Kreative Kids Social Group:

Shaping Social Behaviors in Inclusive Preschool Settings

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CHAPTER ONE

Introduction

The number of children diagnosed with Autism Spectrum Disorder is rapidly increasing ("Autism Speaks," 2010). Simultaneously, the pool of knowledge on what this disorder entails and how best to treat it is also growing. The present report is designed to investigate a means of improving social behaviors among preschoolers with autism in inclusive environments. Providing a mainstream experience for children with special needs is a fairly new process in the evolution of the education system, and includes access to typical peers and inclusion in their daily activities (Kids Together, Inc., 2011).

The unique qualities exhibited by children with autism are readily identified by age 3, just at the age that most children begin preschool. According to the DSM-V, Autism is a pervasive, spectrum disorder, meaning it affects multiple basic functions and covers a variety of abilities. Comparison of preschoolers with autism to their typically developing peers reveals deficits in social interaction, language abilities, and imaginative play (Boutot, 2005).   Early diagnosis and treatment promotes higher levels of functioning, signifying the importance of addressing deficits as early as possible, including the preschool years ("Autism Speaks," 2010)

Previous research identifies that children with autism face many challenges in engaging in appropriate social behaviors with their typically developing peers (Boutot, 2005; Koegel, Koegel, Frea, & Fredeen, 2001). This body of work recognizes social improvements as pivotal to success in other aspects of education. Various means of interventions attempt to target the social behaviors in inclusive classrooms, and include: material selection in the environment (Anson, Todd, & Casarretto, 2008; Morrier, McGee, & Daly, 2009; Schilling & Schwartz, 2009), instructor initiated interventions (McGrath, Bosch, Sullivan, & Fuqua, 2003; Odom, Hoyson,

Jamieson, & Strain, 1985), and training peer interactions (Kohler, Strain, Hoyson, & Jamieson, 1997; Garfinkle & Schwartz, 2002). The results of studies investigating the effectiveness of these techniques demonstrate improvements in social skills of both children with autism and typically developing peers, as well as lower levels of undesirable or inappropriate behaviors among the children with diagnoses.

This senior project explores the viability of combining these promising interventions in a preschool setting. In particular, a program is outlined that will last ten weeks, and in that time will implement various forms of interventions to improve social behaviors among preschoolers in an inclusive site, as well as, gauging changes in the behavior and interactions of individuals within the group. The proposed intervention, Kreative Kids Preschool Art Program and Social Group, was developed from adapting the procedures from previous research, as well as compiling the author's knowledge of behavior training. The program is described in detail, from preparation to implementation. In addition to developing this program, an outline for research plans that may potentially reveal the influences of the program on social behaviors and interactions is provided. Research will focus on changes in frequency of pro- or anti- social behaviors within the daily schedule, as well as the individuals involved in social interactions throughout the day. Results will either indicate that the designed intervention is correlated with improved social skills, or the combination of interventions detracts from the effectiveness of each individual intervention. Further direction for research depends on the results of the study, but may include investigating effects on a longer timeline or reducing the number of interventions performed simultaneously. This program is designed to further the progress towards including and improving the experiences of preschoolers with autism.

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CHAPTER TWO

Literature Review

Autism affects 1 in 110 children and its prevalence is growing ("Autism Speaks," 2010). Only a few decades ago, the standard of care for children with autism was institutionalization; they were taken away from their families with no hope for a normal life (Siegal, 1996). Currently, however, interventions for this developmental disorder are varied and many options exist for parents looking to help their diagnosed child. In addition to changes in how to support children with autism, in recent years definitions of autism have become more refined. Autism Spectrum Disorder is categorized in the DSM-V as a pervasive developmental disorder, meaning it affects multiple basic functions. As such, the diagnostic criteria cover a variety of behaviors and ability, such as social interaction, language abilities, and symbolic or imaginative play. Further, autism is now recognized to be a spectrum disorder and functioning in these areas can be described as ranging from high to low levels, though all fall below the levels of typical peers. Diagnostic criteria for autism are expressed in such a way as to capture the immense amount of diversity of aptitude and demeanor within the diagnosed group of individuals with autism.

Social Interaction

The diagnostic criteria for an autism diagnosis currently includes persistent deficits in social communication and interaction. These social deficits must pervade the domains of social-emotional reciprocity, non-verbal communication, and developing and maintaining relationships. Consistent with the spectrum status of autism, deficits in reciprocity can span the gap between failing to hold a back and forth conversations and a complete lack of social initiation.

It is widely accepted that early detection and intervention are key to treating autism for children at all levels of functioning. As a result, efforts are being made toward increasing overall

awareness of the disorder in order to get more children help earlier on in life. Intervention for

the disorder would ideally begin well before the child even reaches school age. Thanks to early

intervention efforts, children with autism are often exposed to treatment efforts outside the

school setting. Many children receive services in the home environment through treatment with

various therapies including occupational, speech, or behavioral approaches. This is significant

because interventions put into place in a school setting should not be considered isolated, and

must take into account the individual's past and concurrent programs, and how they may

influence abilities within the class.

In order to be diagnosed with autism, there must be evidence prior to reaching age 3 of

the unusual behaviors outlined in the diagnostic criteria ("Autism Speaks," 2010). Due to

ignorance of the warning signs of autism, some diagnoses may not occur before this age.

However, quickly emerging evidence of the disorder facilitates early screening and identification.

By the age of 3, the child's local school district is responsible for facilitating the education of

special needs children ("Autism Speaks," 2010). Therefore, many students with autism will

begin attending school at preschool age, creating an ideal environment for improving social skills

and ability.

