

Running Head: SOCIAL PROBLEM SOLVING

The Effectiveness Teaching Social
 Problem Solving Skills to
 Students with Autism in the Inclusive Classroom
 A Review of its Effectiveness
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ABSTRACT

The purpose of this study was to investigate the effects of teaching social problem solving skills to students with autism had on their behavior in an inclusionary classroom. Six middle school students with educational autism or Asperger's syndrome were individually taught social problem solving skills for 20 minutes a week for 4 weeks using a visual "Ready, Set, Go!" model (O'Connor & Stichter, 2011). The students were given two pre and posttests on social problems. The first pre and posttest required the students to come up with possible solutions to each problem. The second pre and posttest gave possible solutions for each problem and the students had to choose the best solution. The participants' behaviors were also monitored closely through teacher observations and individual point sheets before, during, and after the study. The results were compared to see if there was a relationship between students' behaviors in the inclusionary classroom and being taught social problem solving skills. The pre and posttests were also compared to see if there was an increase in developing appropriate solutions to problems.

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Autism spectrum disorders (ASDs) affect approximately 6 in 1000 people worldwide in three areas of functioning: social interaction, communication, and restricted or repetitive interests (Rosbrook & Whittingham, 2010). The U.S. Center for Disease Control (2013), estimates that 1 out of every 50 children will continue to be diagnosed with autism. Therefore, it is important to find strategies in the inclusionary classroom to help students communicate and process information. One reason is because legislation continues to stress the importance of including students with disabilities in the general education classroom (Embse, Brown, & Fortain, 2011).

One area of communication that is affected by autism is executive functioning (upper level cognitive processes) which include goal setting, ability to control behavior, and problem solving (Ahmed & Miller, 2010). Social problem solving allows children to be independent, succeed in an inclusionary classroom, gain self-advocacy skills, and display appropriate behaviors. According to Ware, Ohrt, and Swank (2012), this is especially prevalent in the inclusionary classroom because of the increased social demands required for students with autism. These social demands include group work, developing relationships with others, and asking and answering questions. If these demands are not met for students with autism, it can increase the use of inappropriate behaviors or actions to solve problems such as yelling, swearing, or refusal (O'Connor & Stichter, 2011). Not being able to solve social problems can lead to symptoms of anxiety and depression as individuals with autism continue into adulthood (Ware, Ohrt, & Swank, 2012).

Past research has been conducted on executive functioning as well as "Theory of Mind" (used to describe children's ability to predict behavior of themselves and others) on students with autism concluding that there is a direct relationship between social problem solving and problematic behavior (Dominick et. al, 2006). Suggested interventions have been implemented

such as Cognitive Behavioral Therapy (CBT), environment modifications, child-specific interventions, collateral skills interventions, peer-mediated interventions, and comprehensive interventions. Interventions within the inclusionary classroom have included recognizing how their own behaviors affect others; being given specific, short instructions; use of visual cues, and understanding verbal and nonverbal cues (Darretxe & Sepúlveda, 2011). Despite all of these interventions, there is a lack of research on whether teaching social problem solving skills will affect the behavior of students with autism. One explanation is because students demonstrate a wide range of behaviors that can be related to multiple factors in their environment. Another reason is because there has been little research in reducing problem behavior in relation to the inclusionary classroom (Embse, Brown, & Fortain, 2011).

Statement of the Problem

Students with autism continue to show deficits in social problem solving, especially when they are in an inclusive classroom. They use inappropriate behaviors because they are unable to come up with appropriate solutions. These behaviors can continue into adulthood, leading to anxiety and depression. There has been research conducted on social problem solving, how it affects autism, and how it relates to other subject areas. However, little research has been completed on the relationship between social problem solving, behavior, and the affect it has in the inclusionary classroom.

This study will further investigate the effectiveness teaching social problem solving skills has on the behaviors of students with autism in the inclusive classroom.

Research Question

What do the effects of teaching social problem solving skills for students with autism have on their behaviors in the inclusive, middle school classroom?

Hypothesis

1. The students will show progress on developing the best solution(s) by comparing pretests and posttests after being taught social problem solving skills.
2. The students' point sheets will demonstrate a decrease in behaviors in the inclusionary classroom after teaching social problem solving skills.
3. The students will increase the use of appropriate solutions to problems independently.

Delimitations

1. Each student will have a point sheet that reflects their specific behaviors and expectations they need to work on in the inclusive classroom.
2. This study will look at middle school students as problems become more challenging and extensive as students get older.

Limitations

The research results will be based on a small sample group. Data on behaviors will be based on point sheets and observations to determine improvement in students' behavior. Other factors may also affect the students' behavior on any given day during the study causing more inappropriate behaviors such as an increased sensory environment or unexpected events in the classroom.

Assumptions

It is assumed that students with autism need social problem solving skills to decrease inappropriate behaviors in the inclusive classroom. It also assumed that students will be able to choose appropriate solutions independently when they are taught social problem solving skills.

Operational Definitions

Autism: A neurological disorder that affects how the brain processes and uses information for social interaction, communication, and interests.

Inclusionary Classroom: Classroom environment consisting of 20 or more students with or without disabilities.

Executive Functioning: Upper cognitive processes such as goal setting, ability to control behavior, and problem solving (Ahmed & Miller, 2010).

