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# Effectiveness of peer interventions to develop appropriate communication skills in children with autism

Meghan Draper

Effectiveness Of Peer Interventions To Develop Appropriate Communication Skills In
Children With Autism


by

Meghan Draper




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## Dedication

This manuscript is dedicated to all of the people who helped me get through it.

## Acknowledgements

I acknowledge my fiancé Jeff and family for their continued support throughout this entire process and my participants and their families for their patience and support through it all.

**Abstract**

Meghan Draper

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S. Jay Kuder, Ed.D.
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The purpose of this research was to determine which type of social intervention is more efficient when comparing Peer Video Modeling and Peer Tutoring when attempting to decrease inappropriate social behaviors.  Three children were chosen because they each displayed a lack of eye contact, inappropriate verbal responses, or avoidance of a response during free play sessions with their peers in the inclusionary prekindergarten classroom. Baseline data collection was held for a three-day period.  A personalized peer modeling video was made for Students A and C.  For Students B and C, personalized trained peers were paired.  These interventions were implemented with the children across separate five-day periods and data of the rate of occurrence of the target behavior was collected.  While both methods of interventions decreased the target behavior, both Peer Tutoring and Peer Video Modeling proved to have the best results in attempting to decrease inappropriate social behavior.

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**Chapter 1**

**Introduction**

Social skills can be defined as the skills needed for successful communication and interaction (Dictionary, 2011). For students with disabilities, especially those with Autism Spectrum Disorder (ASD), who lack the appropriate communication skills, it can be or has been an ongoing challenge to develop appropriate social skills needed to succeed in every day life. For children diagnosed with ASD, communication can be like a foreign language. These children tend to prefer being alone, have poor eye contact, have difficulty attending, do not respond to their names, and shy away from any physical contact, such as cuddling or holding. When it comes to language, children with ASD typically cannot start a conversation or keep one going, usually start speaking at a much later age than typical children, use various types of abnormal voice tones, and will repeat words or phrases which may or may not have anything to do with the topic of discussion (Autism and Asperger syndrome, 2011).

Not only can these types of poor social skills negatively affect relationships with peers, family, and people in everyday life, they can impede progress in academic areas as well. While parents play a major role in the development of a child's social skills, the major learning ground for appropriate social skill development is the school environment. For students with deficits in social and communication skills, specifically children with Autism Spectrum Disorder (ASD), being placed in an inclusion setting can provide them with the opportunity to interact with typical peers in order to gain appropriate social skill development.

However, just being placed in this type of setting is not as easy as it sounds. Children who lack appropriate social skills are those who have difficulties in speech and language and have yet to master skills in reading emotions, body language, and facial expressions (Cox, 2004).  Placing students with these types of deficits into an inclusion setting without any kind of mastery, training or teaching of appropriate skills can cause other problems not only for themselves, but for their peers and teachers as well.  Because these children lack the opportunity or desire to practice social interactions, they approach their peers in ways that are not received well by the typical students (Watson Institute, 2010). This, in turn, causes isolation by the student with ASD to avoid future rejection, thus missing those much-needed opportunities to gain appropriate social skills.  As the child gets older, this can affect academic areas that may require specific social skills to participate in certain activities such as presentations or group projects.

What can be done to help children with autism spectrum disorders improve their social skills?  Social skill training has become an important focus in the education of children with ASD.  There are several types of interventions that have been tested and implemented to see if they have the ability to increase appropriate social skills in children with disabilities.  One method that has been found to be effective is peer-mediated interventions. Peer methods can be easily implemented into everyday routines.  Peer methods can be taught throughout the classroom so that a child is not singled out, which is a concern in some areas.  Peer methods are less time consuming and cost very little or almost nothing to implement.  In many studies, it is strongly believed that peer methods help children with social skills deficits to make a better generalization of appropriate socialization in the classroom.

More and more children with autism spectrum disorder are being placed into inclusion type classrooms because it is believed with their strong observational learning and imitation abilities, appropriate social skills will be obtained.  Although, I, among many others, believe this alone is not enough. This study will focus on the ability of peer-mediated interventions for students with ASD to increase appropriate social skills.

Peer-mediated interventions are strategies that utilize peers as a type of model, tutor, or teacher (ASAT, 2011).    There are two types of peer-mediated interventions:

1. Peer video modeling/imitation, where peers are used to model a specific action on video and the student with social skill deficits watches and imitates or mimics the action and

2. Peer tutoring/training, where peers model an action, gives a verbal direction, and evaluates the response of the student with social skill deficits in order to present a reinforcer or praise (peer tutoring) (ASAT, 2011).

This study will compare the effectiveness of these two types of peer-mediated interventions.

Research Problem

The question to be answered in this study:

When using peer video modeling and peer tutoring/mentoring individually or together, which of these interventions proves most effective in replacing the inappropriate behaviors of lack of eye contact and nonexistent or inappropriate verbal responses, with appropriate behaviors in preschool age students with Autism Spectrum Disorder?

This study will show which type of social skill intervention, Peer video modeling or Peer tutoring/mentoring, proves to be more effective in decreasing inappropriate behaviors in students with ASD or if they are better utilized in conjunction with each other. My hypothesis is that combining the two interventions will be a more effective method of decreasing inappropriate behaviors. Knowing this information will help therapists, parents, and educators choose a preferable method of social skill intervention.

Key Terms

Autism Spectrum Disorders (ASD): a neurodevelopmental disability, and a category under the Individuals with Disabilities Act (IDEA), which qualifies students for special education, that causes impairments in social interactions, verbal and nonverbal communication skills, and is based on patterns of behaviors.

Individuals with Disabilities Act (IDEA): a United States federal law that mandates special education and related services for children with disabilities.

Inappropriate social skills: any type of physical, gestural, or conversational demonstration that is not widely accepted by mainstream society.

Inclusion classroom: a regular education classroom that is comprised of typically developing students as well as students with special needs.

Stimulus over-selectivity: taking in too much visual information without ability to effectively filter out unnecessary information

Stereotypy or self-stimulatory behavior: refers to repetitive body movements or repetitive movement of objects

Summary

Many students with Autism Spectrum Disorder (ASD) lack the appropriate social skills to help them succeed in everyday interactions, academically and socially.  The focus of this study is on two types of social interventions: peer video modeling and peer tutoring.  Preschool aged children will be taught using these two interventions to decrease inappropriate social behavior and at the same time, develop a more appropriate skill in its place.

## Chapter 2

## Literature Review

<u>Social Skills</u>

Students who are classified as having autism spectrum disorder (ASD) may face academic and behavioral struggles throughout their lives. Most children with ASD work long and hard for academic success and achievement. They may work so hard, that not enough attention is paid to appropriate language and social skills causing negative effects, which could turn out to be an endless struggle for these children. This, in turn, has a major affect in their social and emotional development. Social skill development opens doors to all types of relationships, such as friend-to-friend, student to teacher, boss to employee, and salesperson to customer. The social skills that so many children with ASD lack are often the same skills that enable typically developing children to participate in appropriate conversation and act appropriately in various situations. In order for a child with autism to become a well-adjusted adult, basic social skill functioning needs to be learned. Without these basic skills, a child with autism can become depressed, develop anxiety, and completely avoid any type of social interaction all together.

Often, children diagnosed with autism spectrum disorder that exhibit social skill deficits show difficulty in starting or maintaining conversation with peers and adults. They do not grasp the concept of turn taking in conversation and often jump from topic to topic, especially when becoming excited or confused. Their lack of eye contact and

inattention also serves as problematic. Regardless of the situation, a lack of attentive listening and eye contact can cause problems in the classroom, in social situations, and, later, in a possible work environment (McCabe-Odri, 2011). Appropriate play behaviors is also an area in which children with autism spectrum disorder struggle to meet social norms.  Often times, these children will demonstrate stereotypical or self-stimulatory behaviors with play objects or when approaching another peer to engage in play, a child with autism may hit their peer or take their peer's toy from them. Approaching others and playing appropriately is vital, especially for children of a young age (preschool) and will serve as the basis for understanding how and why these children should be concerned with appropriate peer interaction (McCabe-Odri, 2011).

