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Teaching Social Skills As A Component To Reduce Problem Behavior In A Preschool: A Clinical Case Study

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TEACHING SOCIAL SKILLS AS A COMPONENT TO REDUCE PROBLEM
BEHAVIOR IN A PRESCHOOL: A CLINICAL CASE STUDY

by

Kelly Erin Scott

B.S., Southern Illinois University, 2009

A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
Master of Science Degree

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RESEARCH PAPER APPROVAL

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Kelly Erin Scott

A Research Paper Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Master of Science

in the field of Behavior Analysis and Therapy

Approved by:

Dr. Jonathan C. Baker, Ph.D., BCBA-D, Chair

Graduate School
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AN ABSTRACT OF THE RESEARCH PAPER OF

KELLY ERIN SCOTT, for the Master of Science degree in BEHAVIOR ANALYSIS AND THERAPY, presented on July 8, 2011, at Southern Illinois University Carbondale.

TITLE: TEACHING SOCIAL SKILLS AS A COMPONENT TO REDUCE PROBLEM BEHAVIOR IN A PRESCHOOL: A CLINICAL CASE STUDY

MAJOR PROFESSOR: Dr. Jonathan C. Baker, Ph.D., BCBA-D

This study examined the efficacy of behavioral skills training (BST) to teach appropriate requesting and a differential reinforcement of alternative behavior (DRA) paired with a timeout procedure to decrease problem behavior of a 4-year-old typically developing boy who attended a local Pre-kindergarten half-day program. The participant engaged in problem behavior in the form of aggression, property destruction, and taking materials from peers. The BST program consisted of instruction, modeling, rehearsal, and feedback to increase appropriate requesting of materials and attention. The DRA procedure was implemented and combined with a 1-min timeout procedure. A fixed interval (FI) schedule was implemented. After a designated amount of time elapsed, the first occurrence of appropriate requesting resulted in receiving a sticker which was placed on a necklace, and worn by the participant. An increase in the frequency of appropriate requests was demonstrated following BST and maintained when the teachers' aide implemented the intervention. In addition, a decrease in the frequency of problem behavior was observed when and only when the intervention was in place. Moreover, problem behavior remained low when the teachers' aide implemented the intervention.

DESCRIPTORS: differential reinforcement of alternative behavior, sharing, consistent consequences, preschool child, problem behavior

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CHAPTER 1

INTRODUCTION

School is viewed as a place where children are taught the skills that they will need when they enter into the next grade level. Teachers expect students to comply with the given instructions to the best of their ability (Lane, Pierson, Stang, & Carter, 2010). Young children often begin preschool without the academic or social skills that are expected to be in their repertoire (Feldbaum, Christenson, & O'Neal, 1980). In fact, some children may enter preschool with a behavioral repertoire in which undesirable behaviors are at strength. These undesirable behaviors serve three main functions (i.e., positive reinforcement, negative reinforcement, and automatic reinforcement; Iwata, Dorsey, Slifer, Bauman, & Richman, 1994).

Problem behavior is reinforced and maintained by the consequences of the problem behaviors. In school settings, the most common consequences provided contingent on problem behavior are providing access to attention or tangibles (i.e., positive reinforcement) and providing escape from task demands (i.e., negative reinforcement). For example, when a child yells out during quiet time and the teacher provides attention to the child (i.e., positive reinforcement); the child is more likely to yell out in the future. An example of problem behavior to escape a task demand is when a child throws their notebook on the floor when they were given a task demand to write their name. As a result of throwing their notebook, the teacher puts them in to a time out (i.e., negative reinforcement), escaping the task demand that was given to them by the teacher. The child is now learning that every time they do not want to do a task they can throw their notebook and the task demand will be delayed because they will be put in a

timeout. Under conditions in which these consequences are consistently or even intermittently provided contingent on problem behavior, the likelihood that the problem behavior will persist is very strong.

Regardless of the function of the problem behavior, its occurrence can interfere not only with the child that engages in these problem behaviors, but also with the learning environment of the other children in the classroom. It is likely that children emit problem behaviors because they have not acquired alternative appropriate behaviors in a classroom (e.g. sharing, communicating with peers, on-task behavior; Feldbaum et al., 1980). A relatively simple and straightforward intervention is to teach alternative behaviors to gain access to the same reinforcer (e.g., access to teacher attention or tangible items, escape from aversive situations) that is maintaining the problem behavior. The Illinois State Board of Education set forth state standards that all children in each grade level should acquire. If each child does indeed acquire these behaviors, perhaps the occurrence of problem behavior can be circumvented. .

According to the Illinois State Board of Education (2004) there are many standards that children are expected to master specifically in early childhood education. In addition to various academic standards there are numerous social and emotional standards that a preschool child is expected to learn by the time he finishes his early childhood education. The two goals of focus are State Goal 31, *Develop an awareness of personal identity and positive self-concept*, and State Goal 32, *Demonstrate a respect and responsibility for self and others*.