Theory of Mind: children's ability to predict behavior of themselves and others and understand emotions.

Summary

As the number of students with autism continues to increase, and there continues to be a push from legislation for full-inclusion for students with disabilities, it is important for educators to find interventions that will be successful in the classroom. Students with autism resort to a variety of inappropriate and familiar behaviors because they are unable to develop appropriate solutions. Research on increasing social problem solving skills continues to be important to decrease inappropriate behavior for students with autism in the inclusionary classroom.

Chapter 2

Review of Literature

Introduction

Research on autism first started to become more common in print during the 1960s. Ferster and DeMyer (1962) established that students with autism could learn. This understanding brought about strategies in decreasing students with autism's problematic behaviors by helping them with social improvements by researchers such as Wolf, Risley, and Mees (1965) and Lovaas, Berberich, Perloff, and Schaeffer (1966). Since the 1960s, research on autism has continued to grow and many techniques, strategies and inventions have increased students with autism's successes in their everyday environments such as the use of visual cues and pictures, being taught social and communication skills, and social stories. However, students with autism continue to demonstrate deficits in appropriate behavior, communication, and social skills. One reason is because after review of literature on autism from Dunlap (2007), he stated, "This tremendous diversity in levels of functioning and behavioral characteristics signals the impossibility of pinpointing optimal interventions that are applicable for all." (p.162).

Past research has recognized autism as a neurological disorder that affects upper cognitive processes or executive functioning. One area that has continued to be affected by the lack of executive functioning is social problem solving. A child with autism recognizes there is a problem, but resorts to using a solution that is inappropriate and doesn't match the problem. As a child continues to become older, more extensive problems continue to surface, especially in the inclusionary classroom. Therefore, inappropriate behaviors continue to be used as solutions to everyday problems.

This study focused on teaching social problem solving to students with autism in relation to their behavior in the inclusionary classroom. It was assumed that if students with autism could social problem solve, they would start using appropriate solutions instead of inappropriate behaviors. It was also assumed that they would be able to develop these solutions independently in the inclusionary classroom.

Theoretical Basis

Embse, Fortain, and Brown (2011) studied research articles conducted in the last 10 years on autism and behaviors related to the inclusive classroom. They discovered that many positive behavioral interventions such as social skills training, functional behavior assessments, and tiered models of service delivery have decreased many of these behaviors, but few studies have focused the effects they have in the inclusionary setting. One reason was because of the wide range of behaviors and lack of communication skills for students with autism. These behaviors included disruptive behaviors such as yelling, swearing, using a raised voice, slamming books or throwing objects. There were also passive aggressive behaviors such as refusal or not responding to others.

It is important for students with autism to reduce these problematic behaviors to be included in the inclusionary classroom. Kalyva and Avramidis (2005) concluded that if students with autism had positive behavior interventions so that they could be in the inclusionary environment, they would increase their social skills. One reason is because they would be given opportunities to work with positive social role models such as their typically developing peers. If students with autism do not develop these social skills, it could result in a lack of independence and not being able to deal with everyday life situations.

Teaching social skills was another area that had shown improvement for students with autism and their effects on behavior. However, according to Embse, Fortain, and Brown (2011), many social skills studies did not include a decrease in problem behavior in the inclusionary classroom.

The following review of literature investigates how social problem solving affected students with autism, behaviors in relation to lack of social problem solving skills, and past research on interventions and treatments. The review demonstrates the need for continued research in this area, especially related to the inclusionary classroom.

Autism Affecting Social Problem Solving

Students with autism have a difficult time problem solving because of the way their brain has developed and how it processes information compared to their typically developed peers. Not being able to social problem solve affects their executive functioning, spatial working memory, and theory of mind cognitive processes. It also can directly relate to how students react and their behavior in many different circumstances. For example, Goldberg et. al. (2005), assessed problem solving, set-shifting, and nonverbal memory by the use of Cambridge Automated Neuropsychological Test and Battery to further study executive functioning. They determined that students with autism demonstrated more errors particularly when they had to solve difficult problems when they used their spatial working memory.

Further research has been conducted on the brain for children with autism through the use of MRIs (x-rays of the brain). According to Feedman and Sliverman (2008), children with autism have a less active, “Amygdala, an essential area for guiding emotional reactions, and the fusiform face area which is important for recognizing faces and facial features” (p. 64) compared to typically developing children. The frontal lobes (higher reasoning) are also enlarged

with excess white matter, a thick mucus-like substance. This interferes with their ability to plan, to have flexible behavior, and to demonstrate organizational skills. The combination of these parts of the brain not functioning the same as typically developing children are directly related to controlling and understanding emotions, organization, social problem solving, and having control over their behaviors and responses to daily situations.

Ahmed and Miller (2011) also contributed to Feedman and Sliverman (2008) research on the functioning of the brain for students with autism. The purpose of their research was to determine whether students with autism used theory of mind to guide their executive functioning. These were two areas that have affected their ability to process information.

The participants of Ahmed and Miller's study had autism and comparative cognitive functioning determined by an IQ test (Wechsler Test of Adult Reading) that was administered before the study. They also were administered three theories of mind tests: Reading the Mind in the Eyes that measured emotions; Strange Stories test that used more upper-level thinking skills such as bluffing, persuasion, and lies; and Faux Pas test that measured cause and effect in social situations. These tests were then compared to the Delis-Kaplan Executive Function System that measured executive functioning.