Peer-Tutoring

Appropriate social skill development and academic success of children go hand in hand. Impairments in the area of social skills not only impact academics, but also play a role in negative interactions with peers, family, and the world, and are undoubtedly the most troubling, pervasive, and difficult (Kyong-Mee Chung, 2007). Peer-mediated social skills' training has been one type of intervention having a positive affect on autistic children's social skill development.  Research has shown attending and commenting skills to peers, play and conversation skills, and social interaction has increased with the implementation of these types of interventions (ASAT ONLINE).  In a study conducted by Krebs, McDaniel, and Neeley, (2010) the impact of peer-assisted intervention on specific social skills of children with Autism Spectrum Disorder was measured. Peers were trained to model maintaining eye contact, close proximity, initiating conversation, and staying on topic (2010).  Two children, ages 9 and 10, initially diagnosed with ASD

at young ages were used for the study.  Four typically developing children between the

ages of 8 years, 11 months and 9 years, 11 months were chosen as their counterparts.

There were three males and one female.  The study was completed in a private therapy

room with age appropriate toys.  Baseline was taken during 3 sessions, which lasted over

a one-week period and each lasted between 20 and 40 minutes. The children with ASD

and their peers were placed together in the therapy room with the age appropriate toys

and games. They were told they were attending "social groups" because this was the term

they associated with playing with other children (Krebs, McDaniel, & Neeley, 2010).

The typically developing peers were trained simultaneously. Their communication styles

were discussed and the principle investigator (PI) performed role-playing activities with

the students to demonstrate proper and improper communication.  The students and PI

decided to use a specific signal to prompt the peer to produce targeted behaviors. At the

beginning of each new session, the students and PI reviewed previously learned social

behaviors and then introduced the new behavior.  Students continued to work in group

activities modeling the target behaviors and weren't allowed to move to interaction with

the students with ASD until they achieved an 85% accuracy rate.   Krebs, McDaniel, and

Neeley found that during baseline, the participants demonstrated the target behaviors less

than 20% of the time during each session (2010).  Upon implementation of peer

interaction through prompting, Krebs, McDaniel, and Neeley found both subjects

significantly increased the target behaviors by the fourth probe session (2010).   The two

participants with ASD had the most improvement in maintenance of topic, which

suggests that even when peers do not teach specific behaviors, social interaction with

them can affect other behaviors as well (Krebs, McDaniel, & Neeley, 2010).

Petursdottir, McComas, McMaster, and Horner (2007) conducted a similar study in order to "explore the effects of scripted peer tutoring in reading activities, with and without programmed common play-related stimuli, on social interactions between a young student with ASD and his typically developing peer tutors during free play that followed peer tutoring" (P.353-354). However, their study did not end up with the same results. Their goal was to generate stimulus components that were occurring in both the training sessions and general play sessions. The subject was a five-year-old boy diagnosed with Autism Spectrum Disorder, who demonstrated normal academic skills but rarely participated in social interactions with his peers. Three typically developing peers were chosen; all were five-year-old boys and had never interacted with the child with ASD. During peer tutoring, Petursdottir et al. used worksheets from K-PALS and had toys available that had 20 pieces, which needed to be put together, and were available during their free-play time (2007). The free play times were no longer than 20 minutes and they immediately followed the reading sessions, which occurred about twice a week. The frequency of social interaction was assessed using event recording. Petursdottir et al. defined social interaction as any verbal utterance between the child with ASD and the typically developing peers. The first sessions consisted of baseline and sessions thereafter consisted of straight scripted peer tutoring and scripted peer tutoring with common stimuli. Baseline sessions occurred directly after reading sessions for 20 minutes without the child with ASD having been paired with a specific target peer for reading activities; Scripted Peer Tutoring sessions also followed reading activities with 20 minutes allotted for free play but the child with ASD was paired with a specific target peer during those reading activities; and Scripted Peer Tutoring with Common Stimuli is basically the same

as scripted peer tutoring, however, during reading sessions play-related stimuli was programmed into the reading activities (Petursdottir, Mccomas, Mcmaster, & Horner, 2007). Peer tutoring consisted of the participants taking turns being the tutor or reader. As the tutor, the child verbally prompted the readers to identify sounds and read words. They also gave praise for every five to ten sounds read correctly and they corrected errors. "During this session each student engaged in 30 to 60 interactions, either as the reader or tutor" (P.354). The staff running the sessions also prompted when students became off-task or uncooperative. They rewarded the students for on task and cooperative behaviors with points. The results of this study did not appear to be what was expected. Petursdottir et al. found that engaging in scripted interactions during the reading sessions did not increase social interactions between the typically developing peers and the child with ASD (2007). It was only when the common play-related stimuli were introduced during those reading sessions and were readily available during free play after the reading sessions that the child with ASD increased his social interactions with the typically developing peers regardless of whether he was paired with a specific target peer or not. However, once taken away, verbal interactions were not maintained from academic to free play setting.

In a third study of peer tutoring techniques, Kelle M. Laushey and L. Juane Heflin (2000) used a multiple peer technique to try to enhance social skills of children with Autism Spectrum Disorder (ASD). Laushey and Heflin chose two separate kindergarten classes, which held between 20 and 25 students, one teacher, and two paraprofessionals who worked one-on-one with the child with ASD for the time being (2000). The subjects consisted of two boys, age five, and diagnosed with Autism Spectrum Disorder or

Pervasive Developmental Disorder, Not Otherwise Specified (PDD-NOS). Both boys

performed to the best of their abilities in such areas as math, reading, fine motor, and

verbal requests. They did, however, demonstrate difficulties in maintaining eye contact,

turn taking, reading social cues, engaging in conversations, and waiting for another peers

response (Laushey & Heflin, 2000). The goal of Laushey and Heflin was to implement a

peer tutor-training program in the form of a buddy system to try and enhance the

students' diagnosed with ASD or PDD-NOS social skills. They used a reversal design to

assess the effects on the percentage of appropriate social skills. The study consisted of

two treatment phases. In the first phase, the "buddy system" was implemented during

free play for all students in both classes. Once back to baseline, the system was removed

and returned to the passive proximity peer tutoring condition. During the second

treatment phase, the system was once again put into place. In order to implement the

buddy system type of intervention, the training sessions consisted of six steps to be

followed. In the first step, the trainer talks about how everyone is alike and different.

S/he will bring up the teacher and has the students name likes and differences between

the two of them (Laushey & Heflin, 2000). The second step in the training consists of the

trainer explaining how everyone is alike and different in other areas besides looks. The

trainer will tell the students five things about themselves and so will the teacher. The

students again are asked to think about those things and name likes and differences

according those ten things they were told about the trainer and the teacher. The trainer

reminds students about how we choose our friends explaining most are similar to

ourselves and like to do the same things, but it is also fun to choose friends that are

different from us because we learn new things (Laushey & Heflin, 2000). In the third

step, the trainer discusses the new "buddy system" and how it will help them play with many different friends. The trainer also explains not all children play the same way. During step four, the trainer introduces the buddy chart and how it works. In step five, the trainer explains the three rules to being a good buddy and what each rule means. They are:

>*Stay with your buddy- playing in the same area, taking turns in order to stay together;*
>
>*Play with your buddy-sharing the same toys and games, joining the activity their buddy is playing, bringing a toy to their buddy, and asking if their buddy wants to play a specific activity;*
>
>*Talk to your buddy-talking to your buddy about what you're playing with, talking while playing pretend games, and always keep trying to talk to your buddy.*
>
>(Laushey & Heflin, 2000)

Lastly, in step six, the trainer explains that each buddy group that follows the three rules will get their names in a box and at the end of the day the teacher will pull a buddy pair from the box for a special prize (Laushey & Heflin, 2000). Laushey and Heflin described the behaviors being assessed during data collection as "asking for an object and responding according to the answer given, appropriately getting the attention of another, waiting for their turn, and looking at or in the direction of another person who is speaking to them". Results suggested the buddy system intervention was effective in not only enhancing each students' social skill interactions but also in generalization because of the multiple peer interaction. In a follow up study of one of the students with ASD/PDD-

NOS, the buddy system was not being utilized, but the student had maintained his new skills and generalized them to his new first grade environment.

A study conducted by William D. Frea, Christena Blauvelt Harper, and Jennifer B. G. Symon (2007) peers were used to increase the social skill interaction between autistic children and their typical peers during a recess/free play time of the day. Frea et al noted in their research, children with autism have inappropriate play skills, less functional play acts, play with toys less than their peers, and lack the imitation skills desired in a free play or recess setting (2007). It was also noted, autistic children tend to avoid most social interaction with their peers at a young age and if not properly addressed will do so as they grow in age (Frea, Harper, & Symon, 2007).

For this study, Frea et al. chose two third grade students who were fully included into a general education setting (2007). They were both boys between the ages of 8 and 9 with an autism diagnosis. The children chosen as peer trainers were classmates of the two inclusion students also between the ages of 8 and 9 years old. There were four girls and two boys "with a ratio of two peers to one participant and two alternates" (Frea, Harper, & Symon, 2007). Frea et al. conducted the study in the classroom and on the recess playground using materials appropriate for each setting (2007). Baseline was taken during a normal recess period with 10-min intervals for 13 days with one inclusion student and 18 days with the other inclusion student. Next, the authors conducted their peer training sessions, which were 20 minutes a day for seven straight school days. The first five days were in the classroom using strategies from a program called Pivotal Response Training (PRT) (Frea, Harper, & Symon, 2007). Frea et al. used five strategies during the five-day period, which were reinforced on the last two days set on the

playground (2007).  The five strategies included:

*Gaining attention*

*Varying Activities*

*Narrating Play*

*Reinforcing Attempts*

*Turn-Taking*

(Frea, Harper, & Symon, 2007)

During the intervention, the authors composed the groups of two typical peer trainers and one inclusion student.  The typical peers were asked to review the strategies before they were sent out to play and were given cue cards that also helped remind them of each strategy (Frea, Harper, & Symon, 2007).  Once the intervention phase was complete, a generalization phase was conducted for 5 days on the playground with 10-minute intervals (Frea, Harper, & Symon, 2007).  After analyzing data, Frea et al reported the data suggests an improvement in social peer interactions during the recess period (2007).  Both inclusion students were also able to maintain their newly developed skills as well.  These results show interventions implemented by peers after being trained, were effective at improving social skill interaction between inclusion students and their typical peers during a free play or recess setting (Frea, Harper, & Symon, 2007).

Peer Video Modeling

In an article written by Christine Ogilvie (2011), a step-by-step guide to peer video modeling is discussed along with its effects on social skills development of children with Autism Spectrum Disorder.  Ogilvie discusses the endorsement of this practice by the Council for Exceptional Children and sites the definition as being a

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"practice that involves demonstrating desired behaviors and role-playing through video imaging" (P.20).  She also discusses the four types of video modeling that can be used in the teaching of appropriate social skills.  They are as follows:

> *Video Prompting: showing a video clip of one step of a task and then allowing the student to mimic/complete that step before the next one is shown.*
>
> *In-vivo Modeling: traditional role-playing.*
>
> *Video Modeling: creating a video of someone performing a target behavior and then showing the video to a student and prompting him/her to engage in the behavior.*
>
> *Video Self-Modeling: the video features the target student performing the desired correct behavior.*
>
> (Ogilvie, 2011)

The benefits of video modeling are overwhelming and over the years have proven to be increasingly effective, especially when combined with peer mentoring, involving the peer in the video.  Ogilvie discusses the benefits of video modeling as being the ability to gain new skills, increase generalization, building on existing skills, and promoting self-awareness.   Video modeling is also a good strategy to use to decrease the amount of stimulus over-selectivity a student with ASD might be having.  Students with ASD have a tendency to be drawn to the TV or computer screen and become very immersed in repeating lines over and over again.  Naturally, this type of addition to social skills training becomes a favored activity for students with ASD.  Video modeling takes the student's with ASD strengths of observational learning and ability to imitate and uses it to their advantage.  Ogilvie mentions Temple Grandin, an author with ASD, and her

notation of the differences of being told what a behavior is compared to actually seeing it. There are ten steps in creating effective videos using peer models to teach appropriate social skills to students with Autism Spectrum disorder.  In step one, the teacher or videographer must identify the target behavior.  They must be specific as to what behavior is either being introduced or adapted.  The second step is to take baseline data. Data can be easy and quick.  The best and simplest way of collecting data is an Antecedent, Behavior, and Consequence (ABC) chart.  The third step is finding the right kind of peers for the video.  Peer models should be in the classroom with the student diagnosed with ASD and should be willing to cooperate and follow directions.  The fourth step is to get permission from all students' parents.  The fifth step is to prepare your peer models.  Skills being modeled on the video should be explained and practiced using role-play methods.  In the sixth step, the teacher/videographer should prepare the area where filming will occur.  The skill should be filmed in the area where it will be most utilized.  The seventh step is creating the video.  Always remember simple is best because of the lack of attention of the student with ASD.  The eighth step is actually implementing the peer model video intervention.  Ogilvie breaks the implementation of the intervention down into five steps.

They are:

> *Introduce the new skill to the student and peer mentor*
>
> *Review the steps of the skill*
>
> *Show the video model to the student and peer mentor*
>
> *Have the student practice with his/her peer mentor*
>
> *Review the steps of the skill*

The ninth and tenth steps involve data collection and assessment. Ogilvie has found in her research and interviews, the more the student with ASD watches and practices with peer mentors, the better their social skill development will become and the better they will be at generalizing skills across the board (2011).

In a review of 19 studies of video modeling interventions for students with Autism, peer video modeling seemed to be the most prevalent amongst that specific category of interventions. The studies reviewed "other as model" meaning peer or adult models on the video intervention or self-video modeling where the student was videotaped demonstrating the target behavior(s) (Delano, 2007). The target behaviors were described as being social-communicative, functional living skills, answering perspective-taking questions, and challenging behaviors (aggression, tantrums) (Delano, 2007). The subjects consisted mainly of males, 48 to be exact, and had very little females, only seven; all diagnosed with Autism Spectrum Disorder. Results suggest that there were positive gains in the targeted behaviors associated with video modeling (Delano, 2007). However, Delano reports five out of the 19 studies reviewed had mixed reports stating several reasons for why there were not positive gains. Researchers suggest video modeling should be combined with another type of intervention to support those positive gains (Delano, 2007). Delano reports other researchers suggest the students individual characteristics may have something to do with the lack of positive gains in social interactions (2007). Maintenance and generalization were also assessed in the review of the 19 studies and were found to have promising results. Most of the participants were able to maintain and generalize the newly acquired skills across many

other areas suggesting video modeling is positive intervention in the development of appropriate social skills (Delano, 2007).

The majority of research shows both peer tutoring/mentoring and peer video modeling to be effective forms of social skills intervention. While most of the studies goals have been of decreasing inappropriate social behaviors, peer tutoring/mentoring and video modeling have proven to work when attempting to teach appropriate behaviors in their place. Although this research provides positive feedback of both interventions, as they stand alone, are they better used in conjunction with each other? By identifying the benefits of both interventions used together, educators can make more informed decisions when attempting to change the social skill habits of their students.

**Chapter 3**

**Methodology**

<u>Subjects</u>

This study compared the effectiveness of peer video modeling and peer tutoring for decreasing inappropriate conversational behaviors of nonexistent or inappropriate verbal communication and lack of eye contact in students with Autism Spectrum Disorder.

This study focused on three of the twenty students in an inclusionary prekindergarten private school classroom, containing typical students as well as students with Autism Spectrum Disorder.  The private preschool consists of nursery-aged students through kindergarten-aged students from all parts of the surrounding school district.

The three students chosen for this study were from the inclusion prekindergarten classroom of 20 students (9 inclusion, 11 typical) in a private preschool, and were classified as "PDD-NOS" and "autistic". They were chosen for this study based on teacher accessibility and the presence of the target behavior.  A certified special education teacher, a general education teacher, and three shadows or 1:1 aides taught the classroom.  Two of the students remained in the classroom for the morning session, rest, and lunch, but were then placed in the "zones" setting for discrete trial teaching (DTT) for the afternoon session.  The other student was in the "zones" setting for the morning session, moved into the classroom for rest and

lunch, and then remained in the classroom for the afternoon session. All three of the children were accompanied by the "shadow" or 1:1 aide throughout the day, excluding rest and lunch periods.

Student A is one of the oldest in the classroom at age 5 years, 2 months. He is currently working on word picture matching of his peers, patterns, sight words, answering "wh" questions, first-next-last (receptive), categorizing objects, and conversation skills. He is also working on ten two-step directions, retelling a story presented with props, listening to a story and answering questions about the story and the Edmark Reading program. Student A is capable of following directions given by a peer and listening to a story and turning pages at the appropriate time. His strengths are found in gross motor activities. He can also identify all of his letters, upper and lower case, and their sounds, colors, and numbers. He can rote count to 30 independently, sequence pictures, identify what is missing form a field of items, and can use the correct pronoun when asked various questions. He has weaknesses in reciprocal conversation, making eye contact when addressing or being addressed, pretend play activities, and following one-step directions without bolting. He also perseverates on specific toys or people, seeking attention where he can get it.

Student B is at about the average age of the children in the classroom; he is 4 years, 5 months old. He is currently working on cutting, tracing, prewriting skills, appropriate play activities, listening and repeating sentences given by the instructor, show and tell, calendar skills, listening and identifying sounds, retelling a story appropriate to age level, and pretending with his peers. His strengths are in following one-step directions, gross motor activities, sequencing, identifying

emotions and items missing from a field of objects, identifying an items function, colors, and rote counting to 20 independently.  His weaknesses fall in peer interaction, reciprocal conversation and making eye contact when addressing or being addressed.   He also has difficulty attending to stories, circle time, and at transitions.  He does not play with toys appropriately or share with his peers.  He chooses to engage in self-stimulatory behaviors over playing with his peers.  He can be very non-compliant when asked to do things, especially if he has been redirected from any self-stimulatory behavior or perseveration.

Student C is also around the average age of the children in the classroom; he is 4 years 7 months.  He is currently working on cutting and tracing and has progressed from the beginner level to the intermediate level since September.  He has strengths in identifying his numbers, colors, shapes, peers, and staff.  He has weaknesses in reciprocal conversation, making eye contact when addressing or being addressed by someone, and using appropriate tone and verbal responses when addressing or being addressed by someone.

Table 1. Student descriptions (research participants)

| Student | Gender | Age | Grade | Classification | Characteristics |
|---------|--------|-----|-------|----------------|-----------------|
| A | Male | 5y 2m | Pre-K | Autistic/PDD-NOS | Self-Stimulatory Behaviors, Perseveration, Bolting |
| B | Male | 4y 5m | Pre-K | Autistic | Self-Stimulatory Behaviors, Perseveration, Non-compliance, Refusal to follow directions or answer |

| Student | Gender | Age | Grade | Classification | Characteristics |
|---------|--------|-----|-------|----------------|-----------------|
| C | Male | 4y 7m | Pre-K | Autistic/PDD-NOS | Screaming, Inappropriate Verbal, Perseveration, Self-Stimulatory Behaviors |

These children were chosen based on specific criteria: they all exhibited the same target behavior(s) identified, have access to an iPad and are able to attend to videos being presented on it, the target behavior(s) in question were treated but unsuccessfully changed, and the target behavior(s) were exhibited several times throughout the school day.

**Target Behavior**: All of three of the students did not make eye contact and made inappropriate verbal responses (tone or comment itself) when being addressed.  In student A, the behavior was noticeable in the form of repetitive perseveration of specific words or phrases.  He repeated the peer's or teacher's name, wanting the bus/train, or saying he was tired. In student B, the behavior was noticeable in the form of complete silence and avoidance, which seemed to occur when the child was engaged in self-stimulatory behavior or being asked to share.  In student C, the behavior was noticeable in the form of avoidance or commands.  He almost always avoided making eye contact, told his peer(s) "NO", and gave them a command/order in return.

Table 2. Student descriptions (typical peers)

| Student | Gender | Age | Grade | Classification | Characteristics |
|---------|--------|-----|-------|----------------|-----------------|
| A | Male | 5y 2m | Pre-K | Typical | Outgoing, Top of the class with academics, Great communication skills, Competitive |

| Student | Gender | Age | Grade | Classification | Characteristics |
|---------|--------|-----|-------|----------------|-----------------|
| B | Male | 4y 10m | Pre-K | Typical | Self-Sufficient, Outgoing, Helpful, Has an Autistic brother in same class, Never gives up |
| C | Female | 5y 7m | Pre-K | Typical | Outgoing, Always willing to help, Great communication skills, Liked by most, if not all, of her peers |

Typically developing children were chosen based on specific criteria: they all work very hard at completing tasks to the best of their ability, are able to attend to directions being presented, are willing to follow those directions, and are well liked and are attended to by their inclusion peers.

Development of Interventions and Materials

As in the Laushey and Heflin study outlined in Chapter 2 (2000), a similar buddy system was created in order to implement the peer tutoring intervention. The class was presented with a new buddy chart for any types of free play or downtime outside or inside. It was explained to the students that over the next few weeks in order for everyone to get a chance to play with all of our peers, they were going to be assigned a weekly buddy and every day the teacher would remind them of their buddies. It was also explained that everyone had to stay with their buddy, play with their buddy, and talk to their buddy and whoever did the best job the whole week would get to pick out of the Treasure Chest of Dreams.

The peer tutoring sessions were developed in a similar fashion as the Krebs, McDaniel, and Neeley study, which was outlined in Chapter 2 (2010). Two of the three chosen typical peers, B and C, were pulled for training a total of three days, twice a day

for fifteen minutes each session.  Students discussed appropriate and inappropriate communication skills and how we are nice to their peers.  For example, when asked, *"If I asked you a question, would ignoring me or giving me an answer show the right way to communicate?"* or when asked, *"If I wanted the toy you were playing with should I just take it from your hands or should I ask nicely to show I'm a good friend?"*  This gave the peers the opportunity to give or demonstrate the appropriate ways to communicate with their peers.  During each session, the two engaged in free play activities using role-playing as they reviewed learned social behaviors and were introduced to new behaviors.  They also discussed and used key words as prompts so that their peer would produce the desired appropriate communication skill.  For example, if they are trying to get their peer's attention simply by using their name but having no luck, they might also combine it with a word or phrase such as "look" or "look at me".

During the video-modeling phase of intervention, videos using typical peer models demonstrating appropriate communication skills and behavior was used.  Narration of each scene explaining what the peers were doing was also used to help explain what their focus should be on.  Typical peers A and C (from the above table) were used to capture the expected, appropriate behavior and because they are more of a preference to their inclusion peers who are more likely to attend to them specifically on video.

The following materials were used throughout the research process to ensure a thorough completion:

Table 3. Materials and Purpose

| Material | Purpose |
|---|---|
| Six Peer Tutoring Sessions | To provide appropriate preparation and proficiency with target behaviors for Peer Tutors |
| Two samples of video models | One for each student receiving peer video modeling intervention |
| iPad 2 | To record the models |
| Typically developing peers | To provide appropriate peer modeling throughout the video |
| Weekly Buddy Chart | To implement with students so that all are included |

Procedure

This study followed a single subject baseline design. Student social behavior was recorded over a period of three days (baseline). The researcher tallied the number of times each target behavior occurred during a free play session, while the student was included in the Pre-K classroom, which totaled 20 minutes a day. When referencing "occurrences", for student A they were defined as any lack of eye contact when being addressed and perseveration of specific words or phrases. For student B, they were defined as any lack of eye contact when being addressed and complete avoidance of a response. For student C, they were defined as any lack of eye contact when being addressed and avoidance of response or commands to peers.

Student A received the peer video modeling intervention by viewing a video of appropriate behavior and communication skills, student B received the peer tutoring intervention by engaging in free play activities with a peer trained in appropriate target behaviors, and student C received both the peer video modeling intervention and peer

tutoring intervention, viewing a video of appropriate behavior and communication skills

and engaging in free play activities with a trained peer. Data was take over a period of

five days and was tallied at the end of each free play session. After the five-day

intervention period, research was completed by a maintenance period, which was

conducted one week after the intervention period and lasted 2 days (see table 4).

Table 4. Research Phases

|  | Baseline | Intervention (five days) | Maintenance |
|---|---|---|---|
| Student A | Five days | Peer Video Modeling | 1 week later, 2 days |
| Student B | Five days | Peer Tutoring | 1 week later, 2 days |
| Student C | Five days | Peer Video Modeling & Peer Tutoring | 1 week later, 2 days |

All data are presented in narrative and graph form. Recommendations and

analyses are provided, as well as suggestions of possible changes to research. Additional

questions to be answered by this study were: Do these types of interventions work to

decrease the inappropriate behavior in children with autism spectrum disorder? If they

are successful in decreasing inappropriate social behavior, does one intervention decrease

the behavior more quickly and efficiently or are both combined more efficient and

quicker?

# Chapter 4

## Results

Summary

In this experimental, single subject, multiple baseline design study, three students, labeled "autistic" or "PDD-NOS", placed in an inclusion preschool classroom were chosen because of the display of inappropriate social behaviors. The research question to be answered was:

> When using peer video modeling and peer tutoring/mentoring, which of these interventions proves most effective in replacing the inappropriate behaviors of lack of eye contact and nonexistent or inappropriate verbal responses, with appropriate behaviors in preschool age students with Autism Spectrum Disorder?

In the case of these students, the inappropriate behaviors were noticeable in the form of repetitive perseveration in Student A, complete silence and avoidance in Student B, and avoidance or peer commands in Student C. The study consisted of a baseline period, intervention period, and maintenance period at the conclusion of the study. During the intervention period, each student worked with a different intervention. For example, Student A was working with the video modeling intervention, Student B was working with the Peer Tutoring intervention, and Student C was working with both. The total number of occurrences were tallied for each period, and presented in graph form.

Results

All results will be displayed in a line graph format. The numbers provided are the total number of behavior occurrences during one, twenty-minute free play session in a

three-hour school day. Data was not collected during the time the student was present in the zones classroom, lunch, or circle time.

Table 5. Student A data

| Student A | | | |
|---|---|---|---|
| | Lack of Eye Contact | Inappropriate Verbal Response | No Response |
| Baseline Day 1 | 9 | 21 | 2 |
| Baseline Day 2 | 9 | 20 | 1 |
| Baseline Day 3 | 12 | 15 | 3 |
| Intervention Day 1 | 12 | 15 | 0 |
| Intervention Day 2 | 9 | 15 | 0 |
| Intervention Day 3 | 7 | 13 | 0 |
| Intervention Day 4 | 5 | 13 | 1 |
| Intervention Day 5 | 5 | 10 | 0 |
| Maintenance Day 1 | 3 | 8 | 0 |
| Maintenance Day 2 | 4 | 8 | 0 |

During the baseline data collection period, Student A performed a considerable amount of two of the three target behaviors. A range of 9 to 12 for lack of eye contact occurred during the twenty-minute free play session, averaging 10 occurrences across the five-day collection period. A range of 15 to 21 inappropriate verbal responses also occurred during the same free play session, averaging 18.7 occurrences across the five-

day collection period. Student A also had a range of 1 to 3 avoidances or no response at all during the twenty-minute free play session, averaging 2 occurrences across the five day collection period. During the intervention period, which for this student was Peer Video Modeling, the numbers for each target behavior dropped considerably.  The number of occurrences for lack of eye contact per day dropped to a range of 5 to 12, averaging 7.6 across the five day collection period; the number of occurrences for inappropriate verbal responses dropped to a range of 10 to 15, averaging 13.2 across the five day collection period; and the number of occurrences for avoidance or no response dropped to a range of 0 to 1, averaging 0.2 across the five-day collection period. During the maintenance period, lack of eye contact occurrences were 3 and 4, averaging 3.5 for the two day period, inappropriate verbal response occurrences were 8 both days, also averaging 8 for the two day period, and avoidance or no response occurrences were 0 for both days, also averaging 0 for the two day period.  This maintenance period showed a significant decrease from the previous data collection periods.
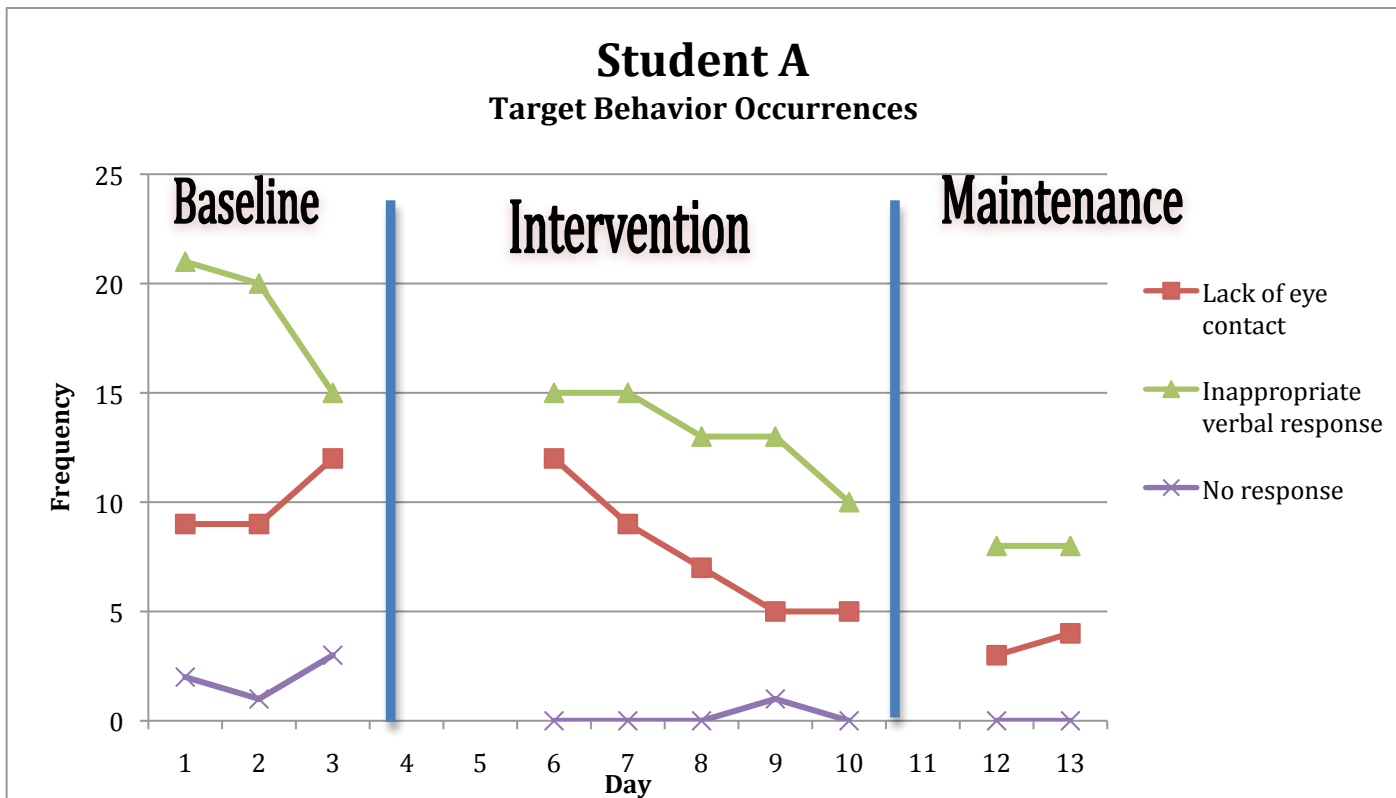
Figure 1. Student A Target Behavior Occurrences

Table 6. Student B data

| Student B | | | |
|---|---|---|---|
| | **Lack of Eye Contact** | **Inappropriate Verbal Response** | **No Response** |
| **Baseline Day 1** | 35 | 5 | 19 |
| **Baseline Day 2** | 32 | 5 | 20 |
| **Baseline Day 3** | 38 | 3 | 20 |
| **Intervention Day 1** | 32 | 5 | 18 |
| **Intervention Day 2** | 30 | 3 | 21 |
| **Intervention Day 3** | 25 | 2 | 18 |
| **Intervention Day 4** | 23 | 2 | 15 |
| **Intervention Day 5** | 25 | 1 | 13 |
| **Maintenance Day 1** | 23 | 1 | 10 |
| **Maintenance Day 2** | 20 | 1 | 12 |

Student B displayed a range of 32 to 38 for lack of eye contact occurrences, averaging 35 occurrences across the three-day baseline data collection period. He displayed a range of 3-5 inappropriate verbal response occurrences, averaging 4.3 occurrences across the three-day baseline data collection period and also showed a range of 19 to 20 avoidance or non-response occurrences, averaging 19.7 occurrences across the three-day baseline data collection period. During the intervention period, which for this student was Peer Tutoring, the student showed a significant decrease in lack of eye

contact, with a range of 23 to 32, averaging 27 occurrences during the five-day data

collection period. He also showed a decrease in the number of inappropriate verbal

response occurrences and the number of avoidance or no response occurrences, with

ranges of 1 to 5 for inappropriate verbal responses, averaging 2.6 occurrences and 13-21

for avoidance or no responses, averaging 17 occurrences across the five day data

collection period. The total amount of each target behavior during the two day

maintenance period slightly brought more change, with a total of 23 and 20 occurrences

for lack of eye contact over the two days, averaging 21.5 incidences, 1 and 1 occurrences

for inappropriate verbal responses over the two days, averaging 1 incidence, and 10 and

12 occurrences for avoidance or no response over the two days, averaging 11 incidences

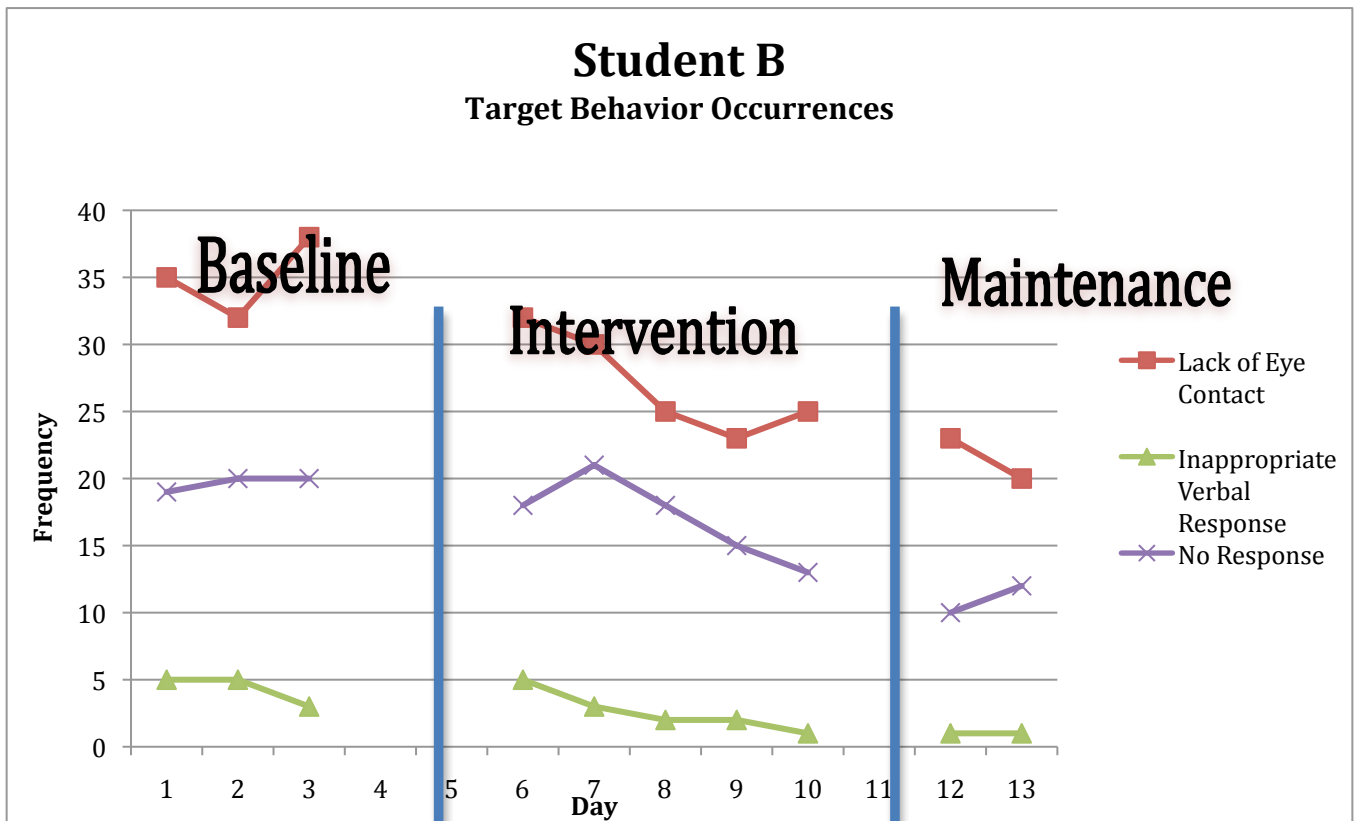during the maintenance period.



Figure 2. Student B Target Behavior Occurrences

Table 7. Student C data

| Student C | | | |
|---|---|---|---|
| | Lack of Eye Contact | Inappropriate Verbal Response | No Response |
| Baseline Day 1 | 20 | 28 | 2 |
| Baseline Day 2 | 25 | 22 | 2 |
| Baseline Day 3 | 15 | 25 | 5 |
| Intervention Day 1 | 13 | 20 | 2 |
| Intervention Day 2 | 11 | 20 | 3 |
| Intervention Day 3 | 11 | 18 | 2 |
| Intervention Day 4 | 8 | 12 | 2 |
| Intervention Day 5 | 8 | 10 | 1 |
| Maintenance Day 1 | 8 | 10 | 1 |
| Maintenance Day 2 | 6 | 8 | 0 |

During the baseline data collection period, Student C also performed a considerable amount of the three target behaviors.  A range of 15 to 20 for lack of eye contact occurred during the twenty-minute free play session, averaging 20 occurrences across the five-day collection period.  A range of 22 to 28 inappropriate verbal responses occurred during the same free play session, averaging 25 occurrences across the five-day collection period. Student C also had a range of 2 to 5 avoidances or no response at all during the twenty-minute free play session, averaging 3 occurrences across the five-day collection period. During the intervention period, which for this student was both Peer

Video Modeling and Peer Tutoring, the numbers for each target behavior dropped

considerably. The number of occurrences for lack of eye contact per day dropped to a

range of 8 to 13, averaging 10.2 across the five day collection period; the number of

occurrences for inappropriate verbal responses dropped to a range of 10 to 20, averaging

16 across the five day collection period; and the number of occurrences for avoidance or

no response dropped to a range of 1 to 3, averaging 2 across the five day collection

period. During the maintenance period, lack of eye contact occurrences were 8 and 6,

averaging 7 for the two day period, inappropriate verbal response occurrences were 10

and 8, averaging 9 for the two day period, and avoidance or no response occurrences

were 1 and 0, averaging 0.5 for the two day period. This maintenance period showed a

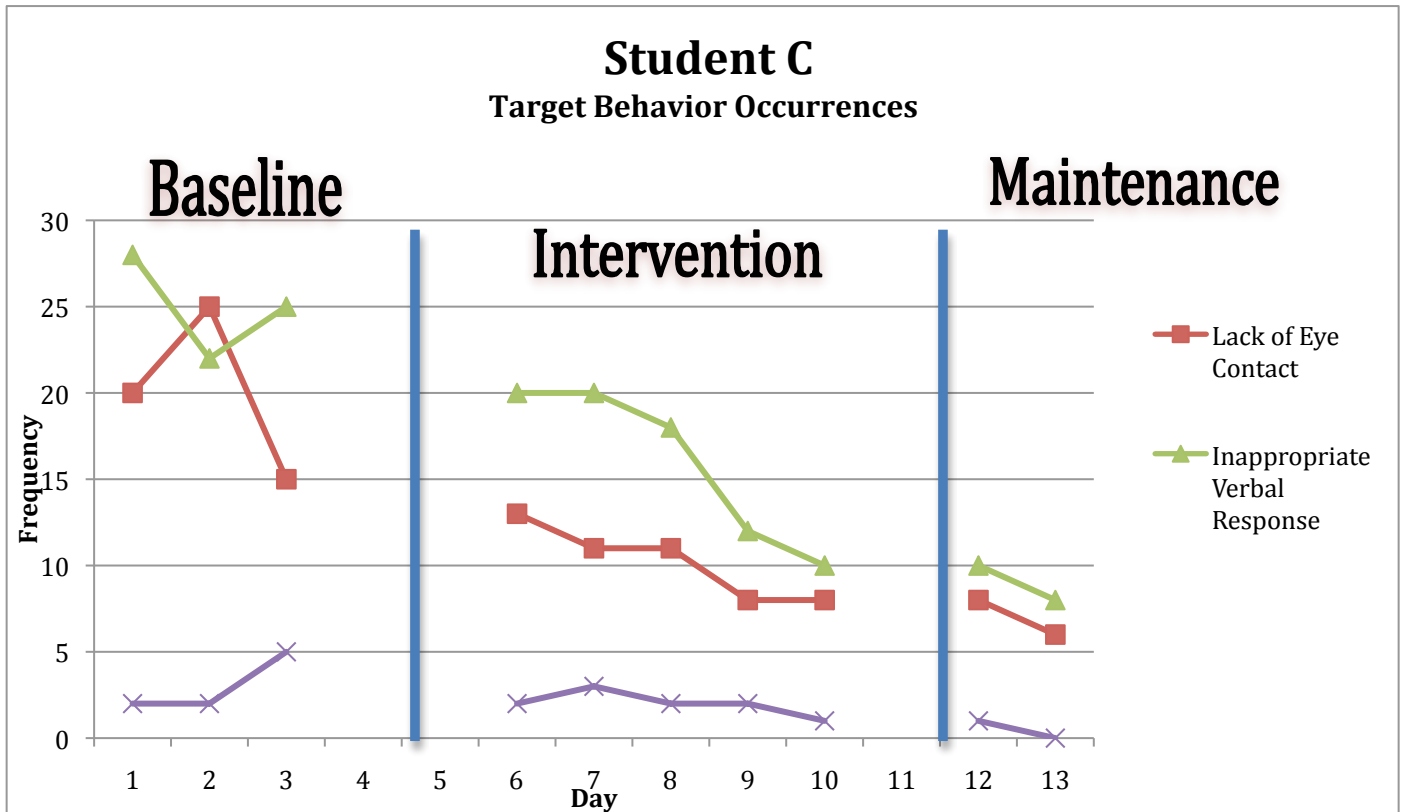significant decrease from the previous data collection periods.



Figure 3. Student C Target Behavior Occurrences

For Student A, the peer video model was presented an equal number of times. The video was approximately one minute in length and was presented at each five-minute interval mark for the twenty-minute free play session, which made a total of four viewings. As the target behaviors decreased, the number of viewings also decreased. For Student B, his peer tutor was paired with him for the entire twenty-minute free play session. As the number of target behaviors decreased, the peer tutor decreased the number of prompts given to Student B. Student C was also paired with his peer tutor for the same length of time, totaling four viewings, as well as being presented with the peer video model for one minute at every five-minute interval of the twenty-minute free play session. Again, as Student C's number of target behaviors started to decrease, so did the number of peer video model viewings and the number of prompts given by the peer tutor.

**Chapter 5**

**Discussion**

<u>Review</u>

In this study, the effectiveness of peer video modeling and peer tutoring was compared when attempting to decrease inappropriate behaviors in students with autism spectrum disorder. Three students were chosen from an inclusionary prekindergarten classroom because of similar inappropriate social behavior, specifically lack of eye contact, inappropriate verbal responses, or avoidance/no response at all. The five-day intervention data collection period was presented after a baseline collection period, which lasted three days. Student A was presented with the peer video modeling intervention, Student B was presented with the peer tutoring intervention, and Student C was presented with both interventions. Two weeks after the study, data was collected during a two-day maintenance period to assess lasting effects of the interventions.

Because of research presented in Chapter Two, it was expected that both peer video modeling and peer tutoring would prove to be effective methods of intervention for all students. The baseline collection period showed all students exhibiting a high number of occurrences of the target behaviors. Occurrences of the target behavior decreased during the intervention period and either continued to decrease or remained the same during the maintenance period. However, the question to be answered was not if the two interventions were effective, but rather were they more effective individually or combined.

As stated in Chapter One, it was hypothesized that combining the two interventions, peer video modeling and peer tutoring, would be a more effective method

for decreasing inappropriate social behaviors than each intervention on its own. In this study, that did not seem to be the case. While both interventions were effective individually and together, the amount of occurrences of all three target behaviors displayed by Student B during the peer tutoring intervention decreased to an average of 74% of the baseline. For Students A and C, the amount of occurrences of all three target behaviors displayed during peer video modeling (A) and both combined (C) decreased to an average of 52% (A) and 61% (C) of the baseline. This data suggests that although combining both peer video modeling and peer tutoring or implementing alone can be effective for other children, the use of Peer Tutoring may be more efficient and successful when attempting to decrease instances of inappropriate social behavior.

Previous research (Delano, 2007; Frea, Harper, & Symon, 2007; Heflin & Laushey, 2000; Krebs, McDaniel, & Neeley, 2010; Kyong-Mee Chung, 2007; Petursdottir, Mccomas, Mcmaster, & Horner, 2007) has found that both peer video modeling and peer tutoring proved to be effective methods of intervention for all students. In the study conducted by Frea, Harper, and Symon (2007), typical peers were used to initiate and maintain play with autistic peers. The typical students were taught strategies to use during play so the target participants inappropriate social behavior would decrease. This study was similar to the current study in that the typical peers were taught ways to prompt and redirect their autistic peer in order to decrease the target behaviors. The difference is that only one type of strategy was utilized in doing so. However, the goal of the study conducted by Frea, Harper, and Symon (2007) was similar to the current study. Frea et. Al (2007) wanted to increase social interactions while decreasing specific inappropriate social behavior and, just as in the current study, results indicated both target

participants did indeed improve their social interactions with typical peers as well as decrease specific inappropriate social behaviors. The studies conducted by Heflin and Laushey (2000), Krebs et. al (2010), Kyong-Mee Chung (2007), and Petursdottir et. al (2007) were all similar to the current study as well. All of these studies used typical peers to decrease specific inappropriate social behaviors. The participants were trained in specific techniques before implementing intervention to increase social interactions with their autistic peers and to decrease inappropriate social behaviors defined in each study. Results from all studies suggest peer tutoring was an effective method to not only decrease specified inappropriate behaviors but also to maintain and generalize across environments. The only difference in these studies to the current study is that one intervention was used to decrease these inappropriate behaviors.

In the study conducted by Delano (2007), adult and peer video models were used to demonstrate appropriate behaviors and reactions when it comes to social-communication, functional living skills, answering perspective-taking questions, and with challenging behaviors (aggression, tantrums). This study was similar in that peers were used to model appropriate play behaviors. The peers were trained in demonstrating initiation, appropriate verbal responses and eye contact and were then videoed for use in the implementation of the intervention. The difference from this study to the current study is the specified target behaviors. The results from the study conducted by Delano (2007) seem to compare with the results from the current study. The results seem to suggest a decrease in inappropriate behaviors, however, in both the current study and Delano's (2007) study, the question remains whether the intervention is better conducted

by itself or paired with another intervention, such as peer tutoring, to maintain and generalize across environments.

Discussion of the study

In the current study, target behavior occurrences decreased during the intervention period and maintained low numbers two weeks after the completion of the intervention. However, there are limitations that must be noted. First, in order to effectively compare the two interventions, the same type of behaviors must be observed in all participants. Due to the lack of accessibility to and number of students demonstrating the same type of behavior, this study dealt with a small group of students.

The inclusionary prekindergarten classroom in which the students were chosen contained a small number of students exhibiting the same target behaviors and the majority of these students had a limited amount of time in the classroom where the study was conducted. Therefore, a small sample size was chosen to keep consistency when measuring the specific behaviors. Second, the students' output of target behaviors were not monitored or observed when he/she was out of the classroom. While the number of incidents of the target behavior seemed to occur frequently enough in the classroom to attempt to decrease them, it is unknown how often the behavior was occurring outside the classroom in the zones teaching environment.

While the results of this study were positive, there are a few changes that could be made to enhance the conclusions. First, a larger sample size used in the study could potentially show different results. The results may or may not be the same or better, but there would be more examples to examine. Second, having three different intervention

periods and keeping the interventions the same for each student during those periods could make the data easier to analyze. For example, instead of having student A with one intervention, student B with the other, and student C with both, all students involved could be exposed to the same intervention at the same time creating three separate intervention periods. This means the first intervention period would be Peer Video Modeling for all, the second intervention period would be Peer Tutoring for all and the third intervention period, both Peer Video Modeling and Peer Tutoring would be used for all, with baseline data collection periods between each. Third, one main target behavior that seems to be the most problematic could be chosen to eliminate confusion. Fourth, using a longer research time to conduct the study may give more data with which to analyze, making any conclusions more substantial.

Conclusion

In this study, two questions were posed. First, do the interventions work to decrease specific inappropriate behavior in children with Autism Spectrum Disorder? After reviewing the data from the baseline and intervention collection periods, both interventions decreased the amount of each target behaviors occurrence to some extent. Second, the overall question in this study was: when using peer video modeling and peer tutoring, does one intervention decrease the behavior more quickly and efficiently or are both combined more efficient and quicker? According to the percentage of occurrences from the baseline to the occurrences during the intervention, it seems that in this study, Peer Tutoring was more effective in decreasing inappropriate behaviors than was Peer Video Modeling or the two combined. This statement is not to say that Peer Video

Modeling or both combined are ineffective, but that Peer Tutoring may be more efficient and successful with some students.

As with most interventions, there are pros and cons to each one specifically. Peer Video Modeling appears to be more engaging being more auditory and visual for the student. These two types of stimuli gain the student's attention and keep it for a longer period of time. It also follows the Social Learning Theory in that children learn through watching and mimicking or imitating. Peer Video Modeling offers many opportunities of repetition, which students with Autism Spectrum Disorder greatly benefit. However, with peer video modeling, there are many options in preparing the videos and it is very time consuming. Peer video modeling may also be harder to control when attempting to gear it toward specific target behaviors. Some teachers may opt for a commercial video model to save time, however, these videos are not always behavior specific. Specific equipment is also needed, which may not be accessible to some teachers.

Peer tutoring has similar pros and cons with a few added that may make it an easier decision for teachers. With this type of intervention, like peer video modeling, the student's attention is gained right away. However, the length of engagement does not appear to be as long as peer video modeling. Attention is easily redirected back to the peer because this intervention is more physical and hands on. The student is still following the social learning theory, imitating or mimicking as they watch their typical peer engaging in appropriate target behaviors. The student is able to be more interactive especially if he or she has a good relationship with their typical peer, but is also very easy for the student with ASD to avoid interaction with the peer as well. The typical peer knows the teachers expectations and is able to direct the student with ASD to also engage

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in the appropriate target behaviors. However, peer tutoring is more time consuming than peer video modeling. It takes time to pick a peer who has a rapport with the student with ASD and who is willing to follow directions and apply what the teacher has taught them. Then, the peer will need training sessions before the intervention can be implemented. Trainers of the peer also need to be on the same page and consistent with the techniques being used. It is easy to lose control of this intervention with all of the variables that go into prepping.

As for combining the two interventions together, the pros and cons are also combined. The major difference is the amount of time it takes to prepare the intervention and then implement it. A teacher has double the amount of work when deciding to implement both peer tutoring and peer video modeling simultaneously.

The decision between Peer Video Modeling, Peer Tutoring, and the combination of both is one that each teacher, parent, and administrator must make, depending on the types of students involved, the target behavior or behaviors being addressed, the time allotted for implementation, and availability of equipment. As stated before, each intervention has pros and cons to consider, as well as peer reviewed research to validate their effectiveness. This study found Peer Tutoring to be more effective and efficient than Peer Video modeling alone or Peer Video Modeling and Peer Tutoring combined when attempting to decrease inappropriate social behaviors in students with Autism Spectrum Disorder.

# References

ASAT Online. *About Autism.* Retrieved November 14, 2011, from
http://www.asatonline.org/intervention/procedures/peer.htm

Cox, A. (2004). Internet Special Education Resources. Retrieved December 19,
2011 from Teaching social skills to children with learning disabilities:
http://www.iser.com/teaching-social-skills.html.

Delano, M. (2007). Video modeling interventions for individuals with autism.
Remedial and Special Education, 33-42.

Frea, W.D., Harper, C.B., & Symon, J. B. G. (2007). Recess is time-in; Using
peers to improve social skills of children with autism. *Journal of Autism
Developmental Disorders, 38,* 815-826.

Krebs, M.L., McDaniel, M., & Neeley, R.A. (2010). The effects of peer training
on the social interactions of children with Autism Spectrum Disorders.
*Education, 131 (2),* 393-403.

Kyong, M.C., Reavis, S., Mosconi, M., Drewry, J., Matthews, T., & Tassé, M.
J. (2007). Peer-mediated social skills training program for young children
with high functioning autism. *Research in Developmental Disabilities, 28,*
423-436.

Laushey, K.M., & Heflin, L.J. (2000). Enhancing social skills of kindergarten
children with autism through the training of multiple peers as tutors.
*Journal of Autism and Developmental Disorders, 30 (3),* 183-193.

NHS Choices (2011). *Autism and Asperger Syndrome.* Retrieved December 10, 2011,
from http://www.nhs.uk/Conditions/Autistic-spectrum-
disorder/Pages/Symptoms.aspx

Ogilvie, C.R. (2011). Step by Step: Social skills instruction for students with Autism

Spectrum Disorder using video models and peer mentors. *Teaching Exceptional Children, 43 (6),* 20-26.

Petursdottir, A.L., McComas, J., & McMaster, K. (2007). The effects of scripted peer tutoring and programming common stimuli on social interactions of a student Autism Spectrum Disorder. *Journal of Applied Behavior Analysis, 40 (2),* 353-357.

Social skills. (2011). In Dictionary online. Retrieved October 10, 2011 from http://dictionary.reference.com/browse/social+skills?s=t

Watson Institute (2010). Social skills deficits. Retrieved January, 15, 2012, from http://www.thewatsoninstitute.org/resources.jsp?pageId=0690200091781087595876511