Listed under social and emotional health is State Goal 31, which is *Develop an awareness of personal identity and positive self-concept*. This includes various sub-goals

of social skills, one of which is benchmark 31.A.ECe: *Using appropriate communication skills when expressing needs, wants, and feelings*. This goal is an important social skill to learn because one common function of problem behavior is to gain access to attention or tangible items (e.g., Kodak, Northup, & Kelley, 2007; Wilder, Chen, Atwell, Pritchard, & Weinstein, 2006). Teachers also find it important for children to express how they feel when other peers take materials from them because teachers may believe that this helps the children solve problems on their own without assistance from teachers. One way to teach appropriate communication skills is through functional communication training (FCT). Typically, FCT is implemented after problem behavior has developed and has been identified as a problem. However, given the Illinois State Standard benchmark 31.A.ECe, procedures to teach appropriate requesting should be implemented before problem behavior develops. During FCT, an appropriate communicative behavior that specifies the reinforcer that is maintaining the problem behavior is taught to the individual. Although FCT is a differential reinforcement of alternative behavior (DRA) procedure, it differs because the alternative communicative response allows the person to contact the reinforcer that has maintained the problem behavior, which then makes the communicative response equivalent to the problem behavior. For example, a child engages in aggression to escape a task demand. During FCT the child is taught to hold up a card when a break is needed, when the card is held up the child receives a break from the task. Holding up the break card is now an equivalent response to the problem behavior in that both responses result in escape from the task demand. Once the alternative behavior is mastered, the child now only receives a break when he holds up the break card, ultimately increasing the future likelihood that the child will use the break

card to gain access to escape instead of engaging in aggression which no longer produces escape from task demands. Wacker et al. (1990) utilized FCT to teach three participants with severe disabilities who engaged in inappropriate behavior (e.g. self-injury, stereotypy, and aggression) a communicative response to solicit reinforcement in the form of access to tangible items or escape from the task demand. The researchers taught the participants to emit a communicative response to gain access to the same reinforcer that maintained problem behavior. In this study FCT, as part of a treatment package increased the participant's frequency of the communicative response.

State Goal 32 is *Demonstrate a respect and responsibility for self and others*, it also targets the development of social skills through its two learning standards; A and B. Learning standard A: *Perform effectively as an individual*. The various benchmarks for this State Goal are, 32.A.ECa: *Begin to understand and follow rules*, 32.A.ECb: *Manage transitions and begin to adapt to change in routine*, and 32.A.ECd: *Use classroom environment purposefully and respectfully*. The benchmarks for State Goal 32 highlight the importance to teach children to comply with instructions (e.g., rules) across the school day. Fortunately, the literature on compliance training has grown over the years. For example, Cote, Thompson, and McKerchar (2005) assessed the efficacy of two antecedent strategies (i.e., 2-min warning prior to the transition and access to a preferred toy during the transition) to increase compliance during the transition from play time to potty time with three 2- to 3-year-old children. Cote et al. (2005) found that the antecedent strategies paired with extinction increased compliance in all children that were observed. Warnings and access to a preferred item, paired with extinction, can be effective strategies to utilize when teaching children in preschools to adapt to change and

transitions. The results of the Cote et al. (2005) study are consistent with previous research on compliance training in that the efficacy of antecedent strategies is substantially enhanced when a consequence strategy (e.g., follow through, three step prompting, extinction, reinforcement) is also implemented (e.g., Stephenson & Hanley, 2010; Wilder, Zonneveld, Harris, Marcus, Reagan, 2007). Moreover, understanding and following rules are important skills for a child to possess; children who do not have these skills may engage in noncompliance which can affect the child's learning and their peer's learning.

The second component of State Goal 32 is learning standard B: *Perform effectively as a member of a group*. The various benchmarks are, 32.B.ECa: *Engage in cooperative group play*, 32.B.ECb: *Begin to share materials and experiences and take turns*, and 32.B.ECc: *Respect the rights of self and others*. The benchmarks associated with this second part of State Goal 32 clearly address healthy interactions with peers. Perhaps the most simple and straight forward benchmark is sharing materials and turn taking. Similar to compliance training, many strategies have been evaluated in the literature to teach individuals to share and take turns. For example, Barton and Ascione (1979) taught children in a preschool to share materials. The children were divided into three groups physical sharing (i.e., handing a material to another child, allowing another child to take his or her material, using a particular material that another child used, and simultaneously using a material with another to work on a common project), verbal sharing (i.e., requests to share another's material, compliance with a request to share materials, invitations to share one's own materials, acceptance of invitations to share), and verbal and physical sharing. The training consisted of a researcher verbally telling

the children the importance of sharing, having a child model the appropriate sharing behavior, remaining children rehearsed the model's behavior, and specific praise was provided upon the child engaging in that behavior. The researchers found that training verbal and physical sharing combined was the most effective for increasing sharing by the children compared to the baseline levels of sharing. This study is only one of several that were successful at systematically teaching young children how to share and take turns. Learning to share materials and take turns can be difficult skills to learn for a preschooler, but once learned many problem behaviors can be avoided. This is why it is important to teach children social skills so they possess the appropriate skills needed to play with peers, which in return, has an inverse effect by decreasing the need to engage in problem behavior which could have previously served as the function to gain access to materials and peer/teacher attention (e.g., Lalli, Browder, Mace, & Brown, 1993).

Behavioral skills training (BST) is one strategy that can effectively teach many of the social skills included in the Illinois Standards. Behavioral skills training is a teaching strategy to teach individuals to engage in the appropriate behaviors in a given setting or situation and consists of four components; instruction, modeling, rehearsal, and feedback. In the first component, instruction, the teacher tells the individual what is going to happen and what behaviors he will engage in during that situation. For example, the teacher says to the individual "When you hear the teacher say, 'time to clean up', stop what you are doing and put all the toys away that you are playing with, lets practice." The next component is modeling, the teacher engages in the desired behavior while the individual observes. The third component is rehearsal. The individual then physically practices what the teacher just modeled. Lastly feedback is provided to the individual, if the

individual performed the desired behavior correctly then praise is given, if the desired behavior was not completed to the set criterion then the individual is told how to improve and then is asked to practice the desired behavior again. Behavioral skills training is a strategy that has been used to teach many desired behaviors.