Ahmed and Miller's study concluded that each theory of mind test used different cognitive processes. It found that the participants used different variations of executive functioning skills on each test. The Faux Pas test had the strongest relationship to executive functioning. One reason could have been its focus on problem solving and verbal fluency, which are more complicated problem solving tasks. When students with autism used their upper cognitive processes in the study, they needed to be able to social problem solve or it would affect other areas such as understanding emotions of themselves and others; including behavior.

In summary, two areas of the brain that are directly influenced by autism are executive functioning and theory of mind. These two areas can have an effect on students with autism using appropriate solutions for social problem solving.

Social Problem Solving Related to Behavior

O'Connor and Stichter (2011), state, "Research has indicated that students with autism use ineffective strategies to problem solve because they may focus on irrelevant information, have difficulty recalling pertinent information, and may not consider outcomes prior to the use of a strategy." (p. 11)

One study that supported O'Connor and Stichter was conducted by Channon et. al. (2001). They found that students with autism, compared to typically developed students, struggled with retelling important facts and coming up with and choosing preferred solutions for each given problem. The participants in Channon et. al. consisted of 15 students with autism (ages 11-19) and 15 typically developed students (11-17). They were given eight real-life scenarios. Four of the scenarios were videotaped, the other four were written stories. The scenarios were replayed to make sure each participant remembered the main details in each story. The participants were then asked to come up with as many solutions as possible and then choose the best one. Students with autism needed more prompting to come up with the correct solution and identify solutions that were inappropriate compared to their typically developing peers.

Other past research studies conducted by Dominick et. al. (2006) and Embrets and Nieuwenhuijzen (2009) also concluded that problematic behaviors were connected to language development such as the ability to social problem solve. Dominick et. al's study focused on

young children with autism in relation to the frequency of behaviors such as tantrums, eating and sleeping, self-injurious behaviors, interrelationships, and aggression. Children with autism who demonstrated temper tantrums, aggression, and self-injurious behaviors started later in age, between 2-3 years of age (some as late as age 5). The severity of the behaviors was directly related to the children's IQ and social language development/problem solving. For example, children with autism who had a low IQ (below normal range of typically developing children) and were behind on developing social language skill demonstrated more severe behaviors than children with an average IQ and average social language development.

In Embrets and Nieuwenhuijzen (2006) study of 10-14 students with autism and borderline to mild cognitive disabilities, also found that IQ affected behavior and social language development. For example, children who had a lower IQ and a wider gap in social language development demonstrated more inappropriate behaviors. Both studies also concluded that as early as 2-3 years of age to as old as 14, children with autism continue to focus on and remember negative emotional social behavior and use it as solutions to problems. As a result, students with autism used more inappropriate behaviors in the inclusionary classroom. Their behaviors can be unpredictable and disruptive in the classroom setting, interfering with social and academic success.

If students with autism are unable to problem solve, these behaviors can continue affect them as they enter adulthood. According to Rotheram-Fuller and MacMullen (2011), anxiety rates for students with autism range between 35% and 84% in part of their lack of social skills.

Depression is also a factor that affects students with autism into adulthood. Solomon, Goodlin-Jones, and Anders (2004) analyzed effects on depression for students with autism ages

8-12. The participants were taught a 20-week social skills unit on emotion recognition and understanding, theory of mind, and executive functions/real life type problem solving. The results concluded that the participants displayed a decrease in depression and an increase in all of the social skill areas.

Rosbrook and Whittingham (2010) found similar results to Solomon, Goodlin-Jones, and Anders (2004). Rosbrook and Whittingham completed a research study to determine the effects anxiety and depression have on students with autism ages 17-35. Each participant was given five questionnaires to fill out independently that centered on depression and anxiety, social competence, teasing and problem solving. Rosbrook and Whittingham's findings revealed that there was a strong relationship between social problem-solving and past teasing to depression and anxiety symptoms for students with autism. There was not a significant relationship, however, in social competence. Therefore, the results suggest that problem solving and anti-bullying should be the main focus at school because it will continue to affect them as they transition to adulthood.

In conclusion, studies completed on participants as early as age 3 to as old as 35 indicate that social problem solving affects every age group with autism and their behaviors because they are unable to develop appropriate solutions. It also can create an anxious and negative environment making it difficult to transition and function independently. Early interventions and treatments become important starting as young as age three with autism to support them to decrease the use of negative behaviors in everyday situations.

Treatments and Interventions

After analyzing past research studies on autism, Dunlap (2007) believes that research interventions that prove to be successful for students with autism need to meet the following criteria:

(1) sufficient research has been conducted to establish the program's efficacy, (2) the critical features needed to achieve target outcomes have been identified, (3) systems have been created to prepare intervention agents and to assess the fidelity with which procedures are implemented, (4) data collection systems are in place to evaluate relevant outcomes, and (5) strategies are defined for altering procedures when anticipated outcomes are not realized. (p.162)

A positive intervention that has proven success across a number of research studies such as Wood et al. (2009), Chalfant, Rapee, and Carroll (2007), Reaven et al., (2009), and Sofronoff, Attwood, and Hinton (2005) to increase problem solving skills has been the use of cognitive behavioral therapy (CBT). Rotheram-Fuller and MacMullen (2011) gave a brief explanation on the six components of CBT:

- (1) Psychoeducation- Information is gathered on the participants specifically related to problems they experience in a social setting. Then they are taught strategies to help them.
- (2) Somatic management- Students that have complaints about pain due to tense muscles are taught relaxing strategies especially in social situations.
- (3) Cognitive restructuring- This component challenges students with autism's cognitive processes by replacing self-statements that focus on adapting to the environment around them to eliminate the personal triggers that increase inappropriate behaviors.
- (4) Problem solving-Students with autism identify different situations and are taught to develop positive solutions.