When children with autism begin attending preschool, they will likely be placed in either

a class for children with special needs, or an inclusive classroom, which consists of children with

autism and their typically developing peers. The placement of the child depends on several

variables including school resources, advocating efforts, and the student's abilities. Many

schools lack the funding to be able to support inclusive classrooms, or have trouble finding and

affording qualified teachers (Kids Together Inc, 2011). Accordingly, these schools may not offer

an inclusive option for children with autism. Furthermore, placement is often influenced by

efforts made by adults on behalf of the child. Some guardians feel very strongly about the

education of their children and will commit to extraordinary efforts in order to achieve certain

privileges for them. Usually, special education is the default placement for children with autism,

and much advocating is needed to achieve inclusion (Kids Together Inc, 2011). Finally, the

child's functionality is a key component in deciding placement. Many people are concerned

about disruptive behavior in mainstream classroom, as well as the targeted child's basic abilities

to succeed in the class (Kids Together Inc, 2011). As described above, autism is a spectrum

disorder and can manifest a range of functioning. Higher functioning children are more likely to

be placed in a class with typical peers ("Autism Speaks," 2010). As described below, there are

benefits and disadvantages to either placement in the educational setting. In addition, there are

ways to maximize the effectiveness of educational settings for preschool-aged children with

autism.

Special Education

Children with special needs are entitled to an education, just as are their typical peers. In

providing this educational opportunity, many schools organize these students into Special

Education classes, which are separate from the typical classes. These programs may also be

referred to as pull-out programs, where the child is removed from the typical peer's environment.

The justification for this approach is that separate classrooms allow teachers to address

individual needs and differences in their students (Kids Together Inc, 2011). Access to certain

resources in the special education classroom is intended to result in a higher level of self-

sufficiency and success for the students than if they were in a typical classroom (Kids Together

Inc, 2011).

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In preschool, specifically, an autism diagnosis may profoundly inhibit a child's ability to succeed. Boutot (2005) suggests several reasons for inhibited success in the classroom. Children with autism are not likely to seek out social interaction; in fact, they often avoid contact with others. Their play actions are less complex and symbolic than their typical peers, excluding them from the elaborate pretend-play that is so common among preschoolers. Furthermore, Boutot found that preschoolers with autism demonstrate deficits in eye-contact, turn taking, sharing, and joint attention, putting them at a serious disadvantage in a typical preschool classroom. For these reasons, many educators find special education classrooms to be better placements for children with autism.

Inclusive Classrooms

An alternative to special education is the inclusive classroom, which accommodates children on the autism spectrum as well as their typical peers. Inclusion is a fairly new concept in the history of the education system. The Individuals with Disabilities Education Act (IDEA) mandates that disabled individuals have access to the "least restrictive environments" possible (Kids Together Inc, 2011). Children with autism have a moral, ethical, and, now, legal right to be alongside their typical peers as much as possible. In other words, they should be included in the mainstream classrooms whenever it is feasible.

Inclusive classrooms still need to address the many deficits and atypical behaviors which may characterize a preschooler with autism. Koegel, Koegel, and Fredeen (2001) observed the play and social behavior of children in integrated preschool settings, with the purpose of identifying specific areas of deficit for children with autism. Four students on the autism spectrum were observed in a mainstream preschool classroom, at the same school where they usually attend special education. The team also recorded the behavior of the typically

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developing children as a means for comparison. The observations indicated that children with

autism interacted with the same number of task objects, which were the materials available in

their classroom, as their typical peers (Koegel et al, 2001). However, the amount of time spent

interacting with these objects was significantly higher for the typical peer, indicating attention

deficits for the students with autism. The children's activities were also coded for social

interactions. All the children in the classroom had comparable numbers of interactions with

adults; however, typically developing children and those with autism differed significantly in

regard to peer interactions. The children with autism rarely had social-communicative

interactions with peers in their classroom, while the other students spent the majority of their

time that way. The results suggest that mainstream programs will need to address attention

deficits and work towards increasing positive social behavior in order to properly integrate

preschoolers with autism.

Research-based interventions that address issues that arise in inclusive classrooms often

focus on techniques to facilitate appropriate social interactions, both on the part of typically

developing children and children with autism. Social behavior can be considered a pivotal skill,

because improvement in this realm will affect performance in many other domains (Cowan and

Allen, 2007). Various means of aid have been studied and evaluated for success in the inclusive

environment, including careful selection of classroom materials, instructor initiated interventions,

and peer focused interventions.

Material selection. The physical materials included within a classroom may influence

the social success of mainstreaming preschoolers with autism. Morrier, McGee, and Daly (2009)

designed an experiment to examine the effects of toy selection and arrangement on social

behaviors. They evaluated 15 preschoolers with autism in an inclusive classroom for both

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positive and negative social behaviors. Materials were presented in 3 different manners: a

conventional materials package, which featured items recommended by teachers in NAEYC

accredited programs; a systematic materials package, which was developed to include sensory

preferences and logistical considerations in making a toy selection; and an enhanced materials

package, which featured items that were more frequently rotated. The results of the observations

indicate that when systematically selected materials were offered, positive social behaviors

increased significantly, while negative social behaviors declined (Morrier, McGee, & Daly,

2009). Some of the oft seen restrictive and repetitive behaviors of children with autism pervade

sensory input (American Psychiatric Association [*DSM-V-TR*], 2011). For example, some

children with autism have strict sensory preferences and aversions, or may interact with certain

materials in a very limited and redundant manner. This study implies that teachers can influence

social interaction and limit the problem behaviors of children with autism simply by considering

a targeted child's needs and preferences when preparing the physical environment. In other

words, classroom materials can be selected in a manner that will facilitate the mainstreaming

process.