Initially BST was used to teach children safety skills when encountering dangerous situations such as; encountering strangers and gun safety (Himle, Miltenberger, Flessner, & Gatheridge, 2004; Johnson et al., 2006; Miltenberger et al., 2004; Poche, Brouwer, & Swearington, 1981). Poche et al. (1981) were the first to find that BST was effective in teaching abduction-prevention skills to children. The authors evaluated the efficacy of a BST program to teach three preschool children safety skills to prevent abduction. The BST package included modeling, rehearsal, and feedback. One trainer played the role of the child and the other trainer played the role of the stranger while the child watched the interaction. The “stranger” approached the “child” and used one of three categories of lures (i.e., a simple lure to get the child to go with the stranger, authority lure which convinced the child to leave by having the permission from the parent, and incentive lure in which the stranger promised the child an incentive). The trainer playing the role of the child modeled the correct response (i.e., engaged in a vocal and motor response, both of which indicated that they would not go with the stranger). The child was then introduced into the situation and was to engage in the safety skills as the trainer previously demonstrated. Upon the child engaging in the appropriate safety skills they received verbal praise which was occasionally paired with a sticker. If the child did not demonstrate the correct safety skill the trainer provided instructions, modeled the correct response, and the child rehearsed the appropriate behavior. The

children were rated over two categories, verbal statements and the child's movements. After the training, the teacher brought the child outdoors to a designated area by the school. The teacher then pretended to forget something inside and leave the child alone, where the child was then approached by the stranger and presented with one of the three lures. The child was never allowed to leave with the stranger, once the child did not engage in the appropriate behavior the teacher came back and the session ended. Each child completed the training within five to six sessions (i.e., approximately 90 min per child). Safety skills generalized to community settings for all three participants.

Behavioral skills training procedures have also been used to teach many of the necessary social skills that young children are expected to acquire in preschool such as; complying with instructions, sharing with peers, tolerating delays, raising hand to speak, cleaning up materials before engaging with new materials (e.g. Berler, Gross, & Drabman, 1982; Hanley, Heal, Tiger, & Ingvarsson, 2007; Miles & Wilder, 2009; Mize & Ladd, 1990). Mize and Ladd (1990) conducted a study in which they taught social skills to preschool children, in an attempted to increased the participants' social status among classmates. This study included 123 preschool children across six classrooms. The children were rated by their peers as being liked children, neglected by peers, or rejected by peers. The children that were neglected or rejected by peers were placed in a disliked children category. Of these disliked children, half of them were placed in the control group and half were placed in the group that received social skills training. The social skills training consisted of instruction, rehearsal, and feedback. Hand puppets were used in each session by the researcher to model, instruct, and provide feedback. The children were then encouraged to use the puppets to role-play the enacted scenes that

the researchers displayed. After the children role-played with the puppets they used the skills learned with peer partners. Immediately after training an assessment was conducted to determine if the sociometric rating of the classmates had changed following the social skills training. The results of the children's sociometric rating determined that there was a failure to find any significant improvements in the children's social status, despite the increase in the appropriate social skills. The authors determined that this finding could be because even though the children showed increases in their social skills, it may take peers more time to notice and accept these changes. In other words, the history that the peers had with the children had occurred too long to change their social status in that amount of time.

In a study conducted by Hanley et al. (2007) prosocial skills were evaluated in a preschool classroom of 16 children between the ages of 3 and 5 years. After classroom observations had taken place to determine the likelihood of problem behavior occurring during evocative situations and children engaging in predetermined preschool life skills, a teaching program was put in place to teach the 16 children how to perform appropriate social skills in given situations. The preschool life skills were taught on a class wide basis during typical preschool activities. Skills were taught through instructions, modeling, role play, and feedback. This study demonstrated that behavioral skills training implemented in the classroom increased the preschool life skills of all 16 preschool children; while also a decrease in problem behavior was observed because the newly learned alternative response may have served the same function of the problem behavior. The children lacked the appropriate preschool life skills which previously served the same function as the problem behavior, the child does not have a reason to engage in the

problem behavior as previously done, because of the preschool life skills that were taught.

As noted above, BST procedures include four components; instruction, model, rehearsal, and feedback. The feedback component is a differential reinforcement procedure in that when the correct behavior *is* emitted reinforcement is delivered and when the correct behavior *is not* emitted corrective feedback is provided. A specific differential reinforcement procedure is called differential reinforcement of alternative behavior (DRA). In a DRA procedure, reinforcement is programmed to follow an appropriate alternative behavior to take the place of an undesirable behavior and many times extinction (or punishment) is programmed for the undesirable behavior. An early example of the use of DRA procedures was described by Baer, Rowbury, & Baer (1973). A DRA procedure was implemented with three preschool children to increase compliance to teacher instructions. The researchers reinforced the occurrence of compliance through a token system. If the teacher suggested a task and the child then completed three items of the one task (e.g. teacher suggested doing a puzzle and the child then completed three puzzles) he received a token. If the child approached a different task the teacher would state, “You won’t get a token unless you do the one I asked you to do”, without touching the alternative item, if the child went back to the suggested item, and completed three, he earned a token and was scored as compliant. The second component to the intervention included re-phrasing the demand to an invite (e.g. instead of saying do the puzzles the teacher ‘invited’ the child to do the puzzle) and upon complying and completing the task the child received a token. A timeout procedure for noncompliance was added to the intervention for two of the participants. If the child refused to comply with an instruction

the teacher sat her in a chair in the middle of the room for 1 min. If the child left the assigned area or screamed the 1 min was restarted. At the end of the timeout the child was introduced to the activity they had just refused. The timeout procedure was withdrawn and then reinstated for each of the two participants at different points. The percentage of compliance for the two participants who received the timeout condition was the highest when the timeout procedure was being implemented. These results are consistent with a larger study in which the efficacy of FCT alone, FCT with extinction, and FCT with punishment to decrease problem behavior was assessed (Hagopian, Fisher, Sullivan, Acquisto, LeBlanc, 1998). Hagopian et al. (1998) found that the FCT procedure was most effective when paired with a consequence for the problem behavior.