(5) Exposure- Students with autism gradually become introduced to stimuli that have posed to be difficult or problematic situations based on past experiences.

(6) Relapse Prevention- The last component coincides with Exposure. The students are taught strategies and interventions to increase appropriate behaviors in these difficult or problematic situations. (p. 164-165)

Bauminger (2002) also completed a treatment study using CBT to try to improve students with autism's cognitive abilities such as solving social problems, increasing their emotional understanding, and improving their social interaction with peers. The participants were students with autism ages 8-17 who participated in a 7-month intervention curriculum instructed by their teacher. During the 7 month period, they met with a peer to practice the skills being taught in the classroom. The parents also were involved to increase support and motivation for the participants. The curriculum included the Interpersonal Problem-Solving Model and the *I Found a Solution* program. The curriculum focused on what is a friend, why is it important to listen to a friend, teaching emotions, and interpersonal problem solving skills.

Overall, the participants improved in all three areas after the treatment was complete by comparing pre and posttests as well as observations. Bauminger used a multivariate analysis of variance with repeated measures (time: before and after intervention). Bauminger also used observations from parents and peers. The results specifically about problem solving showed that although students with autism didn't come up with more solutions to problems, they did come up with more appropriate solutions.

Bellini, Peters, Benner, and Hopf (2007) examined several types of social skills interventions: environment modifications, child-specific interventions, collateral skills interventions, peer-mediated interventions, and comprehensive interventions. They found similar results to the studies completed on CBT. Even though there have been positive results from

these interventions, Rotheran-Fuller and MacMullen (2011), Bauminger (2002), and Bellini, Peters, Benner, and Hopf (2007) all concluded that many of the studies are based on small sample groups and it is difficult to generalize these social skills in the inclusionary setting. These studies also targeted a specific intervention rather than understanding the issues that result in behaviors for students with autism.

Interventions that have been used in the inclusionary classroom have included: recognizing how students with autism's behaviors affect others; being given specific, short instructions; use of visual cues; and understanding verbal and nonverbal cues (Darretxe & Sepúlveda, 2011). However, these interventions have rarely been linked to help generalize social skills curriculum in the inclusionary classroom.

Summary

Based on the review of literature on how autism affects the cognitive processes related to problem solving, and how behavior is related to problem solving in the inclusionary classroom, many successful interventions have been tried with successful results to increase students' social skills. However, all of the studies have been related to small sample sizes and have not been generalized in the inclusionary classroom. Most of the studies also have focused on specific social skills the students need to work on but have not been associated with improving inappropriate behavior.

Problem solving continues to be an important skill for students with autism to learn to reduce problematic behavior to increase their cognitive processes such as theory of mind, executive functioning, and spatial working memory. It also will help their emotional states and well-being by decreasing anxiety and depression into adulthood.

Chapter 3

Procedures

Introduction

As students with autism continue to be included in the classroom with their typically developing peers, more strategies to reduce problematic behavior should be implemented to increase academic and social success. Review of literature has suggested that teaching students with autism social problem solving skills has increased their ability to develop more appropriate responses to solve problems. It has also suggested that there is a lack of research in using these taught skills to decrease behaviors in the inclusionary classroom.

The purpose of this study was to determine the effects teaching social problem solving skills to students with autism would have on their behaviors in the inclusionary classroom. It was a quantitative study that collected data on students' behavior, administered pre and posttests, and taught problem solving skills.

Experimental Design

This study is a quantitative experimental design. The research will be gathered based on the students daily point sheets to monitor their behavior, and responses to pre and posttests.

Participants

The participants in this study were six middle school students with educational autism or Asperger's syndrome from the researcher's classroom. Their ages ranged from 12-14. These students were receiving one-on-one social skills instruction once a week for 20 minutes before the study was conducted. One student was female and the other 5 students were male. The participants' backgrounds consisted of 6 white-non-Hispanic children from middle to lower class

living in suburban or inner city areas in Wisconsin. The participants were in good physical and mental health.

Three of the participants demonstrated behaviors in the inclusionary classroom that were verbal shout-outs, arguing with the teacher, and slamming down school materials such as books, pencils, and folders. The other three participants demonstrated more passive, aggressive behaviors such as putting their heads on their desks, refusing to work, and not communicating with the classroom teacher.

Procedures

This study took approximately 8 weeks to complete. The first two weeks, the students took two pretests on trying to come up with solutions to given middle school problems. The first pretest the students had to write an appropriate solution(s) that would fit with the problem. On the second pretest, the students were given the same problems but were given possible solutions to choose from to solve the given problems (See Appendices A and B).