   In another study, Schilling and Shwartz (2004) evaluated the use of therapy ball seating

as a means of addressing disruptive behaviors. It is suspected that sensory issues often underlie

classroom disruptions among students with autism. Observations of four preschoolers on the

autism spectrum revealed improvements in both behavior and engagement when using ball

seating. Furthermore, the teachers themselves expressed a preference for this form of alternative

seating in the classroom. Thus, manipulating the classroom structure in order to address sensory

needs can make a significant difference in the number of disruptions teachers need to address,

which is one of the major challenges teachers face in inclusion classrooms.

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Teachers may also take advantage of new technological tools to eliminate stigmas for mainstreamed students and promote their success. Children with autism often need prompts in order to behave appropriately. As mentioned, Koegel (2001) identified significant deficits in attention for children with autism. Consequently, it can be assumed that teachers in an inclusive classroom may need to prompt for attention more often for students with autism than their typically developing peers. These prompts are usually administered by the teacher or other adult in the room, often drawing negative attention from the student's peers. Eventually, the peers begin to notice this child as different, alienating his social position. Anson, Todd, and Cassaretto (2008) designed an experiment using vibrating beepers to replace more overt forms of prompting. While teachers usually provide a verbal or gestural prompt, vibrating beepers are less obvious and stigmatizing, as the entire class needs not be interrupted. The researchers measured the number of overt prompts needed with and without the beepers reminder. They found that the use of beepers significantly declined the need for more stigmatizing prompts (Anson et al., 2008). These results are significant because they demonstrate that there are means to circumvent practices that prevent students with autism from feeling truly included.

Instructor-initiated interventions. The behaviors of teachers themselves can be central to implementing effective interventions. Odom, Hoyson, Jamieson, and Strain (1985) examined the effects of teacher interventions on social interactions with peers in an integrated preschool setting. In a classroom with 3 students with autism and 3 typically developing peers, the teacher prompted the class (when necessary) to socially interact in structured play activities, independent activities involving fine motor tasks or creativity, and activities at a learning-center. The students were rewarded with a token system for these interactions. The study found that this system increased positive social interactions in the classroom. Furthermore, after the token

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system was removed, no deleterious effects on interaction were found. Nevertheless, when

prompting by the teacher was reduced considerably, social interactions decreased (Odom et al.,

1985). These findings imply that a certain degree of teacher involvement is necessary in order to

maintain social interactions between the developmentally disabled preschoolers and their

typically developing peers. Teachers in an inclusive environment must be aware of the state of

social interactions in their classroom and provide prompting in appropriate situations.

McGrath, Bosch, Sullivan, and Fuqua (2003) examined another way teachers might be

able to influence the intervention process and increase social interaction, namely student training.

Their study focused on a four year-old with autism in a mainstream classroom with 18 typical

peers. The teacher provided instructions to the typically developing students on how to initiate

and carry out social interactions with the targeted child. The child with autism was instructed on

appropriate responses to social initiations. This simple effort on behalf of the teacher resulted in

increased duration of interaction and higher numbers of initiations with the student on the

spectrum. In fact, the class achieved levels for social initiation that surpassed the baseline

measurement for typically developing peer to peer interaction (McGrath et al, 2003). Similarly,

duration of interactions also far surpassed typical levels. The targeted child provided correct

responses more frequently, demonstrating improved social skills. Taken together, these studies

demonstrate how simple efforts made by the teacher can profoundly affect the social atmosphere

in the inclusive classroom.

Peer learning. A significant advantage to inclusive classrooms is access to typical peers

in an educational environment. Kohler, Strain, Hoyson, and Jamieson (1997) sought to observe

how peer-mediated interactions may influence learning experiences. Baseline data was recorded

as teachers used naturalistically inspired teaching procedures with the students with autism to

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address individual IEP goals. Naturalistically inspired procedures are loosely structured, and

follow the child's interests in order to provide natural incentives for learning (Cowan & Allen,

2007). After one on one interaction, the same naturalistic techniques were implemented in

sessions involving peer groups. Comparison of the teaching episodes demonstrates that group

interactions lasted significantly longer in duration and were more comprehensive in the amount

of targeted goals covered in a single session (Kohler et al, 1997). This study implies that

children with autism benefit from access to peers in educational settings, especially in regard to

quality of teaching episodes.

Another study recognized the importance of observational learning, and sought to

improve levels of peer imitation in an integrated preschool. Garfinkle and Schwartz (2002)

studied the effect of guided instruction for peer imitation on behaviors during a free play

generalization period. The children in the study included 4 students, averaging 4.43 years old,

with developmental delays, 3 of the participating children had autism. These 4 children

interacted with typical peers within their inclusive classroom. At the baseline period, the

researchers observed the independent imitation behaviors of the target children. During the next

stage, the teacher's assistant implemented the imitation training in small, mixed-ability groups of

4 or 5 for 10 minutes a day. In this time, the teachers instructed the group on how the materials

may be used, then selected a leader. The children then copied the leader's actions or were

prompted to do so, then praised for their imitative acts. Data was collected through interval

observations of social interactions, including imitation, and were coded accordingly. The results

demonstrated low levels of social interaction at the baseline period, and no occurrences of peer

imitations. After intervention started, there were small increases in both, although levels

remained relatively low and variable. Social interactions were observed to be equally initiated

between targeted children and typically developing peers. Levels maintained above the baseline

through the follow-up stage. Other observed correlations were lower levels of teacher prompts

for behavior that is not imitative and increased proximity to peers. The findings of this study

indicated that efforts can be made in the classroom to increase the benefit of access to typically

developing peers.

In sum, current research findings support the conclusion that preschool classrooms can be

manipulated to support the social interaction between both children with autism and their

typically developing peers. Given the reported success of each of these individual interventions,

one might consider whether there might be an advantage to combining methods within a single

intervention. The current project proposes to empirically investigate the impact of a program

that utilizes multiple interventions to address social deficits in children with autism.

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CHAPTER 3

Methods

The following program was imagined and designed by myself after researching interventions that successfully improve social skills and interactions in preschool settings that includes children with autism. The program combines these evidence-based interventions in order to develop an innovative program with the goal of reducing undesirable behaviors, increase the frequency of appropriate interactions, and improve on deficits in peer interaction. I drew upon the procedures used in previously successful research, as well as knowledge obtained through my career and resources as a Behavior Interventionist for children with autism.   The outcome had two components: first, the development of the intervention itself and, secondly, plans for evaluating its effectiveness.

CHAPTER FOUR

Results

The research study described here was designed to evaluate changes in social behavior in an inclusive preschool setting over the course of the given intervention. The program combines special material selection, teacher-directed interventions, and the benefits of peer interaction that have already demonstrated increases in pro-social and decreases in anti-social behavior in previous research. The results of the study will indicate whether the interventions can be correlated with improvements in social behavior when combined and implemented at once. The proposed study will measure social behaviors throughout the daily schedule, providing baseline, midpoint, and final frequencies.

Proposed Methodology

Participants. The participants of this study will be 8 preschool-aged children, between 3 and 5 years old. Half the students will be diagnosed with autism spectrum disorder, while the other half will be typically developing. Typically developing children will be recruited randomly from a pool of volunteers who indicate interest in participating in an inclusive art course and do not have a record of any existing behavior problems. The children with autism will be recruited specifically through behavior services, in order to ensure the availability of one-on-one aids for those with special needs.

Teaching Materials. Materials needed for the course will be standard art supplies, such as paper, markers, paints, crayons, pastels, chalk, scissors, and glue. Additional materials will be selected based the results of the parent-completed Reinforcer Survey (see Appendix), and will be

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made available during Week 3, when the systematic materials package is implemented. The

classroom will also need a set of half stability balls for alternative seating.

   Research Materials. The researchers will require supplies in order to complete the study,

including enough video and audio recording devices to monitor the entire classroom area. They

will also use Tables 1 through 3 in order to identify and track social behaviors in the classroom.

A reinforcer survey (see Appendix) will be completed by parents prior to Week 3. The survey is

designed to identify materials that are greatly reinforcing and highly desired for each child. The

results of this survey will be used to change the teaching materials available in the classroom.

Procedure

   Data will be collected regarding the social behaviors of children in the classroom. The

Kreative Kids Preschool Art Program and Social Group will run for a total of 10 weeks.

Throughout this program, a consistent daily schedule will be followed (See Table 4). Data will

be collected to assess children's behaviors at three intervals: baseline, midpoint, and final. The

entire day's schedule will be video and audio recorded during weeks 2, 6, and 10. Later, the

tapes will be reviewed and coded for observed behaviors.

   Standard Daily Schedule. The regular schedule will consist of 6 parts that will always

occur in the same order: (1) Arrival: This is when the children are dropped off by their families.

They can have free time in the play room until everyone arrives. (2) Circle Time: Everyone sits

in a circle. The teacher introduces the art topic of the day and briefly quizzes the children on

past topics and art basics. (3) Art Time: The children must put on smocks then are free to visit

any of the activity centers in the room. Only five children can be at each center at one time. (4)

Clean Up: All children are expected to clean up all materials. Everyone must pitch in until all

the chores are done. (5) Closing Circle: Everyone will reconvene in a circle for closing circle

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time. The teacher will review the topic of the day and children will have an opportunity to share

their art or tell about something they did. (6) Goodbye: The children have free play until their

parents are ready to take them home.

Coding. Video footage and audio recordings of the classes during weeks 2, 6, and 10 will

be reviewed later, and all the observed instances of the behaviors outlined in Tables 1 and 2 (See

Appendix) will be coded on the data collection sheets (See Appendix). The compiled

information includes the pro- or anti-social behavior observed, who was involved in the

interaction, and the part of the daily schedule during which the interaction occurred. Coding the

individuals involved in an interaction will follow a standard procedure that categorizes the

members of the classroom and designates the type of person initiating the social behaviors, as

well as the type of person responding. The possible categories for individuals in the classroom

are: CA (Child with Autism), TP (Typically-Developing Peer), and CI (Classroom Instructor).

The interactions are coded by listing the initiator's category first, followed by the category the

responder belongs to, with the two initials connected by a hyphen. For example, if a student with

autism walks up and pushes a typically-developing peer, the interaction would be coded as CA-

TP.

Intervention. Following baseline data collection, the interventions will begin. In the

weeks leading up to the intervention, children will follow the normal daily schedule without

prompting or providing external rewards and punishments for the behavior measures.   During

the intervention period, the class will follow the same schedule as in the baseline period. The

class's teachers and aides will implement environmental changes, prompting for errorless

learning, which is starting at the highest level prompt necessary and gradually reducing the level

(outlined in Table 6) until the skill can be carried out without aid (See Appendix), and a token

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system for all children in the class. The intervention period will be implemented during weeks 3

through week 10 and are performed simultaneously. The following interventions were selected

according to results correlating their procedures with improvements in social skills following

their execution in inclusive preschool settings.

Seating. Alternative seating in the form of stability ball chairs will be provided at circle

time and project stations in an effort to reduce the frequency of antisocial behaviors.

Systematic material selection. Materials provided in the classroom will be personalized

to the preferences of the participants (based on the reinforcer survey completed by parents). The

art stations will include highly attractive or preferred materials and activities in order to better

encourage exploration.

Prompting for behavior. The classroom instructors and aides will prompt for pro-social

behaviors, when appropriate, beginning with highest level prompt necessary to see the desired

behavior (see Appendix) and, gradually decreasing to the lowest level. The prompting will fade

according to the fading schedule outlined in Table 5 (See Appendix)

Prompting for attention. The instructors will begin to utilize a laser pointer to prompt for

attention during class. This is intended to be less stigmatizing than overt, verbal prompts that

may draw the negative attention of classmates. In the beginning of Week 3, the teacher will

introduce the laser pointer and indicate that it is a cue to remember to "look and listen." When a

child needs to be prompted for attention, instructors will start with the least invasive means, in

this case, the laser pointer. More overt prompts will be used if necessary.

Token system. Pro-social behaviors will be rewarded with tokens, which can be

redeemed for prizes. At the beginning of the intervention, tokens will be awarded for every

desired behavior. The token program will fade according to the weekly schedule. (See Table 5)

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     Fading and Maintenance. By week 10, interventions will be scaled back to a minimum.

Classroom aides may still use level 1 prompts for pro-social behavior, as research indicates that

complete removal leads to a significant decline (SOURCE). The token system will be

completely faded by week 10. The class will maintain alternative seating, but the materials

package will no longer contain the most preferred items. Visual aides will stay posted

throughout the classroom, but instructors will not refer to them.

     Data Collection. Data will be collected by reviewing the video and audio tapes recorded

in weeks 2, 6, and 10- the baseline, midpoint, and final collection periods, respectively.

Observers will track and code the entire day's social behavior for each participant with autism.

Each child's day will be reviewed by 2 coders in order to check inter-rater reliability. Any

discrepancies will be decided by a third observer.

     Analysis Plan. Data will be analyzed for frequency of behaviors, divided by the periods

of the daily schedule, and frequency of interactions with different members of the classroom.

The frequencies from one data collection period will be compared to those taken during a

different week, but during the same time in the schedule, in order to identify any significant

changes in behaviors within the inclusive preschool classroom. Analysis will be broken down by

the period within the daily schedule because one may expect to see different frequencies of

certain behaviors depending on the task at hand.

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CHAPTER FIVE

Discussion

Advancements in education rights support the inclusion of children with autism in typical preschool settings (Kids Together, Inc., 2011). Nevertheless, children with diagnoses demonstrate significant deficits in multiple domains, including social abilities, which are pivotal to generalized success (Boutot, 2005). Researchers have identified successful strategies for improving social skills within inclusive, preschool settings. The Kreative Kids Art Program and Social Group intends to advance current knowledge by investigating the interactions of these same interventions when being run concurrently. The study proposed in this project was designed was to assess changes in frequency of pro- and anti-social behaviors, as well as interactions among members of the classrooms, thereby providing feedback regarding the program's success.

Plans to actually execute this research are tentative, yet one can imagine several possible outcomes of the Kreative Kids Preschool Art Program and Social Group. Below, I consider several potential interpretations of various patterns of results that may arise regarding children's engagement in social activities.

Hypothetical Results

Pro-social behaviors. Significant increases in pro-social behaviors from baseline to final measurements during any given part of the daily schedule would indicate that the applied interventions are correlated with improved social skills, even when applied simultaneously. These findings would be consistent with the research of McGee and Daly (2009), who found that systematically selected materials in an inclusive, pre-school classroom are associated with greater frequencies of pro-social behavior. Odom and his research team (1985) also

found their intervention, a token system, to have a correlation with increased positive social interactions, even after fading occurred. Furthermore, increases in frequency of positive social interactions between students with autism and typically-developing peers are consistent with the findings of McGrath, Bosch, Sullivan, and Fuqua (2003), which indicated that simple training on appropriate social interactions for all students in an inclusive preschool classroom, leads to improved social skills.

If pro-social behaviors are found to decrease from baseline to final measurements, these findings would be inconsistent with the results of the same researchers mentioned above. Since these interventions are known to improve social behaviors when implemented alone, we would be able to speculate that declining pro-social frequencies are a result of combining the interventions into one, large program. It is possible that too many interventions will induce information overload and render the procedures less effective.

Midpoint results can provide more insight towards the correlated effects on behavior. If pro-social behaviors increase in frequency from baseline to the midpoint, but decrease from the midpoint to the final data collection period, we could attribute the decline in desired behavior to the effects of fading. This, however, would be inconsistent with Odom's (1985) findings that removal of the token system has no deleterious effect on social interactions. Nevertheless, Odom's team did find that considerable reduction of prompting by instructors led to decreased social interactions. The proposed intervention attempts to address this by maintaining low level prompts, even during the final session. Therefore, if the data indicates declining frequencies of pro-social behavior after the mid-point, it would be reasonable to assume that the fading plan does not maintain adequate levels of prompting, explaining the dip in desired behaviors.

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Anti-social Behaviors. Significant decreases in anti-social behavior from baseline to final measurements would indicate that the Kreative Kids Art Program is correlated with lower frequencies of negative social behaviors. Such findings are in agreement with the results of Morrier's 2009 study, which indicated that providing systematically selected materials in an inclusive preschool classroom significantly decreases the frequency of negative social behavior. Similarly, Schilling and Schwartz (2004) uncovered a significant decrease in the number of disruptions in the classroom when alternative stability ball seating was provided. Should anti-social behaviors be seen to decrease over the course of the intervention, we will be able to conclude that the interventions are still effective at addressing problem behaviors when performed simultaneously.

Increases in anti-social behaviors from baseline to final measurement would be in discord with the results of previous research. The present program combines the procedures of past studies, which may possibly change the effect on behaviors. Increases in anti-social behavior indicate that the Kreative Kids Program and Social Group cannot be associated with positive effects on behavior.

Again, midpoint results can offer insight to corresponding effects on behavior frequencies. If undesired behaviors increase from baseline to midpoint, then decline between midpoint and final measurements, it can be concluded that the program must endure longer than 4 weeks in order to demonstrate lower levels of undesired behaviors. Conversely, if the results demonstrate decreases in instances anti-social actions from baseline to midpoint, but the numbers re-inflate during final data collection, we may be able to conclude that the proposed level of fading of interventions is correlated with adverse effects on social interaction in inclusive preschool environments. Such findings are consistent with Odom's, which

indicated that when prompts are decreased beyond a certain level, there may be deleterious

changes in classroom social behavior.

    Interactions. Results regarding the frequency of interactions among participants will

also provide feedback about changes in behavior throughout the intervention. Keogel (2001)

identified a large deficit in social-communicative interactions with peers by children with an

autism diagnosis in comparison to the rates of the same kinds of interactions by typically-

developing peers. According to his results, we can expect to get low interaction frequencies

between children with autism and their peers, but the levels of these interactions may

increase at midpoint and final measurements, indicating a correlation between the Kreative

Kids Program and improved frequencies of peer interaction for preschoolers with autism in

the inclusive setting. Such is consistent with the findings of Kohler and his research team

(1997), which demonstrated that learning in peer groups can improve interactions. If the peer

interactions initiated by children with autism equal the frequencies of those initiated by

typically developing peers, the results will support Garfinkle and Schwartz's (2002) study

that found that imitation training is correlated with closing the gap in social initiation

frequencies between preschoolers with autism and the typically developing student.

    Alternatively, interactions between children with autism and classroom instructors may

demonstrate different changes. In his 2001 study, Koegel found that frequencies of

interactions between instructors and children with autism did not differ significantly between

those of instructors and typically developing peers. Therefore, the proposed research may

find levels that either support or confound this previous measurement. As interactions are

tracked from baseline to midpoint, the frequency of children with autism interacting with

instructors will likely increase, considering the level of prompting that is occurring in this

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period. Should the numbers decline, it can be assumed that the instructors are having difficulty implementing the interventions correctly. From midpoint to final measurements, however, it would be reasonably to see decreases in frequency of instructor student interaction, as prompting and rewarding are faded. Still, in order to be considered a successful social intervention, the program must demonstrate evidence of higher final levels of interaction than were observed at baseline. Such increases in social interaction would be consistent with the results of McGrath's (2003) research concerning the improvements in social interaction following simple student training.

Conclusion

The results of the Kreative Kids Art Program and Social Group can be used to inspire future research design and direction. If pro-social behaviors and positive interactions do not increase, future research should aim towards identifying a combination of interventions that will successfully increased the desired behaviors. This may be best executed by reducing the research design to run only two interventions concurrently, and gradually increasing, in order to identify an optimal combination. If the proposed intervention is successful, however, at improving social behaviors, then future research could investigate the interventions on a longer timeline, as well as investigating the generalization of skills in different settings, such as home, other classrooms, and playground interactions.

The Kreative Kids Art Program is demanding of resources, but actually quite feasible given the right conditions. One major demand of the program is providing enough instructors to perform the interventions for all the children. Average school settings often lack the funding for one on one aides, but behavior programs usually provide an interventionist for each child. Therefore, it would be possible for behavior training

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companies to implement the proposed program, if successful, for their pre-school aged

clients. Eventually, if further research supports implementing social interventions for

preschoolers in inclusive environments, the education system can be changed to reflect

research-based practices. Research should proceed in a direction that will better the

educations and experiences of both preschoolers with autism and their typical peers, by using

creativity and innovation within the classroom.

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APPENDIX

Table 1. Pro-social Behavior Tracking

Pro-social Behavior	
Greeting Friends	Says a greeting, if familiar, uses their name.
Asking to Play	Chooses the appropriate person to ask and does so politely.
Responding to Others	Replying to interactions with appropriate responses.
Sharing	Working with the same materials with another without conflict.
Taking Turns	Waits patiently for turn, lets others take their turns.
Attention Solicitation	Raises hand, says excuse me, walks to the target, uses name.
Asking for a Favor	Politely asks the appropriate person for help with specific task.

Table 2. Anti-social Behavior Tacking

Anti-social Behavior	
Ignoring Others	Not responding to the social initiations of others.
Aggression	Aggressive behavior either directed outwardly or self-directed.
Tantrumming	Yelling, crying, whining, etc.
Interrupting	Talking while another is talking or holding a conversation.
Non-compliance	Refusal to perform simple requests or take part in activities.

Table 3. Data Collection Sheets

Date	Observed Behavior
Child A	Initials of the observed child
Child B	Person being interacted with
Activity	1-6 on the daily schedule
Interaction	Brief description of what occurred or notes

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Table 4. Daily Schedule

1.	Arrival
2.	Circle Time
3.	Art Projects
4.	Clean-up
5.	Closing Circle
6.	Goodbye

Table 5. Fading Schedule

Week	Visual Aides	Token System
3	Prompt Level 4	1 token : 1 Pro-social behavior
4	Prompt Level 3	1 token : 3 Pro-social behaviors
5	Prompt Level 3	1 token : 3 Pro-social behaviors
6	Prompt Level 2	1 token : 5 Pro-social behaviors
7	Prompt Level 2	1 token : 10 Pro-social behaviors
8	Prompt Level 1	1 token : 10 Pro-social behaviors
9	Prompt Level 1	1 token : 15 Pro-social behaviors
10	Prompt Level 0	Completely Removed

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REINFORCER CHECKLIST
NAME: _____
DATE: _____ AGE: _____
EDIBLE REINFORCERS:

Candy: YES NO
1. M&M.s ____ ____
2. jelly beans ____ ____
3. licorice ____ ____
4. candy cane ____ ____
5. gum ____ ____
6. Smarties ____ ____
7. lollipops ____ ____
8. chocolate ____ ____
9. candy kisses ____ ____
10. _____ ____ ____
Cereals:
11. Cheerios ____ ____
12. Cookie Crisps ____ ____
13. Fruit Loops ____ ____
14. Trix ____ ____
15. _____ ____ ____
Fruit:
16. raisins ____ ____
17. apples ____ ____
18. oranges ____ ____
19. bananas ____ ____
20. _____ ____ ____
Liquid:
21. milk ____ ____
22. choc. milk ____ ____
23. juice ____ ____
24. soda pop ____ ____
25. lemonade ____ ____
26. _____ ____ ____
Frozen:
27. Popsicle ____ ____
28. ice cream ____ ____
29. M & M.s ____ ____
30. _____ ____ ____
Soft:
31. pudding ____ ____
32. Jell-o ____ ____
33. yogurt ____ ____
34. marshmallow ____ ____
35. cheese ____ ____

YES NO
36. cottage cheese ____ ____
37. peanut butter ____ ____
38. jam/jelly ____ ____
39. ice cream toppings ____ ____
40. _____ ____ ____
Others:
41. cake ____ ____
42. cup cakes ____ ____
43. doughnuts ____ ____
44. crackers ____ ____
45. frosting ____ ____
46. corn chips ____ ____
47. cheese balls ____ ____
48. Doritos ____ ____
49. cookies ____ ____
50. popcorn ____ ____
51. Animal Crackers ____ ____
52. Cracker Jacks ____ ____
53. raw veggies ____ ____
54. _____ ____ ____

MATERIAL REINFORCERS
1. stopwatch ____ ____
2. hand cream ____ ____
3. silly putty ____ ____
4. bubbles ____ ____
5. combs ____ ____
6. ChapStick ____ ____
7. Play Doh ____ ____
8. stickers ____ ____
9. perfume ____ ____
10. toy instruments ____ ____
11. boats to make ____ ____
12. cars to make ____ ____
13. puzzles ____ ____
14. bubble gum ____ ____
15. straws ____ ____
16. powder ____ ____
17. nail polish ____ ____
18. beads ____ ____

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MATERIAL REINFORCERS (cont) OTHER REINFORCERS
YES NO   YES NO
19. stamps and stickers ____ ____   1. rocking ____ ____
20. masks ____ ____   2. brushing hair ____ ____
21. paper/crayons ____ ____   (own or others)
22. fans ____ ____   3. clapping hands ____ ____
23. balloons ____ ____   4. carry upside down ____ ____
24. badges ____ ____   5. airplane rides ____ ____
25. bean bags ____ ____   6. drawing pictures ____ ____
26. hats ____ ____   7. run outside ____ ____
27. mirrors ____ ____   8. hide and seek ____ ____
28. toy games ____ ____   9. piggyback rides ____ ____
29. books ____ ____   10. chase ____ ____
30. coloring books ____ ____   11. paper and crayons ____ ____
31. whistles ____ ____   12. finger plays ____ ____
32. blocks ____ ____   13. peek-a-boo ____ ____
33. paint brushes ____ ____   14. sing songs __   __ ____
34. crown ____ ____   15. imitating kids ____ ____
35. colored chalk ____ ____   16. blowing whistles ____ ____
36. _____ ____ ____   17. New Years snakes ____ ____
                                                     18. sprinkle glitter ____ ____
SOCIAL REINFORCERS   19. tickles w/ other objects ____ ____
1. grab hands/wiggle arms ____ ____   20. musical instruments ____ ____
2. blowing (i.e. face) ____ ____   21. flashlights ____ ____
3. squeeze above knees ____ ____   22. shoulder rides ____ ____
4. hugging ____ ____   23. run in the gym ____ ____
5. shaking hands ____ ____   24. water play ____ ____
6. twitching noses ____ ____   25. puppets ____ ____
7. kisses ____ ____   26. flushing the toilet ____ ____
8. tickling ____ ____   27. sand/dirt play ____ ____
9. winking ____ ____   28. trampoline ____ ____
10. give me (5-10) ____ ____   29. dancing ____ ____
11. pinching cheeks ____ ____   30. running on ramp ____ ____
12. rubbing noses ____ ____   31. free time in the gym ____ ____
13. bumble bee fingers ____ ____   32. sitting on shelf ____ ____
14. smiling ____ ____   33. bringing toy from home ____ ____
15. duck noises ____ ____   34. turning lights off/on ____ ____
16. playing with lips ____ ____   35. pouring liquids ____ ____
17. patting   back and forth
18. praising ____ ____   36. rolling ball on ramp ____ ____
19. wiggling ears ____ ____   37. playing in front of mirror ____ ____
20. back scratch ____ ____   38. spreading peanut butter ____ ____
21. belly rub ____ ____   39. pushing walker/cart ____ ____
22. nodding ____ ____   40. TV watching (videotape) ____ ____
23. _____ ____ ____   41. story on teacher.s lap ____ ____

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42. squeeze toothpaste ____ ____
43. playing with watch ____ ____
44. games ____ ____
45. being the teacher ____ ____
46. talking on the phone ____ ____
47. markers and pens ____ ____
48. draw on chalkboard ____ ____
49. lunch/snack helper ____ ____
50. pushing cart ____ ____
51. pulling wagon ____ ____
52. field trip ____ ____
53. twirling in the air ____ ____
54. hanging pictures ____ ____
55. mom come to class ____ ____
56. mom leave class ____ ____
57. blanket over head ____ ____
58. take their picture ____ ____
59. throw things in trash ____ ____
60. helping cook ____ ____
61. roll down hill ____ ____
62. teacher make dough ____ ____
63. paint w/ cotton balls ____ ____
64. climb on tractor ____ ____
65. teacher.s helper ____ ____
66. make picture
w/ popcorn ____ ____
w/ noodles ____ ____
w/ string ____ ____
67. have therapist whistle ____ ____
68. running errands ____ ____
69. climbing in boxes ____ ____
70. pushing stapler ____ ____
71. playing with jewelry ____ ____
72. dressing up ____ ____
73. drink out of pop bottle ____ ____
74. sliding/jumping on mats ____ ____
75. time alone to stim ____ ____
76. Simon says ____ ____
77. playing with money ____ ____
78. climbing ____ ____
79. rocking a boat ____ ____
80. cutting pictures ____ ____
81. playing with glue ____ ____
82. tour of school ____ ____
83. treasure hunt ____ ____
84. playing with cards ____ ____

88. basketball games ____ ____
89. finger paint
        w/ pudding ____ ____
        w/ soap ____ ____
        w/ paint ____ ____
90. blowing in bottles ____ ____
91. pulling toilet paper/
        towel out of holder ____ ____
92. racing ____ ____
93. different seat on bus ____ ____
94. front seat on bus ____ ____
95. wagon rides ____ ____
96. thrown in the air ____ ____
97. raiding refrigerator ____ ____
98. pushing copier button ____ ____
99. watering plants ____ ____
100. feeding the fish ____ ____
101. watching cars go by
        and waving ____ ____
102. watching fire engines ____ ____
103. walk on balance beam ____ ____
104. going for walks ____ ____
105. making Kool-Aid ____ ____
106. wiping off tables ____ ____
107. taking trash out ____ ____
108. icing cupcakes ____ ____
109. spraying bottles ____ ____
110. watching popcorn pop ____ ____
111. machines ____ ____
112. opening refrigerator ____ ____
113. carrying the ball ____ ____
114. tape, tear, put on ____ ____
115. opening/closing window ____ ____
116. playing with tools ____ ____
117. birthday parties ____ ____
118. helping with other kids ____ ____
119. play with timer beads ____ ____
120. pushing buttons ____ ____
121. play with other kids ____ ____
122. play with zippers and
        pockets ____ ____
123. walk with feet on top of
        of therapist.s feet ____ ____
124. blow bubbles with straw ____ ____

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85. crawling under table ____ ____
86. looking at pictures ____ ____
87. riding bicycle ____ ____

125. walking with stilts ____ ____
126. swimming ____ ____
127. listening to watches ____ ____

128. listen to tape recorder ____ ____
129. have a shadow show ____ ____
130. play with computer ____ ____
131. stringing beads ____ ____
132. turn water off/on ____ ____
133. sunshine and shadows ____ ____
134. hinges ____ ____
135. smelling spices ____ ____
136. _____ ____ ____

PROCESSES REINFORCERS

1. fishing game ____ ____
2. train delivery ____ ____
3. bean bag throw ____ ____
4. dart board ____ ____
5. grab bag ____ ____
6. surprise box ____ ____
7. spinner ____ ____
8. reinforcers hidden
between worksheets ____ ____
9. random timer bell ____ ____
    10. _____ ____ ____

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PROMPT LEVEL TABLE

(handwritten) Position Prompt
• Visual Prompt

PROMPT TYPE	Physical Prompt (PhPr)	Visual Prompt (VisPr)	Positional Prompt (PoPr)	Model Prompt (MPr)	Verbal Prompt (VerPr)	Delayed Prompt (DelPr)
PROMPT LEVEL	Useful for: Imitation, Compliance, Receptive, Matching/Sorting	Useful for: Attention	Useful for: Receptive	Useful for: Receptive, Compliance	Useful for: Expressive	Useful for: ALL DOMAINS
Level 4 (Full Prompt)	Physically guide the child to perform the correct response.	Place a SR+ near staff's eye prior to delivery of SD to prompt gaze from child.	Place the target stimulus closer to the child prior to delivery of the SD.	Fully model the presented action to the child after delivery of the SD (i.e., touch your head).	Verbally provide the answer to a question immediately after delivery of the SD (i.e., "What's your name? Brendan").	Deliver appropriate prompt immediately after SD.
Level 3 (Medium-High)	Guide the child's hands with your to help perform the correct response.	Place a SR+ near staff's eye and quickly remove it upon delivery of SD.	Progressively move the target stimulus away from the child prior to delivery of SD.	Partially model the action to the child after delivery of the SD (i.e., almost touch your head).	Pogressively fade back the sounds of a correct response immediately after delivery of the SD (i.e., "Brend__").	Deliver appropriate prompt 2 seconds after SD, if needed.
Level 2 (Medium-Low)	Tap the child's hand/arm/leg as a hint to perform the correct response	Quickly move SR+ halfway toward staff's eye and remove it upon delivery of SD.	↓	Fade back the modeled action after the delivery of the SD (i.e., move hands toward the target area and stop).	↓ (i.e., "Bre____")	Deliver appropriate prompt 3 seconds after delivery of SD, if needed.
Level 1 (Low Prompt)	"Fake" a prompt toward the target area or stimulus.	"Fake" an SR+ placed near eye prior to delivery of SD to prompt eye gaze	↓	"Fake" the modeled action toward the target stimulus after delivery of the SD (i.e., start to move hands toward head).	↓ (i.e., "B____")	Deliver appropriate prompt 4 seconds after delivery of SD, if needed
Level 0 (No Prompt)	No Prompt	No Prompt	No Prompt	No Prompt	No Prompt	No Prompt