also been shown to be more effective than self-modeling (Apple et al., 2005).

One of the key components of autism is a lack of social reciprocity skills. Those with ASD usually have problems in conversation, especially if it has little personal meaning, and they often have trouble establishing and maintaining relationships (Apple et al., 2005). Teaching compliment-giving behaviors to children with autism provides them with a way to participate in social relationships and show interest in the interests of others. The purpose of the Apple et al. (2005) study was to use peer-based video modeling to teach children with autism the social behavior of compliment giving. Part one of the study investigated the effectiveness of video modeling, with explicit instructions included in the video, as a sole intervention, without "extras" that are often included within a video modeling package such as further practice, instructions, or behavior prompts. Results from this first experiment showed that the children could learn the skill of compliment giving through video modeling alone (Apple et al., 2005). However, an adult had to be present at times to provide reinforcement, meaning complete independence was not achieved.

In the second experiment of the study, the children were pre-trained by the teachers to utilize self-management tactics, but responded independently during the

actual experiment. As in the first experiment, the children all learned compliment-giving skills. When comparing the two experiments, the results of the study showed that the self-management system increased the desired behaviors and allowed for greater independence (Apple et al., 2005). So, as a whole, video modeling is an effective approach to teaching social behaviors such as compliment giving, but if it fails on its own, self-management appears to be a helpful tool to add to the intervention.

Similarly, another study by Nikopoulous and Keenan (2004) focused on social initiation and reciprocal play in children with autism. Three boys with ASD, ages 7 to 9, participated in the study. The boys were shown a videotape in one room that depicted a typically developing peer initiating social interaction with the experimenter. The model child in the video would approach the experimenter and say something like, “Let’s play,” or the child would take the experimenter by the hand and lead him to the toys (Nikopoulous & Keenan, 2004). At the initial baseline condition, no social initiation took place. However, after several conditions were introduced, all of the children had increased their social initiation and reciprocity skills. At one and three months, follow-up with the children occurred. At these points, the children all maintained their skills, lending further support to the effectiveness of teaching social skills to children with autism through video modeling with same age peer models (Nikopoulous & Keenan, 2004).

LeBlanc et al. (2003) used the tools of video modeling and reinforcement to investigate perspective taking, a crucial and complex part of social interaction. Perspective taking plays a distinct role in behaviors like sharing, turn taking, and empathy, all of which involve viewing behaviors and situations from another’s point of

view. From an observational standpoint, perspective taking entails, "...(a) observing the behaviors of another individual in a given situation and (b) predicting the individual's subsequent behavior or responding in accordance with the private thoughts or emotions another individual might typically experience in that situation" (LeBlanc et al., 2003, p.254). As previously discussed, children with autism lack certain social skills like perspective taking, which hinders their social development. To investigate the effects of video modeling and reinforcement on children with autism, a study, comprised of three types of novel tasks, was conducted with three boys with autism, ages 7 to 13.

The first task, referred to as the Sally-Anne task, used two animal puppets to present objects to the child. One puppet would present an object and then hide it under a bowl; the other puppet would remove the object and place it under a box. When the first puppet returned, the child would then be questioned as to where the puppet would look for the object (LeBlanc et al., 2003). The second task involved viewing a box of M&M candy. Instead of candy in the box, there was a pencil. The child was then asked to predict what another person would think was inside the box had they not seen the box opened. The third task, a hide and seek task, included a puppet that left footprints when it walked, two experimenters, and the child. The puppet left footprints when it walked that were erased before the second experimenter left the room. Next the puppet, leaving footprints, hid a treasure in a chest, then, not leaving footprints, the puppet moved the treasure to a different box (LeBlanc et al., 2004). The child was then asked to predict where the second experimenter would look for the treasure upon returning. All of these tasks were videotaped and shown to the participants. Reinforcement was given after each

task through praise of effort and a small self-chosen item like a sticker or candy; each child received such reinforcement regardless of performance (LeBlanc et al., 2004).

The results of the study showed that the video modeling and reinforcement were effective, but only two of the three children were able to pass a task by giving a response that was not specifically shown through a video. This indicated that generalization of the observed perspective taking tasks was limited. As a final conclusion, LeBlanc et al. (2003) suggests, "...that video modeling may be an effective technology for teaching perspective taking if researchers can continue to develop strategies for enhancing the generalization of these new skills" (p.253).

Further investigation using videos to enhance social communication skills in children with autism occurred in a study by Dauphin, Kinney, and Stromer (2004). Video-enhanced activity schedules and matrix training were used to teach sociodramatic play to a three-year-old boy with autism. Sociodramatic play may occur when a child, playing with toy figurines, speaks on behalf of one figurine and invites another figure to do something and the figurines are moved accordingly (Dauphin et al., 2004). This type of play is common in most typically developing children and is important because it teaches appropriate interactions in different types of situations, as well as the proper physical use of materials.

In Phase 1 of the experiment, the child learned different types of computer activity schedules that were shown through video models. The computer activities included things like working on a puzzle and sorting shapes. Matrix training for this phase defined the different activities and showed combinations of actions that could be done with the materials of each activity (Dauphin et al., 2004). Phase 2 of the study

involved teaching the participant to use notebook activity schedules, where pictures revealed the possible types of play activities. The third phase of the experiment expanded upon the first two phases, introducing new matrices and activities taught through videos on the computer. The results of the study show that the participant successfully completed approximately two untrained activities for each activity taught directly. Thus, the results support the use of video-enhanced activity schedules and matrix training in teaching sociodramatic play to children with autism and illustrates the how the tools can help generalize to novel tasks (Dauphin et al., 2004).

In addition to social skills, it is also important that daily living skills be taught to children with autism spectrum disorder. One of the primary concerns parents of children with autism have is whether or not their child will be able to lead a safe and independent life and learn to function in the home and future workplace (Shipley-Benamou, Lutzker, & Taubman, 2002). Observational learning through the use of modeling has been identified as an extremely useful strategy for teaching these skills (e.g., getting dressed, doing chores, and preparing meals).

Three children with ASD, two boys and one girl, all approximately five years old, participated in the Shipley-Benamou et al. (2002) study. Five total tasks were selected for the children including making orange juice, preparing a letter to be mailed, setting the table, cleaning a fish bowl, and feeding a cat. Out of the five tasks, the children each learned those that specifically pertained to them, meaning they did not each learn all five tasks; at most a child learned three tasks (Shipley-Benamou et al., 2002). Reinforcements, such as candy or access to a favorite toy, were provided for successful completion of the tasks. Each task was modeled for the children on videotape by the primary researcher.

The results of the study indicated that video modeling was an effective approach to use in teaching daily living skills to children with autism. Correct responding increased noticeably after implementation of the video intervention and was maintained in all the children during a no-video phase and a one-month follow-up session (Shipley-Benamou et al., 2002). One possible reason video modeling was such a success in teaching necessary skills is that it minimized the space on which the child had to focus, lowering the required attentional demands, and took advantage of visual learning strengths often found in children with autism.

Video vs. live modeling. Although there are many types of modeling that can be used to teach different skills to children with autism, two general groups seem to naturally emerge from current literature: video modeling and in vivo, or live, modeling. To investigate the usefulness of these two modeling types, Charlop-Christy, Le, and Freeman, (2000), devised a study where both video and in vivo conditions were used across several tasks. Five children with autism, four males and one female, ages 7 to 11 years, participated in the study. The tasks for the study were determined based on the specific needs of each child and included behaviors such as expressive labeling of emotions, independent play, spontaneous greetings, conversational speech, self help skills, social play, cooperative play, and oral comprehension (Charlop-Christy et al., 2000). All of the tasks were modeled by adults and each child was presented with their tasks on video and in vivo.

After initial observations, the children were tested for generalization and acquisition of their specific behaviors (Charlop-Christy et al., 2000). Four out of the five children achieved their tasks faster with video modeling than with in vivo modeling. The

fifth child learned equally as fast on both conditions. An important piece of information to note is that video modeling also helped promote generalization of these tasks across different persons, settings, and stimuli, whereas in vivo modeling did not (Charlop-Christy et al., 2000). Several explanations for this finding include: (a) that video modeling helps focus attention on relevant cues, (b) it may be self-reinforcing because many autistic children are prone to focusing in on symbolic models like television, and (c) it provides a change from the typical work environment. Video modeling may also be more effective in teaching children with autism because such children often deal better with objects than with people. In addition, as video modeling is more novel than in vivo modeling, the children may prefer the newer technique to the one they have seen so many times (Charlop-Christy et al., 2000).

Summary

The current research on modeling interventions for children with ASD suggests that modeling is an effective tool for teaching desired behaviors to children and one that could be implemented with greater frequency. A logical focus for future research could be teaching educators how to better implement modeling within intervention packages for children with autism. Current research provides evidence that modeling works as an intervention, especially when the models are same age peers and when the modeling occurs through videotape, however, there does not seem to be widespread use of these interventions within classrooms. More research on different ways modeling can be used in schools and how to teach parents and teachers to utilize tools like video modeling and live modeling are important for future investigation. Additional research is needed directly comparing video and live modeling for teaching skills to children with autism.

CHAPTER II

Method

Purpose of Study

The purpose of this study is to examine the effects of video modeling versus live modeling on the social reciprocity performance skills in children with autism spectrum disorder. It is hypothesized that the children with autistic spectrum disorder will learn social reciprocity performance skills through video modeling faster and more completely than through live modeling.

Participants and Setting

The participants in this study were two preschool children with autism spectrum disorders (ASD). These participants attended a suburban school district in the Dayton area and were selected as a result of district, teacher, and parent willingness to participate. All baseline data collection and intervention implementation took place within the preschool classroom, and at various times throughout the two-and-a-half hour afternoon time period.

Although both participants had been diagnosed with ASD, each displayed different characteristics of the disorder. Participant 1, Matthew (pseudonym), who was 5 years old, displayed characteristics of "classic" autism. He often appeared to be in his own world and usually concerned himself with the people around him only when he had

a need to be met. Matthew rarely made eye contact with others, and on the occasion that he would make eye contact, he did not maintain contact for long. He preferred to play by himself and did not usually seek out peers during play. Matthew also did not engage in much pretend play, whether or not he was playing by himself or whether a peer or adult tried to engage him in pretend play. Matthew displayed signs of hyperlexia, meaning he was very skilled at reading letters and words but had very little comprehension of word meaning. He also loved to look at numbers and count out loud. His use of the Picture Exchange Communication System was advanced for his age in that he consistently used the strips to verbalize what he wanted. Matthew's communication skills were limited to the words used with the PECS strips, some echolalia or repetitive speech, and occasionally saying single words, like his name, to no one in particular. In addition, Matthew's tone, when speaking, was always robotic. Matthew would frequently require sensory stimulation, such as being rolled up into a mat, covered with a stretchy blanket, or being rubbed on the back, in order to focus or calm down from a tantrum. Matthew did not have tantrums every day, but they occurred at least several times per week.

Participant 2, Gavin (pseudonym), who was 4 years old, had some characteristics different from those of Matthew. In general, Gavin seemed to be more aware of the people around him and enjoyed receiving signs of physical affection, such as hugs, from the adults in the classroom. At times, Gavin could seem like he was in his own world, but he showed a higher desire for interaction with others than Matthew did. Gavin would often approach his peers to find out what they were doing and seemed to enjoy playing with them. He would often make eye contact and smile when interacting with another. Gavin usually resisted using the PECS strip to ask for things, and when he did, he would

usually just hand the strip over and not verbalize what was on the strip. Gavin used little speech, and what he did say was usually in the form of echolalia. In general, Gavin did not talk, but would show his excitement by laughing or his frustration by crying or throwing a tantrum. Gavin did not throw as many tantrums as Matthew and seemed to be less moody most of the time.

Peer models for Matthew and Gavin were recruited by sending home a permission form that each parent was to send back if they gave permission for their children to participate in the study. Out of the seven peer models available, all parents sent back permission. However, after discussing the potential models with the teacher, it was decided that only five of the seven would actually serve as peer models due to age, maturity level, and who would work best with Matthew and Gavin. It was decided that all five models could be used during the live modeling conditions, but only two were chosen for the video modeling condition. The reason for this was that the teacher identified the two peers she thought were the most mature and would be the most cooperative during filming. Of the five peer models, there were three girls, one 4 year old and two 5 year olds, and two boys, one 4 year old and one 5 year old.

Procedure

The participants were found by contacting local school districts and recruiting voluntary participation. The criteria used for determining a school district were (1) district consent to participate, (2) a teacher within the district who has more than one student with autism and is willing to participate, and (3) parental consent to participate. Age and severity of autism were not used in determining participation. Parental consent for both participants and their same-age peers was obtained prior to the start of the study

(See Appendices A & B). Confidentiality was maintained throughout the study. To maintain anonymity of the participants in the written report, pseudonyms were used. All data were stored in a locked cabinet to which only the investigator had access. Destruction of all data will occur six months after completion of the study.

After the participants were chosen and permission was obtained, an informal interview was held with the participants' teacher, Mrs. R, to discuss the skills that needed improvement. Mrs. R was asked to identify two social reciprocity skills that each participant needed to acquire or improve upon. For Matthew, Mrs. R indicated that he needed to work on requesting items using PECS cards with a peer. For Gavin, Mrs. R stated that he needed to work on appropriately getting someone's attention. Mrs. R mentioned that she thought both Matthew and Gavin needed to work on sharing or playing back and forth with a peer.

Within each social reciprocity skill set, two similar tasks were developed for each student, one that would be used in the video modeling condition and one that would be used in the live modeling condition. This gave each student four total tasks, two for video modeling and two for live modeling. In order to work on requesting items using PECS cards with a peer, Matthew was given a snack time task in the live condition and a playing with a school bus task in the video condition. To work on sharing with a peer, Matthew was given a fishing puzzle task in the live condition and a bean scooping activity in the video condition. In order to work on appropriately getting someone's attention, Gavin was given a microphone greeting task in the live condition and a ball tossing task in the video condition. To work on sharing with a peer, Gavin was given a coloring task in the live condition and a bean scooping activity in the video condition.

Once the target skills and tasks were determined, Mrs. R helped to determine the steps necessary to complete each task. Task analyses were then created for each task (See Appendix C) and a data chart was made to use with each task analysis (See Appendix D). A treatment integrity checklist was also created to make sure the intervention was implemented as designed (See Appendix E). Finally, the same-age peer models were videotaped performing the video tasks and taught how to perform the live tasks.

Next, baseline data were collected by having each participant perform their four total tasks without modeling on three separate occasions. For the first week of intervention, Matthew was presented with two tasks in the video modeling condition, while Gavin was presented with two tasks in the live modeling condition. During the second week of intervention, Matthew was presented with two tasks in the live modeling condition, while Gavin was presented with two tasks in the video modeling condition. For week three of intervention, the participants repeated the tasks they were given during week one, and for week four, the participants repeated the tasks they were given during week two. During the four weeks of intervention, both participants were given two tasks three times per week; the tasks varied depending on the modeling condition. Again, these tasks were specific to each participant and were performed by same-age peers.

Dependent Variable

An informal interview for each student was conducted with Mrs. R, the classroom teacher, to determine the specific social skills that needed attention and to verify the social validity of the skills that were the focus of this study. To determine the percentage the participants completed for each task, data for each step of the task analyses, such as level of independence and whether verbal or physical prompts were given, were recorded

on the data chart. Prompting was defined as a verbal or physical encouragement given to a participant in order to get the participant to attempt a step of a given task.

For a verbal prompt, the experimenter would say something out loud to the student, without using any hand gestures or touching the student in any way, to try to get the student to complete a step of a given task. For example, the experimenter might say, "Let's go to the science area" or "Throw the ball to Evan." For a physical prompt, the participant's hand could be moved to an object involved in the task or an object could be shown to the student by the experimenter. This type of prompt does not involve actually completing the step for the participant, but simply brings items involved in the task to the participant's attention. Depending on what was needed, a participant could receive only one type of prompting, both types of prompting, or no prompts.

Task analysis step completion was determined through direct observation and interaction with both students. For each task analysis, there were three possible levels of completion. The lowest level of task completion was "Prompting plus Assistance." At this level, to have completed a step of a task, the student could have had one or both types of prompting. If the participants allowed the experimenter to help them complete the step, they were considered to have completed the step, but it was considered to be without any level of independence. If the participant absolutely refused to complete a step, even after prompting, they were not considered to have completed that step.

The next highest level of task completion was "Partial Independence." At this level, to have completed a step of a task, the participant had to have one or both types of prompting, and then continued on to complete the step without added assistance or further prompting. The highest level of task completion was "Full Independence." At this

level, to have completed a step of a task, the participant had to have completed the step without any prompting. Completion of a task at full independence was considered to be the ultimate goal for each participant.

Independent Variable

Two modeling conditions, video modeling and live modeling, were compared within this study. Once the social skills were determined and the task analyses created, peer models were trained through direct instruction and demonstration for the tasks in both conditions. After the peer models knew how to perform the tasks, two were selected for creating the videotape for the video modeling tasks. The tape was made in the classroom while the rest of the class was outside or in the gym.

During intervention, the video tasks specific to each participant were also shown in the classroom while the rest of the class was in a different location. A peer model would remain and watch the video tasks with each participant so that they would be directly available to attempt the task after viewing the videotape. Live tasks took place within the classroom while the other students were present. Two peer models would perform the tasks while each participant was instructed to watch. After viewing the modeling, each participant would then attempt the task with one of the peer models.

Research Design

This study had a single-subject alternating treatment experimental design, where A is the baseline and B and C are intervention conditions. Each subject had two tasks in a video modeling condition, condition B, and two tasks in a live modeling condition, condition C. Due to the fact that learning is involved, counterbalancing was used to

control for sequence effects, therefore, Participant 1, Matthew, had the design ABCBC and Participant 2, Gavin, had the design ACBCB (See Table 1).

Table 1

Data Collection Schedule:

	Video (Condition B)	Live (Condition C)
Week 1	*Participant 1 :* Task 1 – School Bus, Task 2 – Bean Scooping	*Participant 2:* Task 1 – Microphone Greeting, Task 2 - Coloring
Week 2	*Participant 2:* Task 3 – Ball Tossing, Task 4 – Bean Scooping	*Participant 1:* Task 3 – Snack Time, Task 4 – Fish Puzzle
Week 3	*Participant 1:* Task 1 – School Bus, Task 2 – Bean Scooping	*Participant 2:* Task 1 – Microphone Greeting, Task 2 - Coloring
Week 4	*Participant 2:* Task 3 – Ball Tossing, Task 4 – Bean Scooping	*Participant 1:* Task 3 – Snack Time, Task 4 – Fish Puzzle

Data Analysis

Time series analysis was used to summarize and analyze the results of this study. Visual inspection was conducted to measure changes in level, trend, and variability for each participant across baseline and intervention conditions. Additional data, such as effect size, non-overlapping data points, and treatment integrity was also collected.

CHAPTER III

Results

Figure 1 displays the intervention results for Matthew's first social reciprocity skill set, "Requesting Using PECS Cards with a Peer." The left side of the figure shows the data for the "Snack" task during the live modeling condition, whereas the right side of the figure shows the data for the "School Bus" task during the video modeling condition. The four different types of graphs represent the three possible levels of task completion and the amount of the task that was not completed. Each graph displays the percentage of task completion per day of intervention. The types of task completion were graphed on separate axes to make the different data lines easier to distinguish from one another, but were arranged so they could be directly compared with one another, within each condition and across both conditions.

Data within the live modeling "Snack" task, indicate direct correspondence between each day on each graph. For example, on Day 1 of baseline, Matthew completed 20% of the task with Prompting Plus Assistance, 0% at Partial Independence, and 80% at Full Independence, leaving 0% of the task not completed. When the graphical data for each day is examined together, and viewed vertically across graphs, the percentage of completion will always add up to 100% for a particular day. Also included on each graph is the effect size and percentage of non-overlapping data (PND) points, which can also be

directly compared within each condition and across conditions. Figures 2-4 are also set up in the same manner as Figure 1.

In order to accurately interpret effect size it is necessary to understand the meaning behind the type of effect size used as well as have a guideline for estimating the size of the impact. In the present study, the specific type of effect size used is referred to as the d-index. The d-index is used to determine the magnitude of a change in level when the data do not indicate a trend, and when calculated, it takes into account each data point's actual score. Cohen (1988) recommends using .2, .5, and .8 as guidelines for approximating a small, medium, and large effect. The d-index should be interpreted with caution and used along with visual inspection of the data.

The Percentage of Non-Overlapping Data points is determined by examining the data across both baseline and intervention phases and calculating the percentage of intervention points that do not overlap the baseline points. It is thought that the smaller the percentage of overlap, the greater the intervention effect. Scruggs and Mastropieri (1998) suggest that the criteria for evaluating PND are 50% PND = ineffective; 50-70% PND = questionably effective; 70-90% PND = moderately effective; and 90% PND = highly effective. It is important to note that PND lacks sensitivity for highly successful interventions (i.e., 100% PND), and it ignores all points in the baseline except for the most extreme point, which is also the most unreliable point due to its extremity. Therefore, PND should be interpreted with caution and used along with visual inspection of the data.

Figure 1. Matthew: Social Reciprocity Skill Set 1 – Requesting Using PECS Cards with a Peer

Live Modeling – *Snack* Video Modeling – *School Bus*

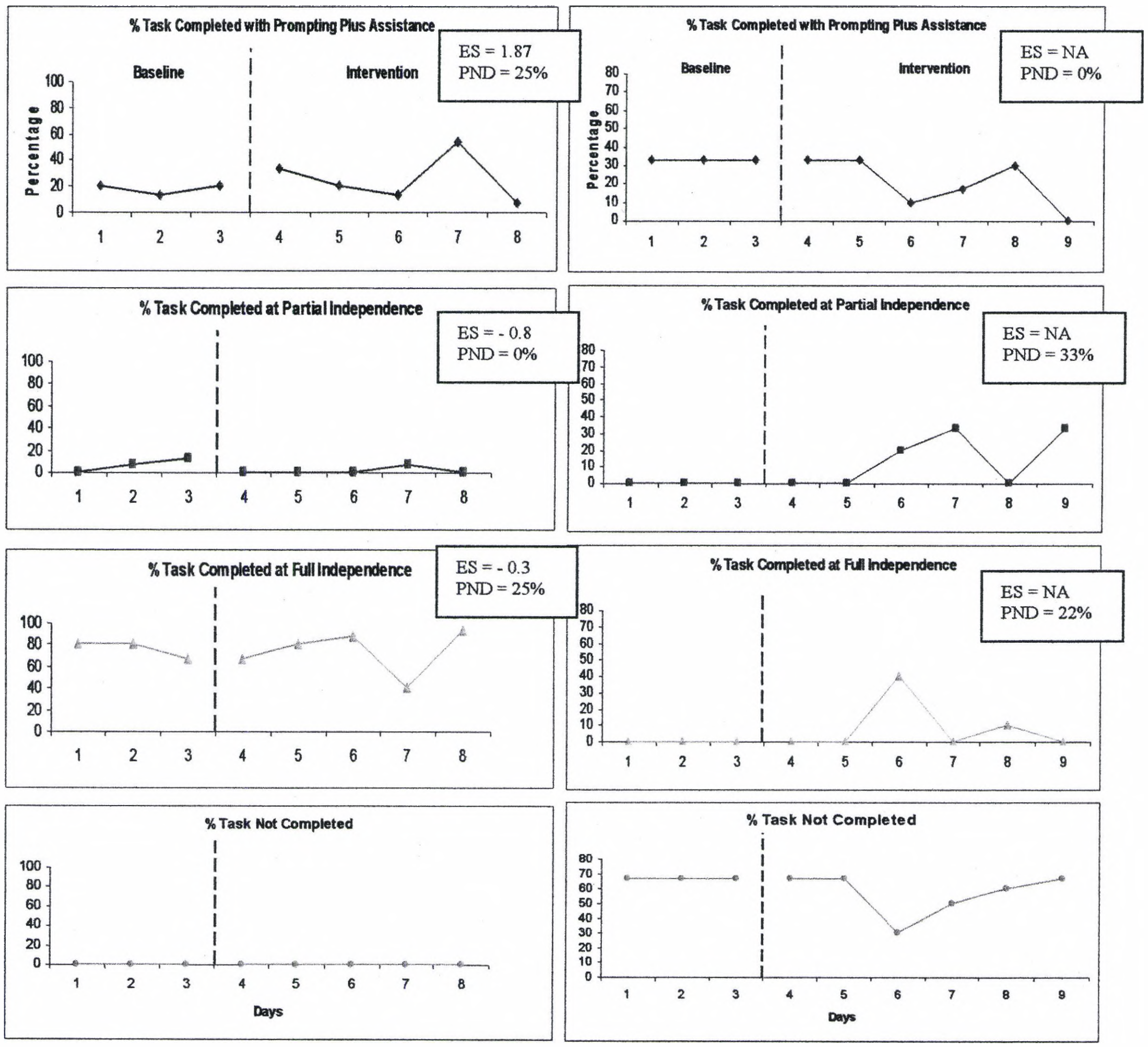


Figure 1 demonstrates that the live modeling condition (PND = 25%) was slightly more successful at creating full independence than in the video modeling condition (PND = 22%). Effect size cannot be directly compared between the two tasks because it could not be calculated for any level of independence in the video modeling condition due to a lack of variation among baseline data. The live modeling condition did not produce much

partial independence compared to baseline (PND = 0%), whereas the video modeling condition did (PND = 33%). In both conditions, Matthew required some prompting plus assistance, and was more successful completing the task at that level of independence in the live condition (PND = 25%) when compared with the video condition (PND = 0%). Although the intervention showed that Matthew obtained similar levels of full independence in both live and video modeling conditions, neither PND is considered significant and the overall intervention effectiveness is questionable.

Figure 2 displays the intervention results for Matthew's second social reciprocity skill set, "Sharing/Playing Back and Forth with a Peer." The left side of the figure shows the data for the "Fish Puzzle" task during the live modeling condition, whereas the right side of the figure shows the data for the "Beans" task during the video modeling condition. Data in Figure 2 demonstrate that the intervention was more successful at creating full independence in the video modeling condition (PND = 44%) than in the live modeling condition (PND = 14%). Effect size cannot be directly compared between the two tasks because it could not be calculated for full independence in the video modeling condition. Neither condition produced a significant amount of partial independence, and again, effect size could not be directly compared because it could not be calculated for partial independence during live modeling. When looking at prompting plus assistance, Matthew completed much more of the task at that level of independence in the video condition (PND = 44%) when compared with the live condition (PND = 14%). The effect size for prompting plus assistance during the video modeling condition was significant *(d-index = 1.85),* whereas the effect size during the same live condition was not *(d-index = 0).* Although the intervention showed that Matthew obtained a higher level of full

independence in the video modeling condition, the PND is not considered significant and the overall intervention effectiveness is questionable.

Figure 2. Matthew: Social Reciprocity Skill Set 2 – Sharing/Playing Back and Forth with a Peer

Live Modeling – *Fish Puzzle* Video Modeling – *Beans*

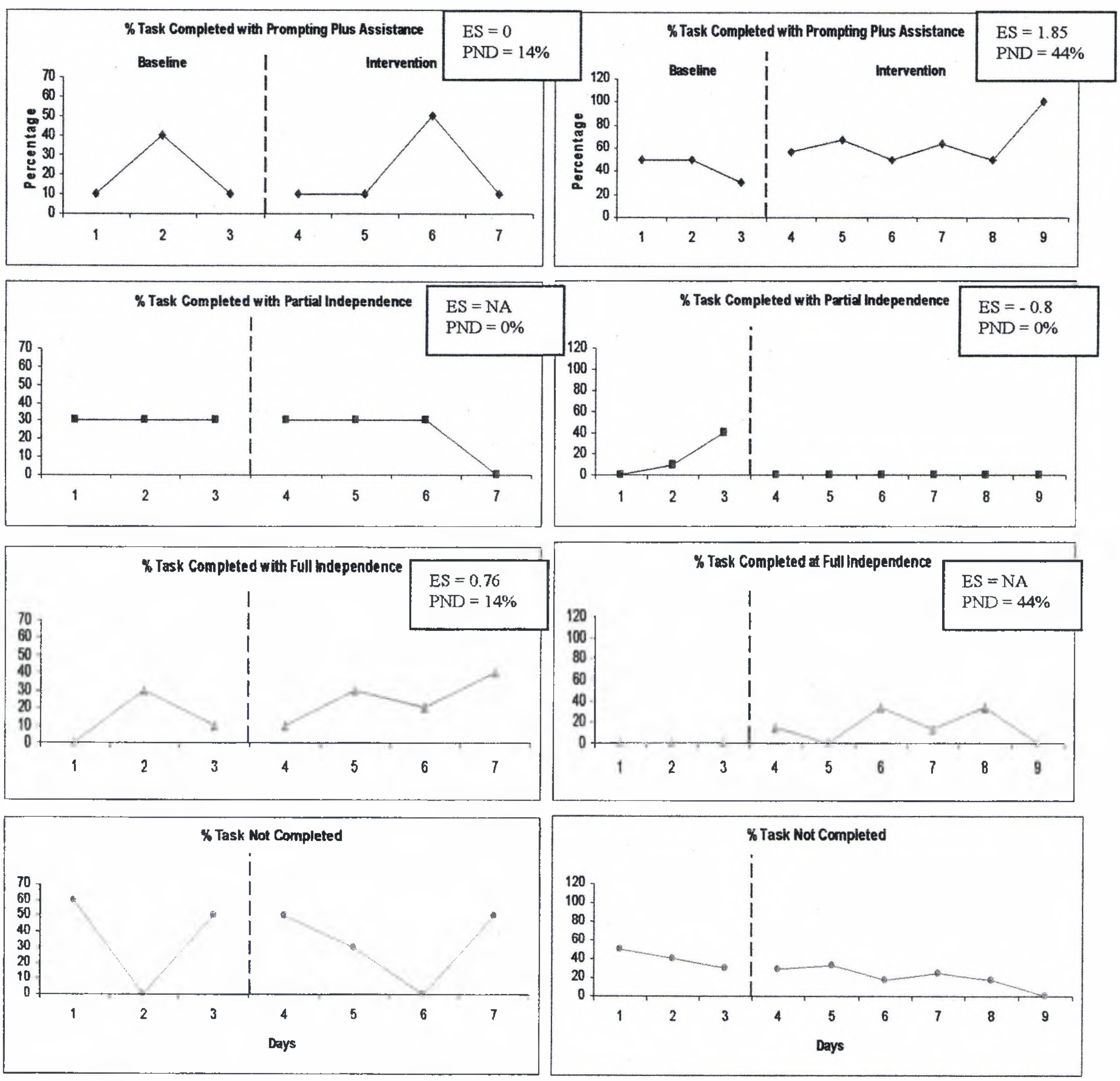


Figure 3 displays the intervention results for Gavin's first social reciprocity skill set, "Appropriately Getting Someone's Attention." The left side of the figure shows the

data for the "Microphone" task during the live modeling condition, whereas the right side of the figure shows the data for the "Ball" task during the video modeling condition. Data in Figure 3 show that the intervention was more successful at creating full independence in the video modeling condition (PND = 50%) than in the live modeling condition (PND = 33%). Effect size cannot be directly compared between the two tasks because it could not be calculated for full independence in either condition. For partial independence, Gavin performed better in the video modeling condition (PND = 38%) than in the live modeling condition (PND = 11%). Again, effect size cannot be directly compared because it could not be calculated for either condition. Percentage of non-overlapping data for prompting plus assistance indicate that Gavin required a similar level of assistance in the live condition (PND = 0%) when compared with the video condition (PND = 0%). The intervention produced more significant effect size results in the live condition *(d-index = 1.83)* than in the video condition *(d-index = 0.09)* for prompting plus assistance. Although the intervention showed that Gavin obtained a higher level of full independence in the video modeling condition, the PND is not considered significant and the overall intervention effectiveness is questionable.

Figure 3. Gavin: Social Reciprocity Skill Set 1 – Appropriately Getting Someone's Attention

Live Modeling – *Microphone* Video Modeling – *Ball*

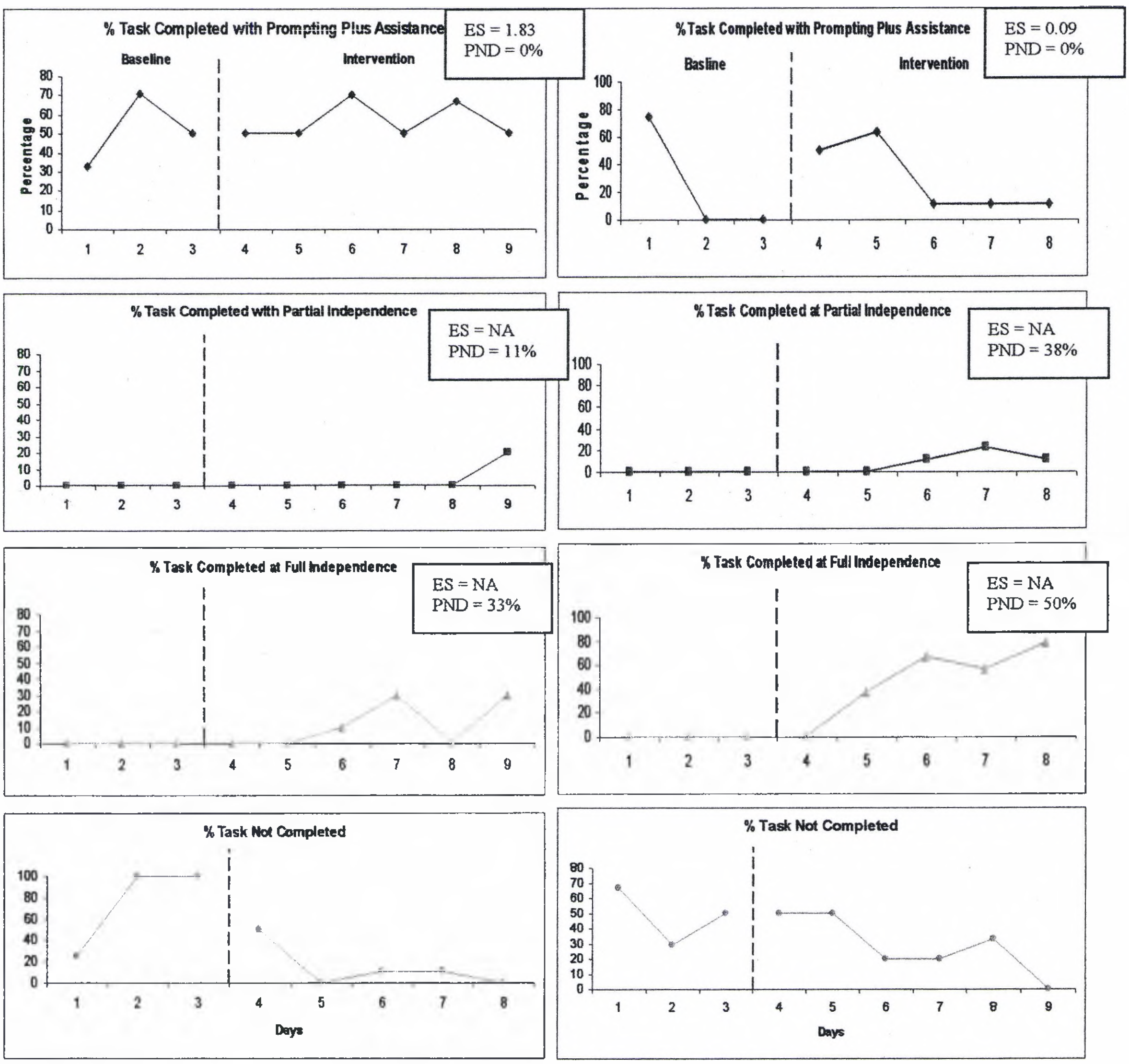
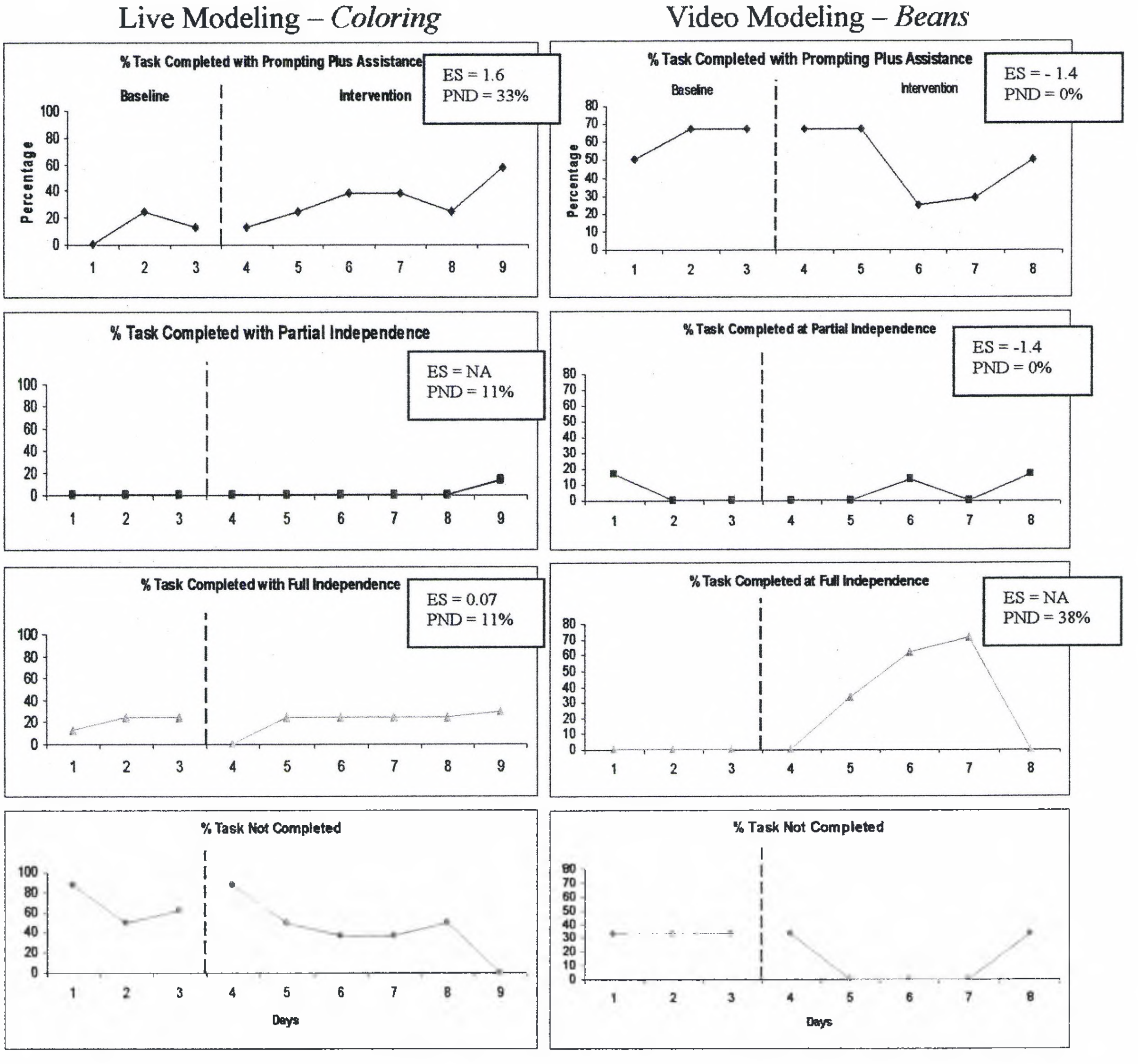


Figure 4 displays the intervention results for Gavin's second social reciprocity skill set, "Sharing/Playing Back and Forth with a Peer." The left side of the figure shows the data for the "Coloring" task during the live modeling condition, whereas the right side of the figure shows the data for the "Beans" task during the video modeling condition. Data in Figure 4 demonstrate that the intervention was more successful at creating full

independence in the video modeling condition (PND = 38%) than in the live modeling condition (PND = 11%). Effect size cannot be directly compared between the two tasks because it could not be calculated for full independence in the video condition. For partial independence, Gavin performed better at this level of independence in the live modeling condition (PND = 11%) than in the video modeling condition (PND = 0%). Again, effect size cannot be directly compared because it could not be calculated for the live modeling condition at partial independence. Gavin performed better in the live condition when he received prompting plus assistance (PND = 33%), but did not require as much prompting plus assistance in the video condition (PND = 0%). The intervention produced significant effect size results in the live condition *(d-index = 1.6)* and in the video condition *(d-index = -1.4) for prompting plus assistance*. Although the intervention showed that Gavin obtained a higher level of full independence in the video modeling condition, the PND is not considered significant and the overall intervention effectiveness is questionable.

Figure 4. Gavin: Social Reciprocity Skill Set 2 – Sharing/Playing Back and Forth with a Peer



A treatment integrity checklist was completed for each day of baseline and intervention. The results of the checklist indicated that the intervention was implemented as planned approximately 98% of the time (See Appendix E).

Due to the fact that a d-index effect size could not be calculated and compared for all sets of data, an aggregate effect size was calculated using the mean effect size for all live modeling conditions, the mean effect size for all video modeling conditions, and the

standard deviation for all data points across both conditions. The aggregate effect size *(d-index = .006)* was small and indicates little overall intervention effects.

CHAPTER IV

Discussion

Interpretation of Results

In three of the four social reciprocity skill sets completed by the two participants, video modeling had a greater effectiveness at producing full independence than did live modeling. Live modeling produced some effectiveness at full independence, but tended to produce greater effectiveness when participants received prompting plus assistance. Although these results are consistent with the findings of previous studies comparing video modeling and live modeling (Charlop-Christy et al., 2000), the interventions in the present study had limited effectiveness. When the results were effective, they tended to have the most impact in the prompting plus assistance condition, not during full independence, which was the ultimate intervention goal. The high percentage of treatment integrity data indicate that the intervention was implemented as planned throughout the majority of the study. As a result, it can be reported with confidence that the actual implementation of the intervention did not contribute to the lack of effectiveness.

Even though the intervention did not produce the desired level of success, it is apparent from examining the data that video modeling was slightly more effective than live modeling in producing higher levels of independence. A potential explanation for this is due to the nature of autism itself. Children with autism typically have a variety of

sensory issues that often make it difficult to focus on a required activity within the classroom environment, or make it difficult *not* to repeatedly focus on a distracting object. Due to this overload of sensory information and the lack of social reciprocity, it makes sense that children with autism would be able to better attend to information coming from an object source, such as a television, as opposed to information coming from a person source. When observing children with autism, it is as if a large amount of extraneous background stimuli get drowned out when the television is turned on, whereas during live activities or instruction, the extraneous stimuli become more distracting once again. It was obvious from directly observing the participants in the present study, that they both had an easier time attending to the video modeling tasks than they did to the live modeling tasks, even if the results did not show a large significance.

The social reciprocity skill set, "Appropriately Getting Someone's Attention," provides an example for which video modeling had greater effectiveness than live modeling. Gavin completed his task in the video modeling with 17% more PND than he completed his task in live modeling, and from visual inspection of the data, it is apparent that Gavin obtained more full independence, and relied less on prompting plus assistance, during the video modeling condition than during the live modeling condition (see Figure 3). Based on observations conducted during intervention phases, Gavin seemed to be able to focus his attention more fully when viewing the modeling on the videotape than when the modeling was performed live. Physically, it was obvious that Gavin was really watching his peers perform the tasks because his eyes would lock onto the television screen with a focus not seen during the live modeling condition.

Limitations

Although video modeling was moderately more effective than live modeling at producing a higher percentage of task completion and task independence in the students with autism, there were some limitations that may have reduced the impact of the intervention. Research has shown that using peers as models can produce successful results when teaching social skills to children with autism (Nickopoulous & Keenan, 2004; Apple et al., 2005). However, it was found that the preschool peer models in this study, especially during the live tasks, would often become distracted during the task or ask the researcher if they could play with something else. On occasion, a peer model would deviate from how they were told to do the task and try to do it how they wanted. The age of the peer model may be an important factor to consider when determining whether or not peer models are appropriate. For young children in preschool, and perhaps kindergarten through first or second grade, it may be better to use older student models or adult models to insure that the intervention is implemented with complete integrity.

The videotape for this intervention was produced with the peer models after only two takes and required no editing. While the tasks could be viewed and heard clearly on the videotape, perhaps having a higher quality videotape made by someone with film experience could have made a difference in the overall aesthetic feel of the video modeling. In addition, there was very limited time in which to create the videotape due to the fact that it had to be filmed during the school day while the other children in the class were out of the room.

Time restraints and classroom space were other issues that arose during this intervention. The students in this study attended the afternoon preschool class which only

lasted approximately two-and-a-half hours. This meant that during baseline, eight tasks had to be performed during that time period on three different days. During intervention, four tasks, plus the modeling for each task, had to be completed during the two-and-a-half hours on three days each week. Had this intervention taken place with students in elementary, middle, or high school, all of whom attend school for a whole day, it would have been much easier, logistically, to carry out the intervention and data collection.

Due to classroom space, all aspects of the intervention had to be completed within the preschool classroom. There were no other empty rooms in which the modeling could occur. During video modeling, the rest of the class had to be taken outside or to the gym. All live modeling occurred while the other children were in the classroom. Had another quiet location been available, the intervention would not have been as disruptive to the classroom routine and distractions during live modeling could have been further minimized.

Perhaps the most important limitation to consider is that of the nature of autistic spectrum disorders. Designing interventions for children with autism is often easier said than done. In a perfect intervention, the participant would always respond well to prompts or other stimuli. However, it is very hard to predict how children with autism are going to respond to others' actions. Something that a child with autism does willingly one day may cause him or her to throw a tantrum the next day, or vice versa. As experienced in this study, often one change in routine can throw off an entire day for a child with autism, which then could significantly decrease the effectiveness of an intervention, or the ability to even administer an intervention at all. Although it is crucial to attempt intervention with children who have autism, regardless of how they may react to it, it is

also important to keep the nature of the disorder in mind when interpreting intervention results.

Directions for Future Research

As a result of the relatively recent increase in the prevalence of autism spectrum disorders, there is an ever growing need for practical, effective interventions that can be easily used within the school environment to teach various skills to children with autism. Of the skill deficits common in children with autism spectrum disorders, social skills stand out as major targets for intervention. Even though video modeling did not prove to be significantly more effective than live modeling in the present study, it continues to hold potential as a useful intervention and warrants further investigation.

Although the preschool peer models were able to perform the tasks asked of them and were generally agreeable when asked to model a live task, at times, it seemed as if it might be more effective to use adults or older students as the models. When making the videotapes, recording had to be stopped often in order to provide the peer models with further instruction. During live modeling, the peers would often become distracted or tired of performing the task. Therefore, it would be helpful to examine the effectiveness of using older students as models, perhaps third grade or above, or adults as models, to insure modeling integrity.

It would also be interesting to further investigate how older children with autism, as well as children with higher functioning autism or Asperger's Disorder, would respond to social skills intervention through video modeling. It was difficult, at times, to persuade the preschool students with autism to attend to both types of modeling, especially the live modeling, so it would be helpful to see whether or not age was a significant factor in skill

acquisition, or lack thereof. In addition, both students in this study were functioning on the lower end of the autism spectrum. Perhaps video modeling would be a more effective technique in teaching social skills to children with high-functioning autism or Asperger's Disorder as opposed to children on the lower end of the spectrum.

Overall, the intervention was given favorable comments from the preschool teacher. However, since the intervention was not largely carried out by the teacher, it would be questionable as to whether the intervention would be viewed as favorably if the teacher was the sole implementer of the intervention. Future researchers may wish to investigate the treatment acceptability of a similar modeling intervention compared with a more teacher-friendly version so that the intervention can be used with greater ease within the regular classroom setting, and in situations where the teacher does not have assistance in providing an intervention.

Finally, generalization of skills across various settings was not explored within the present study. It would be interesting to see whether skills transfer across different settings, including school, home, and community settings and, with older students, vocational settings.

One thing that may make generalization of skills more logistically convenient is updating the video-making technology. The analog video equipment used in the present study was older and made it difficult to edit the videotapes. It was also somewhat inconvenient to have to rewind the tape each time the video tasks needed to be shown to one of the students. In any future study involving video modeling, it would be helpful to update the technology by using a digital video camera and a computer to create DVDs of the tasks. In general, more people are familiar with computer programs that can be used

to create and edit DVDs than they are with video-editing equipment. Further, the majority of families use DVDs more often than videotapes, which would make it more convenient to use the DVDs within the home setting. Additionally, using DVDs would allow a student to watch the tasks on a computer, which, with headphones, would be less distractive to other students in the classroom.

APPENDIX A

Informed Consent to Participate in a Research Study

Project Title: A Comparison of Video and Live Modeling on the Social Reciprocity Performance Skills of Children with Autism Spectrum Disorders

Investigator: Sarah Cooney, graduate student in the School Psychology program at the University of Dayton

Purpose of Research: This research is investigating whether video or live modeling is more effective at increasing the performance of various social reciprocity performance skills in students with autism spectrum disorders.

Procedure: Your student will be assessed for the social reciprocity skills on which they need improvement. Each student will be given two tasks to complete for two different intervention stages, totaling four separate tasks. During the first stage, your student will view a same-age peer perform both tasks on videotape. In the second stage, your student will view a same-age peer perform both tasks live. After viewing a same-age peer model a task, your student will then try to perform the task with their peer.

Anticipated Risks and/or Discomfort: Due to the nature of autism spectrum disorders, at times, your student may feel uncomfortable due to changes in daily routine. Every effort will be made to minimize these changes and any discomfort your student may feel.

Benefits to the Participants: By allowing your student to participate in this research, you provide them with the opportunity to improve upon social reciprocity skills that may be underdeveloped. You will also be aiding in the search for effective interventions and instructional methods for students with autism spectrum disorders.

Confidentiality: No records of your student's participation in this research will be disclosed to others. Your student's real name will not be revealed in any document resulting from this research. Your student's data will be recorded anonymously. A randomly assigned false name will be recorded with your student's data; your student's name or other identification will not be recorded with the data. All data will be stored in a locked cabinet to which only the investigator has access. Destruction of all data will occur six months after completion of the study.

Contact Person for Questions or Problems: If a research-related injury occurs, or if you have questions about the research, contact Sarah Cooney at xxx-xxx-xxxx, or her advisor, Dr. Julie Morrison, Ph.D. at 937-229-3621. Questions about the rights of the subject should be addressed to Jon Nieberding, Chair of Committee for the Protection of Human Subjects, Kettering Labs Room 542, +0104, 937-299-4053.

Consent to Participate: I have voluntarily decided to allow my student to participate in this research project. The investigator named above has adequately answered all questions that I have about this research, the procedures involved, and my student's participation. I understand that the investigator named above, or her program advisor, will be available to answer any questions about experimental procedures throughout this research. I also understand that I may refuse to participate or voluntarily terminate my student's participation in this research at any time without penalty or loss of benefits. The investigator may also terminate my student's participation in this research if she feels this to be in my child's best interest. In addition, I certify that I am my student's legal guardian.

____

Signature of Parental Guardian Date

____

Signature of Investigator Date

APPENDIX B

Peer Informed Consent to Participate in a Research Study

Project Title: A Comparison of Video and Live Modeling on the Social Reciprocity Performance Skills of Children with Autism Spectrum Disorders

Investigator: Sarah Cooney, graduate student in the School Psychology program at the University of Dayton

Purpose of Research: This research is investigating whether video or live modeling is more effective at increasing the performance of various social reciprocity performance skills in students with autism spectrum disorders.

Procedure: Your student will be a peer model for students with autism spectrum disorders. Your student may participate in creating a videotape of several social reciprocity skills on which the students with autism need improvement. Your student will model social reciprocity skills in two different intervention stages. During the first stage, your student will perform tasks with students with autism after viewing the modeled tasks on videotape. In the second stage, your student will model tasks with another peer model and then perform the tasks with students with autism.

Anticipated Risks and/or Discomfort: There are no anticipated risks from your student's participation.

Benefits to the Participants: By allowing your student to participate in this research, you provide them with the opportunity to learn about and work with students who have a disability. They will learn how to interact with students with autism and perhaps break down any pre-conceived ideas they may have about such individuals. You will also be aiding in the search for effective interventions and instructional methods for students with autism spectrum disorders.

Confidentiality: No records of your student's participation in this research will be disclosed to others. Your student's real name will not be revealed in any document resulting from this research. A randomly assigned false name will be recorded with your student's data; your student's name or other identification will not be recorded with the data. All data will be stored in a locked cabinet to which only the investigator has access. Destruction of all data will occur six months after completion of the study.

Contact Person for Questions or Problems: If a research-related injury occurs, or if you have questions about the research, contact Sarah Cooney at xxx-xxx-xxxx, or her advisor, Dr. Julie Morrison, Ph.D. at 937-229-3621. Questions about the rights of the subject should be addressed to Jon Nieberding, Chair of Committee for the Protection of Human Subjects, Kettering Labs Room 542, +0104, 937-299-4053.

Consent to Participate: I have voluntarily decided to allow my student to participate in this research project. The investigator named above has adequately answered all questions that I have about this research, the procedures involved, and my student's participation. I understand that the investigator named above, or her program advisor, will be available to answer any questions about experimental procedures throughout this research. I also understand that I may refuse to participate or voluntarily terminate my student's participation in this research at any time without penalty or loss of benefits. The investigator may also terminate my student's participation in this research if she feels this to be in my child's best interest. In addition, I certify that I am my student's legal guardian.

____

Signature of Student Date

____

Signature of Parental Guardian Date

____

Signature of Investigator Date

APPENDIX C

Task Analysis Data Chart

Student: ______________________
Date of Performance: ___________________
Task: __________________

Step	Did the student complete the step? Yes or no.	Did the student complete the step independently? Yes or No.	Did the student receive prompting for the step? Yes or No.	What type of prompting did they receive? Physical or Verbal.
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				

14				
15				

Percentage of Task Completion:___________________________

Overall Prompting Type (Continuous, Frequent, Limited, Independent):________________________

APPENDIX D

Task Analyses for Matthew and Gavin

Matthew's Social Reciprocity Skill Set 1: Requesting Using PECS Cards with a Peer

<u>Snack Time Task Analysis</u> – Live (Task 3)

1. Go to snack table
2. Sit in chair next to peer
3. Place appropriate snack picture card on Velcro strip
4. Give picture strip to a peer
5. Tell peer out loud what pictures say – "I want…"
6. Take snack from peer
7. Repeat steps 3-6 as necessary
8. When done with snack, throw napkin and cup away

<u>Playing with School Bus Task Analysis</u> – Video (Task 1)

1. Sit on the floor
2. Begin play with school bus
3. Take picture card from peer while peer says, "I want…"
4. Give peer the part of the school bus they asked for
5. Give peer picture card and say, "I want…"
6. Take the part of school bus that peer gives back

7. Repeat steps 3-6 until finished playing

Matthew's Social Reciprocity Skill Set 2: Sharing/Playing Back & Forth with a Peer

<u>Fish Puzzle Task Analysis</u> – Live (Task 4)

1. Sit at table next to or across from a peer
2. Use fishing pole magnet to pull out a fish
3. Hand fishing pole to peer and say, "Kelly's (or other peer) turn"
4. After peer takes turn, receive fishing pole back from peer as they say, "Matthew's turn"
5. Repeat steps 2-4 until puzzle is complete

<u>Bean Scooping Task Analysis</u> – Video (Task 2)

1. Go to science area
2. Pick up scoop
3. Scoop up beans
4. Pour contents of scoop into bucket
5. Hand scoop to peer and say, "Kelly's (or other peer) turn"
6. After peer takes turn, receive scoop back from peer as they say, "Matthew's turn"
7. Repeat steps 3-6 until activity is complete

Gavin's Social Reciprocity Skill Set 1: Appropriately Getting Someone's Attention

<u>Microphone Greeting Task Analysis</u> – Live (Task 1)

1. Take microphone from teacher
2. Walk over to peer
3. Stand an appropriate distance away from the peer
4. Greet the peer by saying into the microphone, "Stacey, are you here today?"
5. Wait in front of peer for peer to respond, "Yes, I am here today."
6. Move on to next peer
7. Repeat steps 2-6 until all students have been greeted

Ball Tossing Task Analysis – Video (Task 3)

1. Listen while peer says, "Will you be my partner?"
2. Respond "Yes" to peer
3. Receive ball from peer
4. Throw ball to peer
5. Repeat steps 3-5 until play is finished
6. Put ball down

Gavin's Social Reciprocity Skill Set 2: Sharing/Playing Back and Forth with Peers

Coloring Task Analysis – Live (Task 2)

1. Go sit at table
2. Place appropriate crayon color card on Velcro strip
3. Give picture strip to peer
4. Tell peer out loud what pictures say, "I want…"
5. Take crayon from peer

6. Begin coloring
7. Take picture strip from peer
8. Give peer the crayon they asked for
9. Repeat steps 2-8 until finished coloring

<u>Bean Scooping Task Analysis</u> – Video (Task 4)

1. Go to science area
2. Pick up scoop
3. Scoop up beans
4. Pour contents of scoop into bucket
5. Hand scoop to peer and say, "Kelly's (or other peer) turn"
6. After peer takes turn, receive scoop back from peer as they say, "Gavin's turn"
7. Repeat steps 3-6 until activity is complete

APPENDIX E

Treatment Integrity Checklist
Date & Week of Intervention: ________________

Circle Modeling Condition for Each – Matthew: Live or Video Gavin: Live or Video

To be Completed with Matthew Each Day:

1. I implemented the intervention with Matthew today. ____
2. The appropriate type of modeling condition (live or video) was performed by a peer model for each of Matthew's two tasks. ____
3. Matthew was given the opportunity to carry out all steps of each task with a peer. ____
4. Matthew completed both tasks in the modeling condition (live or video) today. ____
5. I filled out the task analysis data chart for each task Matthew completed today. ____

To be Completed with Gavin Each Day:

1. I implemented the intervention with Gavin today. ____
2. The appropriate type of modeling condition (live or video) was performed by a peer model for each of Gavin's two tasks. ____
3. Gavin was given the opportunity to carry out all steps of each task with a peer. ____
4. Gavin completed both tasks in the modeling condition (live or video) today. ____
5. I filled out the task analysis data chart for each task Gavin completed today. ____

To be Completed Weekly for Both Matthew and Gavin:

1. Matthew and Gavin received the peer modeling intervention (either live or video) 3 times each this week and completed two tasks each during those 3 times. ____

Total Treatment Integrity Score: ________________

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