The participants' behavior was also monitored in the first two weeks through their point sheets (See Appendix D). The point sheets listed the expectations in each of their classes that they had been utilizing since the beginning of the school year. For the study, an additional icon was added to the point sheets. The classroom teacher had the option of circling "yes" or "no" if the behavior related directly to problem solving.

The next 4 weeks of the study the participants were taught to socially problem solve in a one-to-one setting for 20 minutes a week. They used a "Ready, Set, Go!" method which was a visual model to teach the steps for problem solving (See Appendix C). The teacher modeled a social problem using the "Ready, Set, Go!" problem solving steps. Then the students did one with the teacher. Lastly, they completed an example using the problem solving steps

independently. The problem solving steps were also placed in the students' planners that they take to all of their classes to assist with generalization and referencing. Their behavior continued to be monitored during instruction.

In the last two weeks of the study, the participants participated in posttests on social problem solving. The posttests were exactly the same as the pretests to see if there was improvement on their ability to come up with more appropriate solutions. The participants' behavior was also monitored to see if there was a decrease in behavior after the students were taught how to social problem solve.

Data Analysis

At the end of the study, data from the students' point sheets, e-mails from classroom teachers and observations were compared before, during, and after the study by looking at how many "yes" and "no's" were circled and reports from teachers to determine if there was a decrease in students' individualized behaviors. Data was collected in this format to get daily updates on the participants' behavior from all of their classroom teachers.

Data was compared from the pre and posttests to determine if the students increased the number of appropriate solutions to problems. Data from the point sheets and pre and posttests were then analyzed to determine if there was a relationship between social problem solving and behavior in the inclusionary setting.

Summary

Review of past literature indicated that more studies needed to be completed to determine how to decrease behaviors in the inclusionary classroom. Multiple and unpredictable behaviors can be difficult to determine a cause, especially when students with autism struggle

understanding their own emotions. The results from this study will contribute to current research to help find solutions to problematic behaviors for students with autism.

Chapter 4

Results

Introduction

The results of the study gave further insight on how to decrease behaviors in the inclusionary classroom for students with autism by teaching them social problem solving skills. It included 6 students diagnosed with educational autism or Asperger's syndrome with various cognitive levels. The students were taught a Ready, Set, Go problem solving model (See Appendix C) during 20- minute/weekly sessions with the special education teacher. When using the model, the participants used social problems they had continued to struggle with at school. Their behaviors were monitored by their daily point sheets (See Appendix D) before, during, and after the problem solving unit. Lastly, they were also given a pre and posttest of problems to see if there was an improvement in number of solutions they were able to develop compared to before and after the study.

Results

The participants were charted below on the frequency of their behaviors. It is separated by the weeks before, during and after the study. The behavior results are as follows:

Students	Before Week Jan 28-Feb 1 Week Feb 4-8	During Week of Feb 11-15 Week of Feb 18-21 Week of Feb 25-Mar.1 Week of Mar. 4-8	After Week of Mar. 11-15 Week of Mar. 18-22
Student A	2 behaviors per week	Feb 11-15- 3 behaviors Feb. 18-21- 2 behaviors Last 2 weeks- 1 behavior	The first week 1 behavior The last week 0 behaviors
Student B	3 behaviors per week	First week 1 behavior Second week 3 behavior Third week 1 behavior Fourth week- 2 behaviors	2 behaviors after the study
Student C	1 behavior per week	1 behavior each week	0 behaviors per week
Student D	2 behaviors per week	2 behaviors the first week 3 behaviors the second and third week	3 behaviors the first week 2 behaviors the second week 1 behavior the last week
Student E	1 behavior per week	1 behavior the first and third week 2 behaviors the second and fourth week	3 behaviors the second week 0 behaviors the last week
Student F	2 behaviors per week	2 behaviors the first and second week 3 behaviors the third week 1 behavior the fourth week	1 behavior per week

According to the results, student A decreased behaviors during the last week of the study. Student B's behavior remained constant, Student C's behavior decreased from 1 to 0, and student D's behaviors decreased from 2-3 occurrences to 1 occurrence by the last week. Student E's behaviors decreased from 1-3 occurrences to 0 occurrences, and student F's behaviors decreased from 2-3 occurrences to 1 occurrence per week.

The participants also were administered pre and posttests (see Appendix B) to see if they were able to develop solutions and choose the correct solution before and after the study. The chart below displays the solutions each participant came up with on these tests.

	Question 1: During a game in gym class, you notice that Tommy is cheating during a tag game. What do you do?	Question 2: You get in an argument with a group member about the correct answer to a question. What do you do?	Question 3: A person in the group is not allowing you to use any of the materials for the project. What do you do?	Question 4: You forgot to do your homework for class. What do you do?	Question 5: Your locker is stuck and you might be late for class. What do you do?	Question 6: Someone calls you a bad name in the hallway. What do you do?
Student A	Pretest: Report to the teacher calmly Posttest: Tell teacher calmly and politely about the problem.	Pretest: Calmly explain how I got the answer. Posttest: Ask teacher for help with the question	Pretest: Ask the teacher for materials. Posttest: Ask teacher if I could move to another group.	Pretest: Ask for a pass for lunch to work on it if possible, finish the homework in study hall. Posttest: Inform teacher that I have late work.	Pretest: Ask a teacher for help and ask for a pass. Posttest: Ask for help with opening the locker and politely ask for a pass.	Pretest: Report to a teacher near the hallway. Posttest: Tell teacher about the problem and stay calm.
Student B	Pretest: Tell the teacher. Posttest: Tell the teacher, tell Tommy to	Pretest: asked teacher Posttest: ask the teacher, do what they think is right.	Pretest: Tell the teacher Posttest: Tell a teacher, ask the student to share, ask the teacher for more	Pretest: Come in at lunch Posttest: Ask the teacher to get your	Pretest: Get the teacher to help you. Posttest: Ask a teacher for help, go	Pretest: Tell a teacher Posttest: Tell a teacher, ignore them.