It is also important to implement behavior change procedures with high integrity. For example, Wilder, Atwell, and Wine (2006) implemented a DRA procedure paired with a three-step prompting procedure at three levels of treatment integrity (i.e., 100%, 50%, and 0%) with young children to assess at which level the highest percentages of compliance was observed. During baseline, brief praise was provided by the therapist when the child complied with the instruction, if the child did not comply with the instruction the therapist did not respond. When the three-step prompting procedure was implemented the therapist delivered the instruction; praise was provided for compliance, if the child did not comply the therapist re-presented the instruction while simultaneously modeling the correct task. If the child did not comply within 10 sec, the therapist re-stated the instruction while using a physical prompt to complete the task. The results of the study demonstrated that compliance varied according to the level of treatment integrity that was being implemented. Children engaged in the most compliance when

the three step prompting was implemented at 100% of trials. Implementation at 0% of trials had the least amount of compliance. This study indicates the importance of implementing consistent consequences with high integrity

The purpose of this study was to teach social skills to a preschool child who engaged in problem behavior, deliver consistent consequence for each specific instance of problem behavior, and utilizing a tangible reward in the form of a sticker necklace.

CHAPTER 2

METHODS

Participant and Setting

Adam was a 4-year-old, typically developing boy who attended a local Pre-Kindergarten half-day program. Adam was selected to participate in the study based on the teacher reporting that he engaged in a high frequency of problem behavior as compared to his peers. Adam's problem behavior included property destruction, aggression, and taking materials from a peer. It was hypothesized that Adam engaged in these behaviors to gain access to materials and attention from peers and teachers; however, a formal functional behavior assessment was not conducted.

Sessions were conducted in Adam's Pre-Kindergarten classroom during the regularly scheduled classroom routine which consisted of him being in various rooms throughout the day (e.g., gym, playground, computer lab, and classroom). The activities included in his typical routine were; arrival, journal time, center time, circle time, hallway transitions, special activities, recess, group meeting, computers, and dismissal. Social skills training took place in Adam's classroom during center time in an area in which no other children were playing; therefore, the specific area changed daily depending on where the other children were playing. Center time is located throughout the whole classroom where different parts of the classroom serve as different centers (e.g., science, math, art, sensory).

Materials

Data were collected using paper and pencil on a clipboard by the researcher. During the intervention a necklace was made out of hemp string and laminated stickers

were added to the necklace during each session. Toys typically found in the classroom (e.g., trains, blocks, play dough extractors) were also used during the intervention.

Response Definitions

Data were collected on three target problem behaviors; aggression, property destruction, and materials taken from peer. *Aggression* was defined as; contact of Adam's hands, feet, or body with a peer or teacher. *Property destruction* was defined as; hitting, kicking, or throwing materials; and/or using classroom material in a way other than for its designated intent. *Materials taken from peer* was defined as; material taken from peer while that peer was engaged with the material. Attempts to engage in aggression, property destruction, and materials taken from peer were also recorded. *Aggression (attempt)* was defined as; Adam raising hands, feet, or body in attempt to make contact with peer or teacher. *Property destruction (attempt)* was defined as; moving hands or feet toward the direction of classroom materials in attempt to make contact with items. *Materials taken from peer* was defined as; extending hand toward material that a peer was engaging with in an attempting to gain access to that item.

Data were also collected on appropriate requests, including prompted appropriate request and independent appropriate request. *Prompted appropriate request* was defined as; the researcher withholding materials or attention and providing Adam with the instructions, "If you want _____ say, "May I have that please?"" and Adam then emitting the verbal response "May I have that please?" to gain access to the material or attention. *Independent appropriate request* was defined as; Adam requesting a material on his own using the verbal phrase, "May I have that please?" In addition, *Appropriate behavior* was defined as; complying with classroom rules and teacher's instructions,

keeping hands, feet, and body to oneself, engaging with materials as its designated intent. Although reinforcement was delivered following appropriate behavior, data were not collected on appropriate behavior.

Measurement

Data were collected using a frequency count. Every time Adam engaged in a problem behavior, that specific problem behavior was recorded as one occurrence; in addition, the time, activity, peer (if applicable), and consequence received were all recorded for treatment integrity purposes. The frequency of prompted and independent appropriate requests was also recorded, by recording the time that the appropriate request was made. All sessions were conducted for the duration of the school day (range, 150 min to 165 min).

Procedure

Baseline. In the baseline condition, the teacher and teacher's aides conducted their typical classroom routine. They were instructed to engage with Adam as they normally did and react to Adam's problem behavior as they typically did. Ways in which the teacher and teacher aides reacted to Adam's problem behavior included removing Adam from the main classroom area to a secluded area where he was required to stay for 5 min to 20 min, talking to Adam about the problem behavior he engaged in and why it was not acceptable in the classroom, denying access to materials, and/or redirecting Adam to another area of the classroom and denying access to the current area in which the problem behavior occurred for the remainder of the day.

Intervention. The intervention to decrease problem behavior was differential reinforcement of alternative behavior (DRA) and time out. In addition, behavioral skills training was implemented to increase appropriate requesting.

The DRA procedure consisted of delivering praise to Adam when he engaged in appropriate behavior on a fixed ratio 1 (FR 1) schedule. The form of praise that was included was a verbal response (e.g., “good job following the instruction that was given”), pat on the back, high five, and/or a thumbs up. In addition, when Adam engaged in an appropriate behavior the researcher told Adam, “Good job (specific behavior), you can pick out a sticker”. The stickers were placed on a necklace that Adam wore at school all day. The sticker delivery was set at a fixed interval 30-min schedule (FI 30 min); following a 30-min interval Adam received a sticker contingent on the first appropriate behavior that he emitted. After the sticker was delivered the 30-min interval was restarted. Following three consecutive days with three problem behaviors or less per day the schedule was increased by 15-min. If four problem behaviors or more were emitted per day for three consecutive days then the schedule was decreased by 15 min. The delivery of praise was on an FR1 schedule for the duration of the intervention.

When Adam engaged in aggression or property destruction he received a 1-min time out. To implement the time out, the researcher walked over to Adam, gently grabbed his hand, lead him to a secluded area away from his peers, and told him to sit criss-cross for 1 min. A timer was set at 1 min, upon conclusion of the 1 min the timer beeped which signaled the end of the time out time. The researcher did not provide any form of attention to Adam during the time out interval. If Adam left the designated area before the minute expired the researcher walked up to Adam, took his hand, and lead him

back to the time out area, without providing any attention. The timer was then reset for 1 min. When the minute expired the researcher told Adam to keep his hands and feet to himself and follow instructions. He was then allowed to enter back into the activity in which he was engaged when the problem behavior was emitted.

Prior to teaching Adam how to appropriate request materials, two confederate peers were identified and trained to share materials. The purpose of training the two confederates was to increase the likelihood that Adam's appropriate requests would be reinforced by his peers. The confederates were chosen based on their previous history of complying with instructions, engaging with peers appropriately, and a low frequency of engaging in problem behavior. Training for the confederates included the researcher evoking the play situation, which consisted of the two confederate peers and the researcher occupying a play area, the researcher giving the peers materials with which to engage, teaching them how to request appropriately (saying, "May I have that please"), and how to respond when someone else requests appropriately (give the material to the child who made the appropriate request). During the confederate training sessions, specifically the researcher provided the instruction "When someone asks you for something give it to them right away. Let's practice," while modeling the behavior to the confederates. Materials were presented to the confederates for them to rehearse what the researcher previously modeled. Praise was given to the confederates when they relinquished the material that they were engaged with when a peer requested that material (e.g. "Great job giving him the toy right away when he asked for it!").

Appropriate requesting was then taught to Adam by evoking play situations, modeling the correct response, rehearsal, and feedback. Adam accompanied the

researcher to an area that was unoccupied with other peers. The researcher withheld the materials and gave the instruction to Adam, “If you want a toy say ‘May I have that please.’” As soon as Adam requested the toy appropriately the toy was given to him along with praise (e.g., “Great job, when you wanted the toy you said may I have that please, here is the toy!”). Once Adam was requesting the items without a prompt the trained confederates were brought into the evoked play situation. All children were given the instruction, “If you want a toy make sure to say ‘May I have that please?’” and “If a friend asks you for a toy make sure to give it to him right away.” Praise was given to each child as soon as they engaged in the verbal instructions. When Adam was requesting and sharing materials with the two confederates for a period of time (range, 3 min to 7 min) without engaging in problem behavior he was free to go to other centers and other children were able to play in the centers with him. When Adam took a material from a peer the researcher took the material away from Adam and handed it back to the peer. Following the first day of training Adam was prompted to use the appropriate request when he wanted an item at the beginning of each school day. Training was implemented a total of 32 days.

Teachers’ Aide Training

The teachers’ aide in the classroom was trained to implement the intervention with Adam. Training took place in the second intervention phase. During the FI 45-min schedule the researcher informed the teacher’s aide on how the intervention was implemented. The teachers’ aide was present for the whole day where every component was modeled for her. The researcher answered any questions that the teachers’ aide asked about the implementation of the intervention. When the sticker delivery schedule

was faded to an FI 60-min schedule the teacher's aide was implementing all components on her own. The researcher gave feedback to the teachers' aide following each interaction she had with Adam, and modeled any behavior that was not implemented according to how the intervention was written. The researcher continued to collect data on Adam's frequency of problem behavior and frequency of appropriate requests while the teachers' aide was implementing the intervention on the FI 60-min schedule.

Experimental Design

This study utilized an ABAB reversal design to demonstrate the effect of DRA, time out, and BST on problem behavior and appropriate requesting. Baseline data were collected until stability in the data was demonstrated. The intervention was implemented until a stable trend emerged, once the stable trend emerged and the fading schedule was at an FI 60 min the second baseline phase was implemented. When the data in the second baseline phase showed an increasing trend in problem behavior, the intervention was re-implemented. When the fading schedule was increased to an FI 45-min schedule the teacher's aide was trained on how to implement the intervention, at the FI 60-min schedule the teacher's aide was implementing the intervention independently.

CHAPTER 3

RESULTS

Figure 1 depicts the frequency of problem behavior across baseline and intervention phases. During baseline, Adam engaged in a high frequency of problem behavior ($M=18$). When the intervention was implemented the frequency of problem behavior decreased to lower levels ($M=1.9$) compared to baseline, and continued to stay low throughout the intervention. The fixed interval schedule (FI) was implemented on April 4th. After three consecutive days of three or less instances of problem behavior the schedule was increased by 15 min. If four or more problem behaviors were emitted per day for three consecutive days then the schedule was decreased by 15 min, although this never occurred. Adam's frequency of problem behavior was on a downward trend when the FI 45-min schedule was in effect, reaching zero on the last day of the intervention. The frequency of problem behavior increased during the return to baseline and subsequently decreased when the intervention phase was re-implemented at the FI 30-min schedule. During the FI 45-min schedule of the re-implementation of the intervention (May 6th) the researcher modeled the components of the intervention, while the teachers' aide observed, and problem behavior continued to be at low levels. When the FI schedule increased to 60 min the teachers' aide began implementing the intervention independently and frequency of problem behavior stayed below the criterion.

Problem behavior consisted of aggression, property destruction, and materials taken from peers, all three problem behaviors were recorded independently from one another. Figure 2 displays Adam's frequency of aggression (top panel), property destruction (middle panel), and materials taken per day (bottom panel). Adam engaged

in high levels of aggression during the baseline condition ($M=7.6$); however, when the intervention was implemented levels of aggression initially decreased to zero.

Aggression remained at zero when the FI 30-min schedule was implemented. A slight increase in aggression was observed when the FI schedule was increased to 45 min; however, a decrease to zero was observed for three consecutive days. During the return to baseline condition Adam's frequency of aggression increased, when the intervention was re-implemented the frequency of aggression decreased to similar levels of the first intervention condition. Frequency of aggression was at a steady low rate when the intervention was modeled by the researcher to the teachers' aide, along with when the teacher's aide implemented the intervention independently.

Similar to aggression, there was a high frequency of property destruction during the baseline condition ($M=6.3$) and when the intervention was implemented the frequency of property destruction decreased to lower levels ($M=1$) although more variability was evident as compared to levels of aggression. Upon implementing the FI 30-min schedule, Adam's frequency of property destruction initially decreased, but the level of property destruction continued to show variability, although never increasing above the set criterion. Following the return to baseline, frequency of property destruction increased. Upon the re-implementation of the intervention frequency of property destruction decreased and continued in a downward trend. When the researcher modeled the intervention for the teachers' aide the frequency of property destruction decreased and remained at zero for the entire FI 45-min schedule. Upon the teachers' aide implementing the intervention independently levels of property destruction slightly increase, although never above the criterion.

In the first baseline condition, the mean frequency of materials taken from peers was 3.6. Upon implementation of the intervention frequency of materials taken decreased to zero or near-zero levels. Upon implementing the FI 30-min schedule, frequency of materials taken slightly increased and remained variable, although never increasing above our set criterion. Nevertheless, at the FI 45-min schedule, zero levels of materials taken was observed for three consecutive days. Following the return to baseline, frequency of materials taken increased to previous baseline levels, subsequently frequency of materials taken from peers decreased upon the re-implementation of the intervention and remained a zero during the modeling of the intervention and when the teachers' aide independently implemented the intervention at the FI 60-min schedule.

Figure 3 depicts the frequency of appropriate requests per day across baseline and intervention conditions. The frequency of Adam's appropriate requesting was at zero or near-zero levels during the baseline condition. When the intervention was implemented there was an increase in the frequency of appropriate requests. Appropriate independent requests were significantly higher than baseline levels during the intervention condition. The appropriate prompted requests increased slightly from baseline levels to the intervention condition. When the FI schedule was implemented and increased from 30 to 45 min, the frequency of appropriate requests remained high. Upon the baseline condition being reintroduced the frequency of both appropriate, prompted and independent requests decreased. When the intervention was re-implemented appropriate independent requests increased to similar levels as the first implementation of the intervention, and the frequency of appropriate prompted requests increased to higher levels during the re-implementation of the intervention phase as compared to all other

phases. When the teachers' aide began implementing the intervention at the FI 60-min schedule, the frequency of appropriate requests, both prompted and independent, remained high.

CHAPTER FOUR

DISCUSSION

The intervention had a strong and immediate effect on the frequency of Adam's problem behavior. When the DRA and timeout procedures were implemented, the frequency of problem behavior was at low levels and when the intervention was withdrawn the frequency of problem behavior increased, demonstrating that the decreases in problem behavior were directly related to the implementation of the DRA and timeout procedures. These results support the findings of a similar study (e.g., Hagopian, et al., 1998) which demonstrated that DRA procedures are most effective when paired with consistent consequences for the inappropriate behavior. Although the data support the use of extinction or punishment in combination with DRA procedures, there are some conditions under which one or both of these procedures will not be able to be implemented. For example, when the teacher does not have control over the reinforcer (e.g., peer attention) or if the reinforcer cannot be identified, extinction will not be effective at decreasing problem behavior because the response reinforcer relation cannot be interrupted. In addition, when extinction cannot be implemented with high integrity the problem behavior will be placed on an intermittent schedule of reinforcement and persist. Moreover, in many settings (e.g., school, home) punishment procedures are not acceptable to relevant consumers (e.g., teachers, parents). In the current study, we could not control all potential sources of reinforcement (e.g., access to peer attention or toys from peers); therefore, extinction would not have been effective. However, during a pre-intervention meeting with the classroom teachers, a 1-min timeout procedure was identified to be acceptable. Reinforcement procedures should always be implemented

first; however, when a punishment procedure is required to change behavior *and* is acceptable to the relevant consumers it should always be paired with a reinforcement procedure (Bailey & Birch, 2005).

Another goal of behavior analysts is to fade out the behavior intervention plan. In the current study, the FI fading schedule allowed us to increase the delivery of the reinforcer through 15 min increments, contingent on the criteria of three problem behaviors or less per day for three consecutive days. The fading schedule was demonstrated to be effective because the level of problem behavior remained low when the fading schedule was implemented and during each increase of the schedule. The training and the implementation of the intervention by the teacher's aide demonstrated that the procedures of the intervention were simple enough to implement with only a few days of training and practice. Continuation of low levels of problem behavior were recorded when training of the teachers' aide began along with the teachers' aide independently implementing the intervention.

Results also demonstrated that BST increased Adam's appropriate requesting. The results obtained in this study demonstrated that teaching children social skills can be an effective way to reduce problem behavior; these are similar to the results found by Duvall, Miller, Miller, and Tillman (1997). Duvall et al. (1997) found high levels of problem behavior and a deficit in social skills being used by 1, 472 participants across grades prekindergarten through fourth. The researchers taught social skills to the children, and the results indicated an increase in social skills that were targeted and a decrease in problem behavior across children. In the present study the results obtained are similar to that of Duvall, et al. (1997). In the present study, during the first baseline

condition Adam's frequency of appropriate requests was at zero to near zero levels, which indicated a skill deficit. Through BST Adam's frequency of appropriate requesting increased to high levels upon implementation of the intervention condition. When the intervention was withdrawn Adam's frequency of appropriate requesting decreased, this signifies that appropriate requesting was no longer a skill deficit, but instead it was a lack of motivation; appropriate requesting then increased once the intervention was re-implemented.

Mize and Ladd (1990) attempted to increase the sociometric rating of preschool children by their peers. Although their results for the follow-up sociometric rating determined that there was a failure to find any significant improvements in the children's social status; the authors determined that this finding could be because even though the children showed increases in their social skills, it may take peers more time to notice and accept these changes. In the present study, Adam's social status among his peers did indeed increase and was correlated with the implementation of the intervention. Prior to the study and during baseline, Adam's peers often avoided playing in the same center as him and verbally stated that they did not want to play with him because he hit and knocked over the toys with which they were playing. When Adam increased the frequency of his appropriate requests and decreased the frequency of his problem behavior, his peers began to seek out Adam's attention. Peers frequently asked to play with him and on a few occasions made him drawings to take home with him. The stickers used for Adam's sticker necklace were different cartoon characters, animals, and vehicles and Adam's peers often commented on the stickers that Adam had on his necklace and initiated a conversation with him about the characters on the stickers.

Nevertheless, data were not collected on peer perceptions of Adam's social status and this is a limitation of the current study. A future direction to assess how the acquisition of social skills (e.g., appropriate requesting, sharing, turn taking) via social skills training can affect social status is to have the children rate which peers they want to attend their birthday party. The child that is chosen least can be taught social skills through BST and then a birthday party post-test can be administered to see if the social status of the child increased upon the acquisition of the targeted skills via BST.

Although data were not collected, anecdotally speaking the teachers' aide that was trained to implement the intervention was motivated to implement the intervention independently. The classroom teacher also indicated that she was pleased with the decrease in Adam's problem behavior. All classroom staff indicated that they observed a substantial decrease in problem behavior during the intervention and were all willing to participate in the implementation of the intervention. A limitation to this study is that social validity data were not collected on the teacher's approval prior to and after the intervention. In the future, data should be collected on the teacher's approval of the intervention as this could influence their motivation to implement the intervention.

A final limitation to this study is that interobserver agreement (IOA) was not collected on the frequency of problem behavior and appropriate requests. Interobserver agreement is an important component when collecting data because when two observers are both collecting data on the same behaviors it increases the confidence that the definitions of the target behaviors were clear and that the measurement coding system was appropriate. In sum, high IOA measures increase the confidence that both observers were scoring the same behavior. Consistently high levels of IOA increases the confidence

that the variability of the data is not a result of one observer, therefore the changes in the data from each condition reflect the actual changes in behavior. Future research should record IOA to control for threats to internal validity and to ensure the simplicity of another person implementing the data recording system.

In conclusion, we demonstrated the effectiveness of the differential reinforcement of alternative behavior procedure combined with consistent consequences decreased the frequency of problem behavior in the intervention conditions. Behavioral skills training was demonstrated to be effective by increasing the frequency of appropriate requesting.

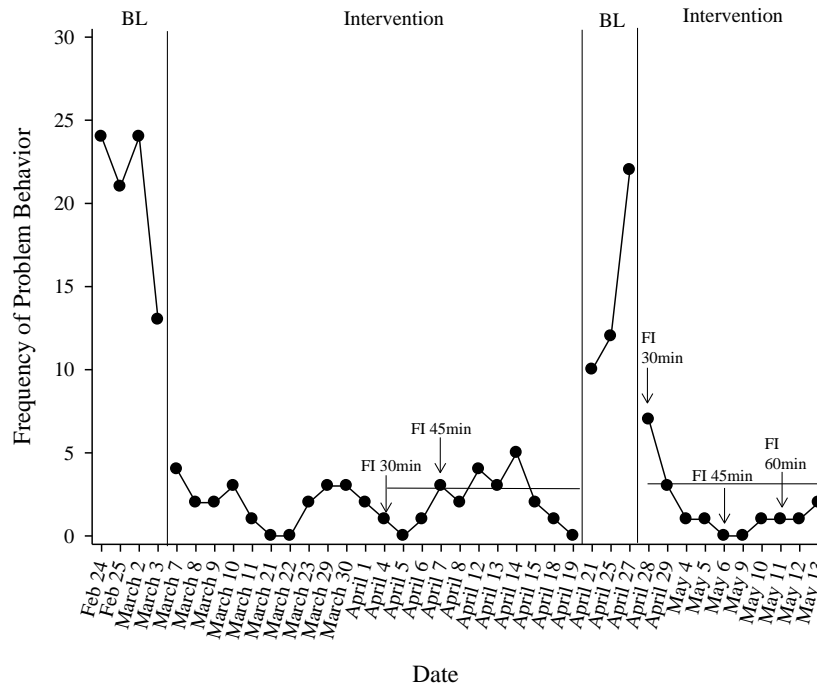


Figure 1. Frequency of total problem behavior per day, across baseline and intervention conditions. Solid horizontal line represents criterion line of fading schedule during the intervention conditions. FI represents a fixed interval fading schedule, the number in minutes following FI denotes the time that must elapse before a reward is provided.

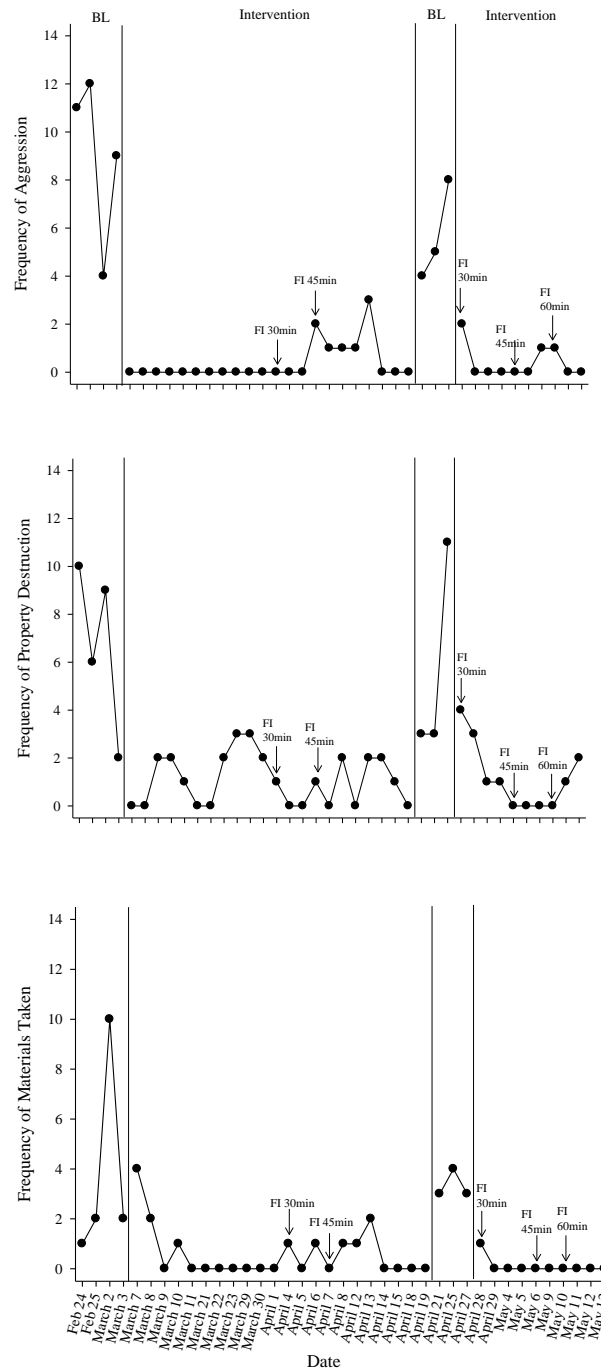


Figure 2. Frequency of aggression (top panel), property destruction (middle panel), and materials taken from peers (bottom panel) per day, across baseline and intervention conditions.

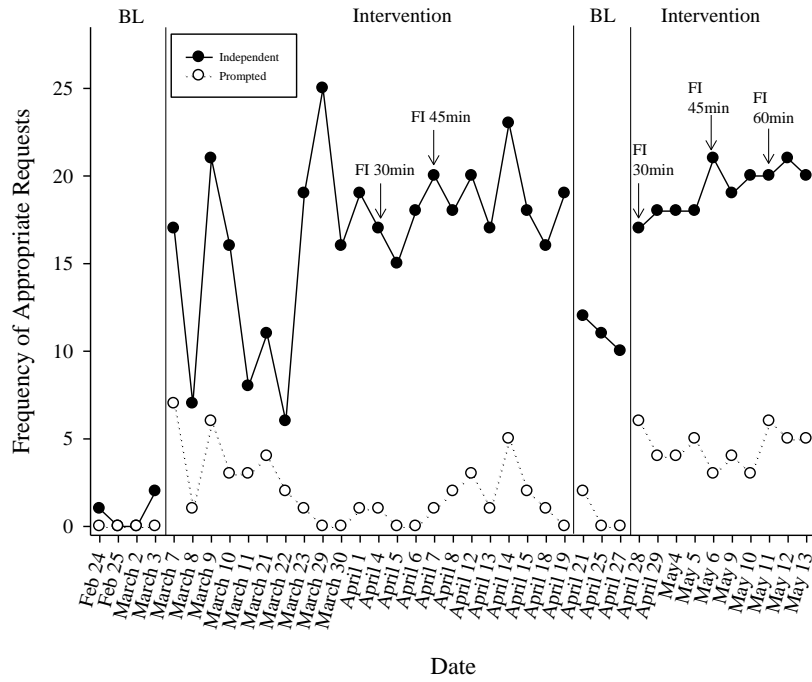


Figure 3. Frequency of appropriate requests, independent and prompted, per day, across baseline and intervention conditions.

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APPENDICES

APPENDIX A

Frequency of Problem Behavior Data Sheet

Date: _____

Coding: A: Aggression: Hand, feet, or body makes contact with peer.

M: Materials taken from peer: Material taken from peer while they were engaging with the material.

PD: Property Destruction: Hitting or kicking materials and/or using classroom property other than what its intended use is.

Time	Activity	Problem Bx	Consequence	Given by
		A M PD		
		A M PD		
		A M PD		
		A M PD		
		A M PD		
		A M PD		
		A M PD		
		A M PD		
		A M PD		
		A M PD		

Totals: A: _____ M: _____ PD: _____

Total Frequency per Day: _____

APPENDIX B

Frequency of Appropriate Requests Data Sheet

Date: _____

	Prompted	Independent
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

	Prompted	Independent
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Prompted: _____ Unprompted: _____

Total Frequency per Day: _____

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Research Paper Title:

TEACHING SOCIAL SKILLS AS A COMPONENT TO REDUCE PROBLEM
BEHAVIOR IN A PRESCHOOL: A CLINICAL CASE STUDY

Major Professor: Jonathan C. Baker