	stop cheating.		materials.	homework, ask for a new sheet of homework.	to class and tell the teacher	
Student C	Pretest: Tell him to stop Posttest: Tell Tommy to stop cheating and tell the teacher that someone is cheating.	Pretest: Ask someone who is right. Posttest: Ask a teacher to sort out the argument	Pretest: Tell the teacher Posttest: Tell the teacher	Pretest: Tell the truth Posttest: Ask your teacher for a study hall	Pretest: Ask someone for help Posttest: Ask for a pass and get help with your locker.	Pretest: Tell the teacher Posttest: Tell someone
Student D	Pretest: Nothing because it doesn't involve me. Posttest: Try to tell him to stop.	Pretest: Ask someone for help. Posttest: Tell the teacher	Pretest: Tell the teacher Posttest: Ask him to share	Pretest: Tell the truth Posttest: Tell the truth	Pretest: Tell someone Posttest: open it quickly	Pretest: Tell them to stop. Posttest: Tell them it's not nice.
Student E	Pretest: You could tell him the rules and how he cheated. Maybe just tell him to stop. Posttest: Tell him to stop	Pretest: Try the problem again and see if you get the same answer. Posttest: Ask someone else for help.	Pretest: Ask a teacher if you can use the materials instead. Posttest: Ask the teacher if you could use them.	Pretest: Stay in for recess and do it. Posttest: Do as much as you can and let the teacher know you forgot to do your	Pretest: Ask someone if they can get your locker unstuck. Posttest: Fill out a pass	Pretest: Tell a teacher Posttest: Tell a teacher

				homework.		
Student F	<p>Pretest: Go over to Tommy and tell him to stop cheating.</p> <p>Posttest: Tommy, may you please stop cheating and play fair please?</p>	<p>Pretest: Compare each other's work and show how you go your answer.</p> <p>Posttest: Show how you and the other person got their answer.</p>	<p>Pretest: Say "Dude, What's up? Is there something wrong with me helping on the project?"</p> <p>Posttest: "Hey, may I please use this and help with the project?"</p>	<p>Pretest: Tell the teacher you forgot to do your homework.</p> <p>Posttest: Let the teacher know you didn't do your homework and ask to stay inside to do it.</p>	<p>Pretest: Go tell the teacher at your next class you are having locker problems.</p> <p>Posttest: Go to your next class and say to the teacher "My locker will not open. May you come help me open it?"</p>	<p>Pretest: Walk away</p> <p>Posttest: Ignore them and continue walking to where you are going.</p>

Student A had comparable results from the pre and posttests. The student developed one solution to each problem on both tests except for question 4 by developing two solutions on the pretest and one solution on the posttest. Student B developed more solutions after the study for questions 1, 3, 4, 5, and 6 compared to the pretest. Student C developed one solution for each problem on the pre and posttest except for question 5 on the posttest by developing 2 solutions. Questions 1, 2, 4, and 5 had more detailed solutions. Student D developed one solution for each question on the pre and posttest. The student had a better solution for questions 1 and 3 on the posttest. Student E had comparable results on the pre and posttests for questions 2, 3, 5, and 6. On question 1, the student developed 2 solutions on the pretest compared to one solution on the posttest. On question 4, student E developed two solutions on the posttest compared to one solution on the pretest. Student F increased from one solution on the pretest to two solutions on the posttest for questions 4 and 6. Student F also had a more appropriate answer on the posttest for question 3.

The students were also given the same questions again on the first pre and posttest, but in a multi-choice format (See Appendix C) to see if they were able to choose the most appropriate solution for each problem.

Student A put down the same answers for the pre and posttests and all were correct except for Question 2. On the pretest he chose a better solution than the posttest. Student B had all of the questions answered correctly except for question 2 on both the pre and posttest. Student C did not answer question 3 and 5 correctly on the pretest but answered them correctly on the posttest. Student D had the same right answers on the pre and posttest except for questions 2 and 5. Student E answered all of the questions on the pretest correctly. On the posttest, Student E

answered question 2 and 5 incorrectly. Student F was able to choose all of the right solutions on the pre and posttest.

Summary of Results

The results indicate that all six students' inappropriate behaviors decreased by at least one occurrence per week by the last week of the study compared to before the study. The students' behaviors fluctuated before, during, and after the study by increasing or decreasing by 1 occurrence. For example, Student B had three behaviors the first two weeks before the study. Then student B's behaviors started to fluctuate during the study from one, three, one, and then two behaviors per week. After the study, Student B's behaviors continued to be consistent with 2 occurrences per week.

The results of the pre and posttests indicated that all of the students were able to brainstorm one more appropriate solution after the study was completed. The multiple choice pre and posttest found no change from the pre and posttest indicating that the participants put down the same answers on both tests.

Chapter 5

Discussion

Interpreting Results

Past research has indicated that there is a direct relationship between behavior and being able to social problem solve for students with autism. One reason for this link is based on the executive functioning and theory of mind of the brain that is affected by autism. Therefore, the main purposes for this study based on the hypothesis, was to increase appropriate solutions to problems and decrease behaviors when the participants with autism were taught how to social problem solve.

The results of the research support the hypothesis of identifying more appropriate solutions after the study by the pre and posttests when the students had to write their own solutions to each problem. All six students in the study developed at least one or more appropriate solution(s) after the study compared to before the study. The results of this study closely correlate with past research completed on social skills instruction such as the CBT (Cognitive Behavior Therapy) and on theory of mind and executive functioning. The results from this study and past studies demonstrated an increase in coming up with appropriate and more solutions when students with autism received social skill training.

When analyzing the multiple-choice format of the pre/posttest, students with autism in this study did not change their answers when they are given a list to choose from by comparing the pre and posttests. This test gave insight on autism by demonstrating that they will not change their answers if they are not directly taught these skills. However, the multiple choice test did not accurately test the students' abilities to identify and develop more appropriate solutions.

The results also displayed a decrease in behaviors by all six students, especially in the last week of the study. However, it is difficult to determine if the decrease in behaviors was the result of the Ready, Set, Go social problem solving model or events that happened within the weeks of the study. One reason is because the students' behaviors fluctuated throughout the study. There was not a steady decline when looking at before, during, and after the study. Not much research has been conducted on linking behavior to teaching social skills instruction because unexpected factors within the students' environment can affect their behaviors.

It is also difficult to generalize social skill concepts in different environments because students with autism have a wide range of behaviors. During the study, the participants were given two ways to help with generalization by using problems they did encounter during the day to practice the ready, set, go social problem solving model and by taping the steps in their planner. When discussing the social skills instruction model with the participants after the study, three of them felt like it had helped them at school and three of them didn't feel like it had an impact on them.

Limitations

One limitation to this study was the sample size. The sample size was small as well as the sample sizes from past research that have been conducted on students with autism. Another limitation was the participants' behaviors. It can be difficult to know the cause for behaviors because students with autism have a difficult time communicating their feelings to others. There are also multiple reasons for behaviors to occur throughout the day such as; being tired, more unexpected events happen that day, schedule change in the student's daily routine, anxiety levels, or events that occurred at home which cannot be controlled in this experiment.

Conclusion

The importance of this study contributes to past research and continues to support the importance of increasing social and problem solving skills for students with autism. The study also concluded that social skills should be generalized for them so that they can be used across multiple settings.

One set social problem solving strategy may not change behaviors significantly for students with autism in part of the function and development of the brain. Students with autism should be directly taught the right solution or they will continue to resort to the same solution; negative or positive, for every problem. Continued research on behavior as well as strategies for students with autism will create a variety of tools that can be used to help them based on the wide range of abilities, needs, and behaviors.

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Appendix A

Pre/Posttest-1

1. During a game in gym class, you notice that Tommy is cheating during a tag game. What do you do?
2. You get in an argument with a group member about the correct answer to a question. What do you do?
3. A person in the group is not allowing you to use any of the materials for the project. What do you do?
4. You forgot to do your homework for class. What do you do?
5. Your locker is stuck and you might be late for class. What do you do?
6. Someone calls you a bad name in the hallway. What do you do?

Appendix B**Pre/Posttest-2**

- 1. During a game in gym class, you notice that Tommy is cheating during a tag game. What do you do?**
 - A. Yell across the gym saying “Tommy is cheating”.
 - B. Yell at Tommy and say, “Stop cheating”.
 - C. Stop playing the game and go sit by the wall.
 - D. Walk over to the gym teacher and calmly say, “Tommy is cheating during the game. He is being tagged by the opponent but refuses to go to the wall saying that he is out of the game.”

- 2. You get in an argument with a group member about the correct answer to a question. What do you do?**
 - A. Ask the teacher to solve the argument.
 - B. Listen to the other group member explain how he/she got the answer and then come up with a compromise.
 - C. Continue to state how you got the answer until your group member agrees with you.
 - D. Ignore your group member and work by yourself

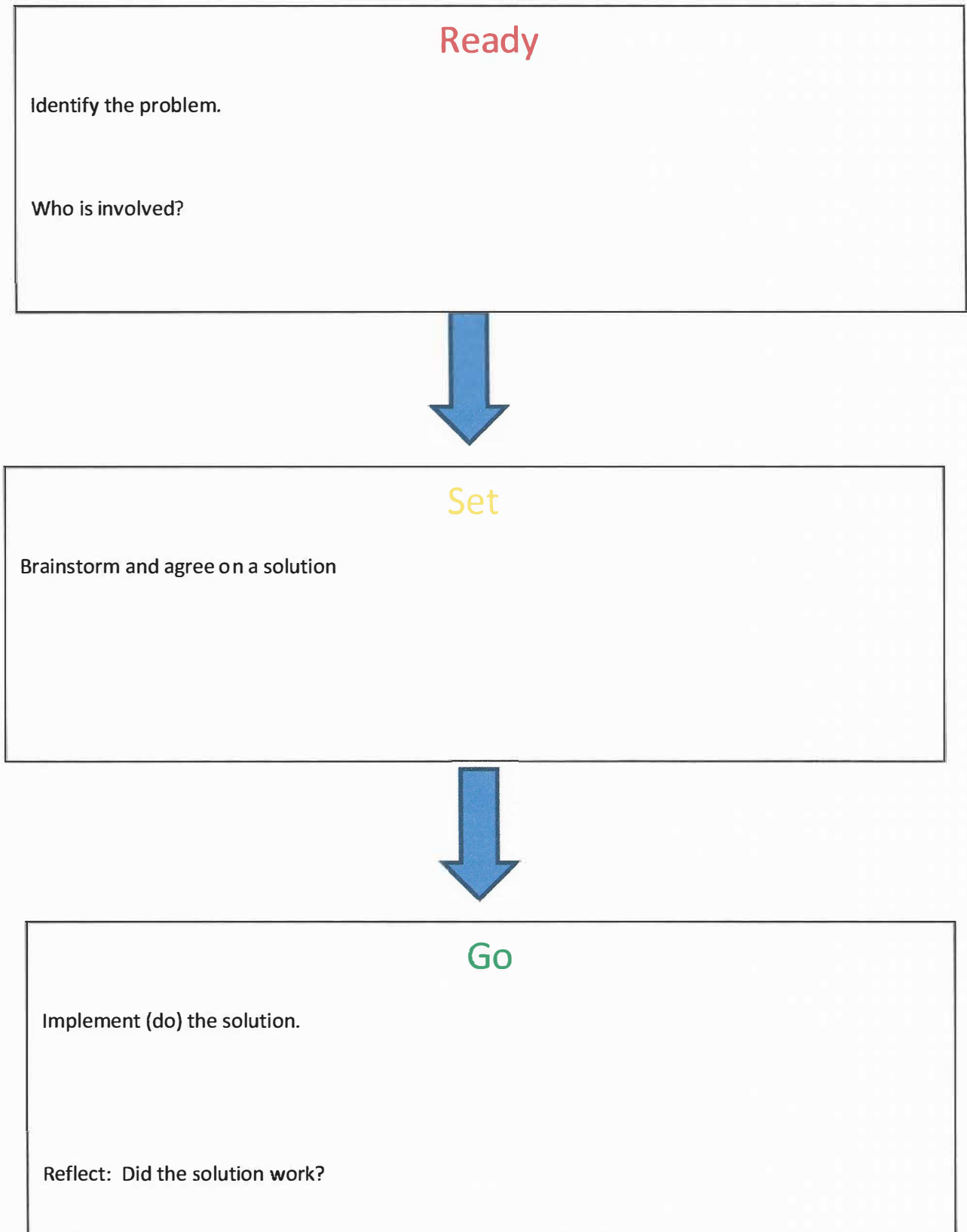
- 3. A person in the group is not allowing you to use any of the materials for the project. What do you do?**
 - A. Explain to that person to share the materials by asking them, “Can I use that object and then you can use the next object?”
 - B. Raise your hand and tell the teacher that the person is not sharing.
 - C. Join a different group

- 4. You forgot to do your homework for class. What do you do?**
 - A. Don’t go to class; go to the special education room.
 - B. Tell your teacher that you don’t have your homework done and ask if you can finish it in the hallway, special education room, or the media center.
 - C. Sit at your desk and don’t get your homework out because you know you don’t have it done.
 - D. Don’t talk to the teacher. Just sit quietly until class is over.

- 5. Your locker is stuck and you might be late for class. What do you do?**
 - A. You try to hurry as fast as you can to get to your class.
 - B. You continue to work on trying to open your locker.
 - C. You ask a teacher in the hallway to help you.
 - D. You go to your next class and explain to the teacher that your locker is stuck and ask if someone can help you.

- 6. Someone calls you a bad name in the hallway. What do you do?**
 - A. You call the student a bad name back to him/her.
 - B. You yell or stomp your feet in the hallway
 - C. You go to your next class and sit down and put your head down because you are mad.
 - D. You go to your next class and let your teacher know the person that called you the bad name.

Appendix C



Appendix D

2= Expectation met or needed 0-1 reminders 1= Expectation partially met or needed 2 reminders

0=Expectation not met or needed 3 reminders

Class Period	Be Ready	Be Respectful	Be Responsible	Be Safe
1 Resource Teacher initials:	0 1 2 Sitting in seat right away	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No
2 Math Teacher initials:	0 1 2 Sitting in seat right away	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No
3 Science Teacher initials:	0 1 2 Sitting in seat right away	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No
4 Literacy Teacher initials:	0 1 2 Sitting in seat right away	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No
5A Phy. Ed Teacher initials:	0 1 2 Sitting in seat and or dressed and ready	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No

				solving? Yes No
6 Spanish Teacher initials:	0 1 2 Sitting in seat right away	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No
7 Social Studies Teacher initials:	0 1 2 Sitting in seat right away	0 1 2 No arguing: Accepting teacher direction No Shout outs (yelling out without raising hand, singing, talking in loud voice) Was it related to problem solving? Yes No	0 1 2 On task	0 1 2 No verbal or physical aggression towards teachers or peers: calling other people names, yelling in an angry voice/tone , slamming books Related to problem solving? Yes No
			Possible Points: 56	Total earned: