

SOCIAL SKILLS INTERVENTION FOR STUDENTS WITH AUTISM SPECTRUM  
DISORDERS: A SURVEY OF SCHOOL PSYCHOLOGISTS

by

Amanda S. Day

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

EDUCATIONAL SPECIALIST

in

Psychology

Approved:

---

Gretchen Gimpel Peacock, Ph.D.  
Major Professor

---

Thomas S. Higbee, Ph.D.  
Committee Member

---

Donna Gilbertson, Ph.D.  
Committee Member

---

Byron R. Burnham, Ed.D.  
Dean of Graduate Studies

UTAH STATE UNIVERSITY  
Logan, Utah

2011

Copyright © Amanda S. Day 2011

All Rights Reserved

## ABSTRACT

Social Skills Intervention for Students with Autism Spectrum  
Disorders: A Survey of School Psychologists

by

Amanda S. Day, Educational Specialist

Utah State University, 2011

Major Professor: Dr. Gretchen Peacock Gimpel  
Department: Psychology

Social skills interventions for students with autism spectrum disorders (ASD) are needed as the number of students with ASD are increasing in educational settings. The purpose of this study was to investigate school psychologists' perceptions on the effectiveness and generalization of social skills interventions for students with ASD. Training and confidence of providing services to students with ASD was also examined in the study. A survey was administered to a sample of school psychologists from the National Association of School Psychologists (NASP). In total, 221 responses were received and 136 of those responders indicated that they have implemented or organized a social skills intervention for a student(s) with ASD. It was found that the majority of school psychologists were implementing, organizing or recommending Social Stories and Pivotal Response Training/Direct Instruction interventions. It was also discovered that Pivotal Response Training/ Direct Instruction was perceived as one of the most effective

social skills interventions. Peer mediated interventions were perceived to be better at generalizing social skills interactions outside of training. School psychologists rated their confidence in providing direct/indirect social skills interventions as moderate.

(92 pages)

## CONTENTS

	Page
ABSTRACT .....	iii
LIST OF TABLES .....	v
CHAPTER	
I. INTRODUCTION .....	1
II. LITERATURE REVIEW .....	6
Autism and Autism Spectrum Disorders (ASD) .....	6
Social Skills Interventions .....	14
Peer Mediated Interventions .....	22
Conclusions .....	32
Purpose and Objectives .....	33
Research Questions .....	33
III. METHODS .....	35
Participants .....	35
Procedures .....	37
IV. RESULTS .....	39
Percentage of School Psychologists Working with Students with ASD .....	39
Effectiveness of School Psychologists When Working with Students with ASD .....	40
School Psychologists' Organization or Implementation of Social Skills Interventions for Students with ASD .....	41
Most Frequently Used Social Skills by School Psychologists for Students with Autism .....	42
School Psychologists' Perceptions of Most Effective Social Skill Interventions for Increasing Social Interactions for Students with ASD .....	43
School Psychologists' Perceptions of Social Skills Interventions Most Effective at Generalizing Outside of Training Sessions .....	46

	Page
V. DISCUSSION .....	48
Roles of School Psychologists in Regards to Autism Spectrum Disorders .....	48
School Psychologists' Confidence in Effectiveness of Services .....	50
Organization and Implementations of Social Skills Interventions for Students with ASD .....	51
Perceived Effectiveness of Social Skills Interventions .....	53
Perceived Generalization of Social Skills Interventions .....	55
Limitations .....	56
Future Directions .....	58
REFERENCES .....	60
APPENDICES .....	75
Appendix A: Survey .....	76
Appendix B: Letter of Information .....	84

## LIST OF TABLES

Table		Page
1	School Psychologist Demographics .....	36
2	Types of Training School Psychologists Have Received .....	41
3	Social Skills Interventions Used by School Psychologists for Students with Autism .....	44
4	School Psychologists' Perceptions of the Effectiveness and Recommendation of Social Skills Interventions .....	45
5	Generalization of Social Skills Interventions .....	47

## CHAPTER I

### INTRODUCTION

The Individuals with Disabilities Education Improvement Act (IDEA, 2004) and the *Diagnostic and Statistical Manual of Mental Disorder Fourth Edition Text Revision* (DSM- IV-TR; APA, 2000), define autism as a developmental disability significantly affecting verbal and nonverbal communication and social interaction. Symptoms of autism must be present before the age of three and must adversely affect a child's educational performance. Characteristics often associated with autism are resistance to changes in the environment or daily routines, unusual responses to sensory experiences, and repetitive or stereotyped activities. Autism is one disorder among a spectrum of disorders. This spectrum of disorders is often called pervasive developmental disorders (PDD) or autism spectrum disorders (ASD). Other disorders within these categories include Rett's syndrome, child disintegrative disorder, Aspergers, and pervasive developmental disorder not otherwise specified. The Center for Disease Control's (CDC) and Autism and Developmental Disabilities Monitoring (ADDM) Network in 2006 reported about 1 in 110 8-year-old children in multiple areas of the United States had an ASD.

As defined by both IDEA (2004) and DSM- IV-TR (APA, 2000) one of the key features of autism is impairment in reciprocal social interaction. In infants with autism there may be a failure to cuddle, an indifference to affection or physical contact, lack of eye contact, lack of facial responsiveness, or a failure to respond to the caregiver's voice. Parents of children with autism will often notice the lack of reciprocal interaction early in the infant's life and may assume their child has a hearing impairment. Children with

autism may be more willing to passively engage in social interaction, but still treat other people in unusual ways such as asking repetitive questions until answered, having little recognition of other's boundaries, and acting intrusive (Bono, Daley, & Sigman, 2004). As children with autism age, some may desire to form friendly relationships, but often lack the skills in order to do so appropriately (Hwang & Hughes, 2000).

Social skills are paramount for a developing child to learn how to interact with others and build relationships, but they are also important as a child begins to acquire academic skills. Studies show that social competence is related to educational performance (Kupersmidt, Coie, & Dodge, 1990; Ladd, 1990; O'Neil, Welsh, Parke, Wang, & Strand, 1997; Patrick, 1997; Ray & Elliott, 2006; Welsh, Parke, Widaman, & O'Neil, 2001; Wentzel, 1991a; Wentzel, 1996). Not only does social interaction affect educational performance but educational performance can be predicted from indications of social adjustment (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000). Because most students with autism spectrum disorders (ASD) are unable to reciprocate socially and maintain social competence their performance in the educational environment may suffer. Students with ASD who do not learn social skills in school may not have the ability as adults to maintain positive relationships with others and may become isolated or withdrawn from society (Sticher, Randolph, Gage, & Schmidt, 2007; Wilczynski, Menousek, Hunter, & Mudgal, 2007). Students who become isolated may have lower quality of life and possibly develop increased deficits in cognitive and language areas (Rogers, 2000; Sticher et al., 2007; Vygotsky, 1978). Thus, it is important that social skills interventions be implemented early on as part of an educational plan for a student with ASD.

Within the public school system, once a child is classified as having an ASD and it is shown that her/his educational performance is impacted because of the disability then he/she is eligible for an Individualized Education Program (IEP). The IEP is a comprehensive plan for each child and consists of unique measurable goals and objectives (Wilczynski et al., 2007). IDEA 2004 requires that all students with disabilities have access to, be involved with, and progress in the general education curriculum. It is the job of educators, parents and school officials to see that a student with an IEP is succeeding in school. The IEP contains all domains a student with ASD is expected to learn and maintain in a given period of time (Yell, Drasgow, & Lowrey, 2005). Adding social skills goals and objectives to a student's IEP may be extremely beneficial to help the student succeed academically as well as socially.

School psychologists can play a vital role, as a team member, in the development of an IEP for students with ASD. School psychologists are increasingly involved in the inclusion and integration of students with autism in regular education classrooms. Educators, parents, and school professionals often report feeling incapable of serving students with ASD (Simpson, de Boer-Ott, & Smith-Myles, 2003). However most school psychologists should receive the training needed to help guide professionals and parents to better serve students with ASD. If properly trained, most school psychologists should have the expertise to help create an accurate and research-based educational plan for an individual student with an ASD (Olley, 1999). Therefore it may be part of the school psychologist's role to help implement or organize social skills interventions that take place for a student with ASD (Williams, Johnson, & Sukhodolsky, 2005).

Social skills interventions can be classified by the design and purpose of the intervention. Child-specific interventions consist of instruction and reinforcement techniques such as self-monitoring, behavior modification, modeling, prompts, and priming in order to increase the frequency and quality of social behaviors produced by children with autism. Gonzales-Lopez and Kamps (1997), as well as other researchers (e.g., Gresham, Sugai, & Horner, 2001; Rogers, 2000) have found that social skills are learned behaviors and with specific trainings and opportunities to practice social skills over time, students with autism will increase social interactions. Other child-specific interventions include social stories and social scripts/script fading.

Peer-mediated interventions can also be used to increase social skills for students with ASD. Peer-mediated interventions involve the addition of peers to help the students with ASD increase skills and can be done in many ways such as in classwide interventions, training sessions, groups, tutoring, buddy systems, or integrated play. Peers can be important in the process of helping students with ASD gain social skills (McConnell, 2002; McEvoy, Odom, & McConnell, 1992). Video-modeling interventions use modeling techniques via video to teach children with autism social interaction skills (Bellini & Akullian, 2007; Buggey, 2007).

Although social skills trainings are important, there are issues that must be considered when designing and implementing programs to ensure their maximal effectiveness. Learned social skills can be difficult to generalize to novel settings outside of training and in the midst of novel peers (Wilczynski et al., 2007). In other words social skills learned in a training session may not generalize to other settings such as the playground, lunchroom, regular education classroom, physical education, and so forth, or

anywhere other students outside of training are present. This can be a concern for parents, teachers, and school professionals when considering the use of social skill interventions in a child's IEP (Rogers, 2000).

Another concern when implementing social skills trainings for students with ASD is the task of developing the right individualized education plan for each student. Each student with ASD will display different characteristics and different degrees of deficits. It is important that school professionals understand the complexities of ASD in order to create trainings that will best help a student in all areas of academic achievement including social interactions (Wilczynski et al., 2007).

Social skills are important for all students to increase success in school settings, but are underdeveloped for students with ASD. Knowing the interventions being used in school settings to help children with ASD increase social interactions is important. The effectiveness and generalization of the interventions should also be considered. Knowledge about effective social skills interventions can help to increase appropriate practices for students with ASD in regards to educational performance. Team members in the school setting can help develop IEP for students with ASD. As vital team members school psychologists can play an important role in the development and implementation of social skill interventions for students with autism. The purpose of this study was to survey school psychologists across the nation to gain information on what social skills interventions they are using for students with autism as well as their perceptions of the effectiveness and generalization of these interventions. The hope is that this gained information will help future professionals develop appropriate and effective interventions for students with ASD.

## CHAPTER II

### LITERATURE REVIEW

#### **Autism and Autism Spectrum Disorders (ASD)**

##### **Description of Autism**

Autism was first discovered in 1943 and since then has been a puzzling and often-researched disorder. Autism is a disorder found among all races, socioeconomic groups, and gender (Wolff, 2004). Autism is a pervasive developmental disorder and is characterized by three main impairments: repetitive stereotyped patterns of behaviors, activities, or interests; impairments in communication; and impairments in social interactions. Unusual responses to sensory experiences and resistances to changes in the environment or daily routines are other typical characteristics associated with autism. Other pervasive developmental disorders related to Autism are Asperger's disorder, Rett's disorder, childhood disintegrative disorder, and pervasive developmental disorder-NOS. Autism is considered a spectrum disorder, in which a person's level of autistic behavior is classified according to the amount of impairment and the associated pervasive developmental disorders are often referred to as ASD. Descriptors such as "mild" or "high functioning" (meaning the child has less impairment in development) and "low functioning" or "severe" (meaning the child has more impairments) are often used by professionals when describing children with autism. Although not a characteristic needed to diagnose autism, mental retardation is prevalent among many individuals with ASD. In order for a child to be diagnosed with autism, symptoms and deficits must be present before the age of three (APA, 2000).

## **Prevalence**

In 2006, on average, approximately one child in every 110 in the 11 ADDM Network sites in the United States was classified as having an ASD (The Center for Disease Control's [CDC] and Autism and Developmental Disabilities Monitoring Network, 2007). The ADDM Network is a group of programs funded by CDC to determine the number of people with ASD in the United States. The 11 ADDM sites collect data using the surveillance methods that are modeled after the CDC's Metropolitan Atlanta Developmental Disabilities Surveillance Program (MADDSP). The average prevalence of ASDs identified among children aged 8 years increased 57% in 10 sites from the 2002 to the 2006 ADDM surveillance year. According to the U.S. Department of Education (2002), the number of students with ASD receiving special education services increased over 1300% during the 1990s. In 2006 children with autism made up approximately 4% of the special education population. There were 27,342 students with autism ages 6-11 in fall of 1997 served under IDEA, compared to 125,944 students with autism in 2006. Although the reason for increase is unknown, several factors may play a role including changes in diagnostic practice, better knowledge of the disorder, earlier diagnosis, issues of study design, choosing to use a label of autism rather than other diagnoses such as mental retardation for educational purposes or an actual increase in the number of students with ASD (Volkmar, Lord, Bailey, Schultz, & Klin, 2004).

## **Theories of Development**

At this time there is no known cause of autism. Medical conditions such as epilepsy, congenital rubella, PKU and Fragile X are still being researched as potential

contributors to autism but ties remain to be resolved (Fombonne, 2003). Recently the notion that autism may be caused by immunizations given to infants for MMR has been refuted and found inaccurate (Bernard, Enayati, Roger, Binstock, & Redwood, 2002; Fombonne & Chakrabarti, 2001; Wilson, Mills, Ross, McGowen, & Jadad, 2003). With new technology (e.g., neuroimaging) researchers have the ability to study the brain and determine where impairments may be taking place as well as how brain size plays a role in autism (Aylward, Minshew, Field, Sparks, & Singh, 2002; Courchesne, Carper, & Akshoomoff, 2003; Fombonne, Roge, Claverie, Courty, & Fremolle, 1999; Piven et al., 1995; Sparks et al., 2002). Autism likely has a genetic component although no specific gene has been identified yet (Bailey, Palferman, Heavey, & Le Couteur, 1998; Folstein & Rosen-Sheidley, 2001; Szatmari, Jones, Zwaigenbaum, & MacLean, 1998).

### **Characteristics of Autism**

As noted above, one of the symptoms of autism is restricted and repetitive patterns of behavior, interests, and activities. These patterns can manifest themselves in various ways. A child with autism may become preoccupied with a pattern of behavior or interest to a point of high intensity and inflexibility. Some children with autism refuse to change daily routines or rituals. Children with autism may show a preoccupation with parts of objects or a narrow interest of activities and may become agitated and upset when asked to change activities. Stereotyped body movements such as body rocking, dipping or swaying, hand flapping, and finger flipping are characteristics of autism. Other abnormal body movements such as tiptoeing and rigid body posture may be present (APA, 2000; Loftin, Odom, & Lantz, 2008). Unusual responses to sensory stimuli

include fascination with moving objects and bright colors, intolerance of loud noises, relaxation with deep compression, and rigid food preferences (Barkley & Mash, 2003).

Social interaction and communication impairments are other key features of autism, and there are similarities or links between these two types of impairments (APA, 2000; Tager-Flusberg, 1999). Communication impairments affect verbal and nonverbal language skills. Severity of communication impairments can range from total lack of spoken language to a slight delay in spoken language (APA, 2000; Fogt, Miller, & Zirkel, 2003). If a child with autism uses language, it is usually used instrumentally rather than socially (Boucher, 2003). The inability to sustain a conversation with others, use of repeated words, or idiosyncratic language are characteristics of deficits in spoken language for children with autism. For children with autism whose speech is developed, there may be an abnormal pitch, rate, rhythm, or stress associated with verbal communication. Problems with nonverbal communication consist of the lack of gestures, signaling, and facial expressions. Children with autism usually have deficits in imitation, joint attention, and imaginative play. These deficits are part of communication impairments as well as social interaction impairments (Hwang & Hughes, 2000).

Social interaction impairments consist of the failure to form peer relationships at appropriate developmental level, lack of spontaneous sharing of enjoyment, interests, or achievements with others, lack of social-emotional reciprocity, impaired response to other people's emotions, lack of adapting behavior to different social contexts, and weak integration of social, emotional, and communicative behaviors (APA, 2000; Rogers, 2000; Weiss & Harris, 2001). As mentioned before, a child with autism may show delays in joint attention, imitation and pretend play skills.

Autism is the only known disorder where a child may have complete lack of joint attention skills (Freeman, Kasari, & Paparella, 2006). Bono and colleagues (2004) define joint attention as the involvement of coordination and shared visual attention between two people on an object or event. Some children with autism compensate for the lack of joint attention abilities by imitating others. Without imitation skills, a child with autism may not be able to have social competence in later years (Ingersoll & Schreibman, 2006). Both joint attention and imitation are very important for social-cognitive abilities that take place later in development. These abilities consist of pretend play and theory of mind. Theory of mind is the ability to take the perspective of another person and understand what that other person thinks, feels, wants, and believes different from oneself (Barkley & Mash, 2003). Both pretend play and theory of mind are important as a child grows and associates with peers and others at home, in the community, and educational environments (Carr & Jones, 2004).

### **Social Competence and Educational Performance**

The terms social skills and social competence are often used when describing social skills interventions for students with ASD. Gresham and colleagues (2001) have defined social skills as taught, learned, and performed behaviors. These behaviors are exhibited in different contexts and usually predict social outcomes for children both with and without ASD. Social competence as defined by Quinn, Kavale, Mathur, Rutherford, and Forness (1999) as the combination of a person's social skills and behaviors and how they are used in different contexts. Social competence is not only a combination of social skills and behaviors, but also how those skills are evaluated and judged by others in the social environment. Evaluation of social skills can take place by gaining reports from

others in the child's environment (e.g., parent, teacher, peers), comparing skills to explicit criteria, comparing the child's skills to a normative sample of students, or determining outcomes of social performance (e.g., popularity among peers, maintenance of friendships; Gresham et al., 2001; McFall, 1982). Studies on social skills interventions for students with ASD that claim to be effective should show increases in social skills and give a good indication of a child's social competence.

Social competence and educational performance have been shown to correlate with one another. Educational performance often includes academic achievement. Students who have difficulty forming and maintaining social interactions with peers, teachers and parents typically show impairments in academic achievement (Kupersmidt et al., 1990; Ladd, 1990; O'Neil et al., 1997; Patrick, 1997; Ray & Elliott, 2006; Welsh et al., 2001; Wentzel, 1991b, 1996). Welsh and colleagues (2001) concluded that the best approach to increase academic competence for students that struggle socially would be to add a social skills intervention to the learning curriculum. Based on the findings from these studies, school professionals, including school psychologists, should consider implementing social skills interventions to help increase academic competence. O'Neil et al. (1997) found that peer rejection and low social skills in kindergarten correlates with difficulty in academic achievement in later years. How well a student with ASD is involved in the classroom environment and learning process is contingent upon relationships with peers and the general education teacher (Robertson, Chamberlain, & Kasari, 2003). Wentzel (1991b) elaborated on the idea of teacher-student interactions and academic success. When students are able to use appropriate social skills with teachers, they will receive positive teaching feedback. Teacher-student interactions are important

in classroom management and teaching practices. A teacher's attitude towards teaching can be contingent upon social interactions with students. Typically students that can interact appropriately with the teacher are more likely to succeed at classroom tasks.

### **Services for Students with ASD in School Settings**

Although students with ASD may struggle socially, they may not receive social interventions within the school system unless they qualify for services under IDEA or through a 504 plan. A 504 plan (as outlined in Section 504 of the Rehabilitation Act) is for individuals with a disability to access federally funded programs, such as public schools, and may include accommodations so the student with a disability can perform at the same level as their peers. In order to receive special education services and other related services, under IDEA, the student with a disability must show impairments in educational performance. If educational performance is shown to be low for a student diagnosed with ASD, than related services such as social skills interventions could be provided (IDEA, 2004). An IEP must be organized for a student receiving services under IDEA. The IEP is unique for each individual student and requires developed goals and objectives that can be measured. Typically the parent, principal, school psychologist, special education teacher, regular education teacher, and speech-language pathologist are present at an initial IEP meeting. IEP meetings also include any service providers such as an occupational therapist, nurse, therapist, adapted physical education therapist, and so forth, that would be providing services for the student throughout the year. Goals and objectives on the IEP are determined and monitored throughout the student's academic career (IDEA, 2004; Wilczynski et al., 2007). A description of the more prominent and

better-researched social skills interventions for students with ASD in public schools are represented later in this literature review.

The concern with creating IEPs for students with ASD is the variability of impairments and symptoms surrounding the diagnosis. Because of the heterogeneity of the population of children with ASD, it can be difficult for school professionals to know what deficits to focus on and what skills need to be adapted for each student (Wilczynski et al., 2007). Professionals that work in schools often feel they are not qualified or do not have enough training to work with students with ASD (Simpson et al., 2003). Another concern is that there is not yet a good comprehensive guide for developing an IEP for students with ASD, because children with ASD have different needs (Iovannone, Dunlap, Huber, & Kincaid, 2003; Olley, 1999; Wilczynski et al., 2007; Williams et al., 2005). At least one of the IEP members should have good clinical judgment and knowledge of autistic symptoms and impairments in order to best help the team form goals and objectives (Wilczynski et al., 2007). School psychologists are important members of the IEP team because they can add psychological and clinical input (Skokut, Robinson, Openden, & Jimerson, 2008).

There is a push for school psychologists to use evidence-based practices and to obtain information on symptoms and treatments of childhood disorders. Because of their practice and knowledge, school psychologists will continue to be involved in helping students with an ASD maintain educational performance within regular education (Koegel, Koegel, & Carter, 1999; Skokut et al., 2008; Williams et al., 2005). Two areas in which school psychologists are beneficial as IEP team members for students with an ASD may be their abilities to design and implement interventions and mediate concerns

between school members and families. School psychologists can help to design appropriate interventions that teachers can use as they teach students with ASD (Olley, 1999). School psychologists can also help team members determine if social skills interventions will benefit a student with ASD and then help decide what type of social skills intervention is appropriate and efficacious. A school psychologist is also a good representative to facilitate the communication process between educators and parents of the student with ASD as interventions take place (Ivey, 2007; Olley, 1999).

### **Social Skills Interventions**

How well social skills learned in intervention settings generalize to other settings is very important when considering the efficacy of a social skills intervention. Even though a student with ASD may show increases in social skills in the training session, these skills cannot be said to be mastered unless they are shown in natural social settings such as at recess, general education classrooms, lunch, activities after school, and so forth (Rao, Beidel, & Murray, 2008; Wilczynski et al., 2007). Generalization also includes how well the learned social skills are used with peers that were not present during training. A good intervention will take into account generalization considerations and will adequately measure a student's social skills in various contexts (Gresham et al., 2001).

Studies on the efficacy of social skills interventions for students with ASD are limited. From those studies that have been conducted many interventions have been shown to be promising at increasing social skills interactions and generalization of social skills by students with ASD. Most meta-analysis and literature reviews of these studies suggest that a comprehensive type intervention, combining more than one social skills

intervention is the best approach at increasing social skills (Lord et al., 2005; McConnell, 2002; Skokut et al., 2008; Stichter et al., 2007). A single social skills intervention has not yet been identified as addressing the social deficit needs of all children with ASD (National Research Council, 2001; Stichter et al., 2007). While many school psychologists may be using a more comprehensive approach in their implementation and organization of social skills interventions, they are still incorporating specific intervention types. Having the knowledge of these distinct intervention types and how they are viewed as effective would be beneficial when forming a more comprehensive intervention. A description of the more prominent and better-researched social skills interventions for students with ASD that may be used in the schools are discussed in the following sections.

### **Pivotal Response Training or Direct Intervention**

Child-specific interventions consist of instruction and reinforcement techniques such as self-monitoring, behavior modification, modeling, prompts, and priming in order to increase the frequency and quality of social behaviors produced by children with an ASD (McConnell, 2002). Social learning theory (Bandura, 1969) and techniques of reinforcing social interactions (Lovaas, Schaeffer, & Simmons, 1965) build the framework for child-specific interventions. Gonzalez-Lopez and Kamps (1997), as well as other researchers (e.g., Gresham et al., 2001; Koegel, Koegel, & McNerney, 2001; Koegel, Koegel, Frea, & Fredeen, 2001; Rogers, 2000; Whalen & Schreibman, 2003) have found that social skills are learned behaviors, and with specific trainings and opportunities to practice social skills over time students with ASD will increase social interactions. Pivotal Response Training (PRT) or Direct Intervention is a type of child-

specific intervention based on social learning theory and operant conditioning techniques. It is important to point out that PRT is not specifically used for social skills alone, but is considered a comprehensive treatment approach for all behaviors expressed by children with ASD.

PRT uses behavioral approaches such as stimulus control, prompts, and reinforcement to increase core pivotal behaviors. Pivotal behaviors are defined as behaviors that when increased will produce improvements across a child's overall social functioning (Koegel et al., 1999). These pivotal behaviors can differ for each child with ASD, but studies show the most important pivotal behaviors in regards to social interaction are motivation and self-management (Koegel et al., 1999, 2001; Koegel, Koegel, Hurley, & Frea, 1992; Stahmer, 1999).

Self-management is an important pivotal behavior targeted in a PRT intervention. Koegel et al. (2001) define self-management as a process of exhibiting appropriate behaviors in different environments without the feedback from other individuals. Improvement in self-management for children with an ASD has shown to increase social communication skills (Koegel & Frea, 1993; Koegel et al., 1992), increase social initiations and interaction skills with nonautistic peers and adults (Morrison, Kamps, Garcia, & Parker, 2001; Shearer, Kohler, Buchan, & McCullough, 1996; Strain, Kohler, Storey, & Danko, 1994) and increase maintenance of appropriate play skills in various settings (Reinecke, Newman, & Meinberg, 1999; Stahmer & Schreibman, 1992). Koegel et al. (1999) outlined the procedure of teaching a child with ASD self-management skills. First, target behaviors, whether appropriate or inappropriate, must be operationally defined so that the child understands exactly what behaviors are to be

rewarded. Second, reinforcers for appropriate behaviors should be chosen so that they can be self-administered and natural over time. Third, a self-monitoring technique should be developed for the child (e.g., wrist counter, notebook for tally marks) and the child should be appropriately trained on how to use the self-monitoring technique. Fourth, the self-monitoring technique should begin to be faded by decreasing the intervals of reinforcement for appropriate behaviors. Last, evaluation of how often the child is using the self-monitoring technique should be completed by asking people around the child to report on child's use of the self-monitoring technique (e.g., teacher, recess supervisor, principal, etc.). The hope is that over time the child's self-management behaviors will increase and social interactions will develop naturally as the child becomes more independent.

Lee, Simpson, and Shogren (2007) conducted a meta-analysis on the effects and implications of self-management for students with autism. Eleven published articles were selected for the meta-analysis. The percentage of nonoverlapping data (PND) metric was used in the analysis across intervention and participant characteristics. A higher percentage of PND from baseline to intervention equals a greater impact of the intervention. Seventy-eight unique PND scores were obtained from the individual studies. The overall mean PND was 81.9% ( $SD = 30.5\%$ ), with a range of 0-100%. The overall results provided evidence that self-management interventions can increase appropriate social behaviors among students with autism across subjects and settings. The authors indicated that while these interventions are suitable for many students they are not universally effective for all students with autism.

## **Social Stories**

Social stories are another child-specific intervention that seems to be increasing in popularity for students with ASD (McConnell, 2002). Social stories are short individualized stories designed to teach students with ASD appropriate social behaviors for different social situations that the student may find challenging. The story usually contains a specific challenging activity or situation and will include where the activity takes place, when it will occur, who will be participating, and what will happen during the activity. Training and practice in accurate understanding of social situations can help a child with ASD respond appropriately to different social cues (Gray & Garand, 1993). Social story interventions focus on target behaviors and the situational contexts of those behaviors. Helping a child with ASD understand these situations and what behaviors are appropriate in social situations is the rationale behind social stories.

The individual story usually contains three sentence types. The first type of sentence is a descriptive sentence in which information about settings, subjects, and actions are included. The second type of sentence includes appropriate behavioral responses as statements, which are called directives. The third type of sentence describes the feelings and reactions of other people in the social situation and are called perspectives. The number of directive, descriptive, and perspective sentences used in a social story is dependent upon the targeted social situations and behaviors (Gray & Garand, 1993). Social stories are also used to help students with ASD answer questions regarding social situations. Emphasis on answers to *who*, *what*, *when*, *where*, and *why* are included in social stories. The use of questions helps a child with ASD get social feedback as well as understand others' understanding of social situations. Social stories

are presented in a clear and easily understood format in which instructional techniques are minimized and direct access to social information is readily attainable (Ali & Frederickson, 2006; Gray, 1998, 2002; Gray & Garand, 1993; Scattone, Tingstrom, & Wilczynski, 2006; Simpson, 1999).

Implementation of social stories is just as important as the structure of the story. The social story should be presented to the student with ASD on a regular basis as a priming technique and then should be reviewed prior to the actual social situation where the child will practice appropriate behaviors. Usually an adult will read the social story to the child, but in some cases the child can read it to him or herself. How well the child comprehends the story can be assessed by asking questions related to the story or conducting a short role-play of the situation in the story. Finally, corrective feedback is given after a student practices behaviors in the targeted social situation. Once a social situation is mastered a new story can then be created containing a new social situation in which the student with ASD has difficulty using appropriate social behavior (Barry & Burlew, 2004; Gray & Garand, 1993).

Social stories can be an effective intervention to increase social skills for students with ASD in an educational setting, if implemented correctly (Ali & Frederickson, 2006; Nichols, Hupp, Jewell, & Zeigler, 2005; Reynhout & Carter, 2006). Scattone et al. (2006) conducted a study in which three male students with ASD were selected to participate in a social stories intervention. The three participants were between the ages of 8-13. Each boy was administered an individual social story that contained a situation in which he struggled socially. A session in which the story was read took place at the same time and in the same place each day for each student. A multiple baseline design

across participants was used to assess the students' increase of social interaction skills in settings outside the classroom during free-time activities (i.e., lunch or recess). Data were collected via a partial interval observation conducted by graduate students trained in observation techniques. The results of the study showed that one of the student's social interactions increased substantially during free-time activities. Another student showed moderate improvements in regards to social interactions, while the third student showed no change in social interactions. The authors of this study concluded social stories as a sole intervention for students with ASD showed limitations in increasing appropriate social behaviors in other settings outside of training (Scattone et al., 2006).

Barry and Burlew (2004) conducted a social stories intervention based on play skills of two students with ASD (age 7 and 8). Two treatment goals for both students were outlined. The first goal was for the students to learn how to choose a free-time activity. The second goal was for the students to use appropriate social behaviors for 30 minutes during the free-time activity. A multiple-baseline-across-participants design was used. The study also used an ABCD condition design. "A" condition represented baseline. "B" condition consisted of two social stories that contained pictures of the appropriate target behaviors read to each student. The reason photos were used in combination with a social story was because of prior use of pictorial cues and picture schedules as earlier interventions for these students to learn communication skills. During condition "B" both students shown appropriate play skills during free time. "C" condition was the initiation of a third social story focusing on play skills with other students. "D" was the final condition in which social stories began to be faded and read less frequently. Results of the study showed that both students maintained higher levels

of appropriate play skills during free-time activities after social stories. This study used social stories, but also continued to use previous picture schedules and picture cues as the study continued. It is difficult to know if results were due to the social stories intervention or the combination of interventions.

Most research on social stories has been on decreasing inappropriate and disruptive behaviors of students with ASD and less on improving social skills. More research is needed on the effectiveness of social stories interventions and students with ASD. It also seems that the use of social stories interventions are more effective when combined with other useful social skills interventions (Ali & Frederickson, 2006; Gray & Garand, 1993; Nichols et al., 2005; Reynhout & Carter, 2006).

### **Social Scripts or Script Fading**

Because students with ASD typically have impairments in functional communication, they can be given scripts which they are taught through prompting, reinforcement, and modeling. Once the student is able to use the script in their training interactions, it is slowly faded until the student uses the scripted language in spontaneous environments outside of training. This process is called social scripting or script fading and has been shown to be an effective intervention at increasing social skills for students with ASD (Brown, Krantz, McClannahan, & Poulson, 2008; Ganz, Kaylor, Bourgeois, & Hadden, 2008; Sarokoff, Taylor, & Poulson, 2001).

Sarokoff et al. (2001) conducted a study in which two students (age 8 and 9) were placed in a setting in which scripts were provided on various reinforcing activities and snacks. A multiple baseline across three sets of stimuli was used to assess the effects of script fading for the scripts provided on the activities/snacks. Prompting during

intervention was used to encourage participants to use their scripts when interacting with one another and the desired activities. Both students increased interactions when scripts were provided versus baseline where no scripts were provided. Novel peers and novel environments were used to assess generalization of interactions using scripts. Results of this study support the effectiveness and generalization of script fading or social scripting as a social skills intervention for students with ASD.

Ganz et al. (2008) also found that social scripts/fading could be used to increase social skills among students with ASD. They conducted a multiple baseline design study in which three children were pretaught scripts to mastery. Baseline consisted of the children participating in an activity where no prompts to use their scripts were given. During intervention each student was prompted to use their mastered scripts in order to increase interactions among peers. The students were assessed in three different settings that included desirable activities. This study supported the use of social scripting as an intervention to increase communicative speech that is important in social interactions. Unfortunately this study did not contain any feedback on generalization of skills outside of intervention settings.

### **Peer Mediated Interventions**

Peers play an important role in the development of social competency. Peers are a part of a student with ASD's natural environment, so it would be obvious that peers should be included in social skills interventions for students with ASD (Rogers, 2000). Peer-mediated interventions consist of trainings involving social skills, prompts, and praise taught to typically developing peers who then use these skills to help enhance a

student with ASD's social interactions and social skills. The purpose of peer-mediated interventions is for the child with an ASD to increase social initiations and communicative interactions with other peers (DiSalvo & Oswald, 2002; McEvoy et al., 1992; Rogers, 2000). Peer-mediated interventions differ from other interventions in that adult instruction strategies are either completely eliminated or strongly minimized. Peer mediated interventions have shown to be effective at increasing and maintaining social interactions for students with an autism spectrum disorder (Kamps et al., 2002; McEvoy et al., 1992; Strain & Fox, 1981; Strain & Kohler, 1998). These interventions are discussed in more detail below.

### **Group Interventions With and Without Typically Developing Peers**

Group interventions are a type of peer-mediated intervention in which students with ASD are grouped together to learn social skills in a setting outside of the general classroom. Some group interventions include both students with ASD and typically developing peers. Mackay, Knott, and Dunlop (2007) suggested the use of groups for students with ASD are beneficial because they allow students to practice social skills within a controlled and safe environment. Group interventions help more children receive services at one time and provides an interactive environment with similar peers and/or typically developing peers (Krasny, Williams, Provencal, & Ozonoff, 2003).

Mackay and colleagues (2007) conducted a study in which 46 children diagnosed with ASD participated in one of six groups. Two of the groups ran for 12 weeks and four groups ran for 16 weeks. Each group met for a minimum of 1.5 hours. The key themes for each group were as follows: social and emotional perspective taking, conversation

skills, and friendship skills. To create generalization during group sessions the participants were taken on outings throughout the community, home practice, and feedback meeting with parents. A pre-postassessment process was designed to measure effectiveness and generalization of social skills after group sessions ended. Effect sizes were small to moderate ranging from .34 to .68 on outcome measures. Postassessments compared to preassessments indicated increase of social interactions for the participants at home and school. A limitation of group interventions as reported by the authors was that skills taught in group were not used in isolation outside of training, even though interactions increased for the participants.

Cotugno's study (2009) also supports the use of group interventions for students with ASD. His study consisted of 18 children receiving a one-hour group session over a 30-week period. A control group was also organized and included 10 typically developing children randomly selected from local school districts. During group intervention all the children in the groups were taught social competency using cognitive-behavioral therapy skills and instruction on social skills. The study used a pre-posttest design to determine effectiveness and generalization. Results of this study suggest group interventions focusing on improving social competency will help to increase social interactions for students with ASD. Still, the control group of typically developing peers had higher scores, indicating better social skill interactions, on the posttest assessments than their counterparts diagnosed with ASD ( $t = 2.53, p < .05; t = 3.11, p < .01$ ).

### **Integrated Play Groups**

Integrated play groups are a type of group intervention in which a structured environment is provided and an adult mediates play between students with ASD and

peers, but no skills are taught during group sessions. The focus of integrated play groups is to motivate students with ASD to interact and play with other peers. The adult monitors and mediates the play between typically developing peers and students with ASD. The adult encourages and prompts both the child with ASD and his/her peers to use appropriate play skills (Bass & Mulick, 2007; DiSalvo & Oswald, 2002).

Wolfberg and Schuler (1993) conducted a multiple-baseline study in which there were three different integrated play groups in an elementary school. Each play group included a student with ASD as the target child and two students without an ASD as peers. The play environment consisted of age-appropriate sociodramatic and constructive toys. Each play session lasted 30 minutes and took place two times a week. These play sessions were videotaped and recorded for data collection. During baseline children were told to play with the toys, but no other instructions were given. The children spent only 50% of the time interacting with one another during baseline sessions. During the intervention phases of the study adult guidance was given to the students to help them initiate and engage in social interactions with one another. Social interactions during intervention phases doubled the amount of interactions during baseline. Results of this study show that integrated play groups with adult guidance increased social interactions for children with ASD. Social interactions were contingent upon adult guidance, which means generalization to settings where guidance was not present could not be established for this particular intervention.

### **Peer Training/Social Skills Training and Peer Tutoring**

Peer training usually consist of either the child with ASD or typically developing

peers receiving social skills trainings. Children in trainings are usually taught how to use greetings, conversation strategies, imitation, sharing, how to initiate play, how to ask for help, and how to request things. Trainings often take place in a group setting and then feedback is given during free play. Trainings can also be given individually outside of a group (DiSalvo & Oswald, 2002; Rogers, 2000).

Gonzalez-Lopez and Kamps (1997) conducted a multiple-baseline study using social skills groups that included four students with ASD and typically developing peers. Peers were first taught about disabilities and how to play with individuals with ASD. The peers were directed in how to use behavior management skills (reinforcing, ignoring, prompting, etc.) to play with students with ASD. Then both the peers and students with ASD were trained on social skills. The interventions took place in play groups that lasted 20 minutes. During intervention a teacher would monitor and reinforce the social interactions that took place during play sessions by using a chart with stars. For three of the four students with ASD social interactions increased significantly after intervention.

Harper, Symon, and Frea (2008) conducted a study in which typically developing peers were trained on how to interact with two students with ASD. A pivotal response training approach was used as a social skills intervention. The goal was for the peers to motivate the student with ASD to play with others at recess by using PRT approaches (i.e., gaining attention, varying activities, reinforcing attempts, and turn-taking). Cue cards and visual training cards were used to help the peers remember the PRT approaches while playing. During intervention, two peers would use the approaches to play with one student with ASD. The last 4 to 5 sessions of the study were used as 10-minute generalization probes in which prompts and directions were eliminated and students play

at recess was recorded. The results showed the two students with ASD were able to initiate play and maintain social interactions during generalization probes.

Kamps and colleagues (2002) conducted a study involving social skills groups, peer tutoring, and peer training. Peer tutoring consists of peers working together on academic tasks and tutoring one another. The focus of the study was to see how peer training, when added to other interventions, could effect social interactions of children with ASD. The study involved five students with an ASD and 17 typically developing peers and was a multiple-baseline study. Three of the students with ASD were part of one intervention involving peer training and social skills groups. Peers received peer training that focused on initiation and response to peers, cooperating and engagement in positive interactions. During intervention, peers spent 10-15 minutes playing with students with ASD and peers were reinforced for appropriate social skills. The students with ASD received social skills training prior to play sessions and were also reinforced for appropriate play skills. The other two students with ASD participated in peer tutoring sessions. Peers and the two students with ASD were trained how to tutor and how to use appropriate social skills in academic tutoring sessions. Social interactions were shown to increase for all five students with ASD after interventions. Generalization probes were used at the end of the study in which students were recorded during 15 free time sessions in a room different from the training setting. All five students maintained social interactions during generalization probes.

### **Peer Buddy**

Children with an ASD have been shown to increase social interactions using a peer buddy intervention. Peer buddy interventions consist of one typically developing

peer staying, playing and talking to a student with an ASD. Staying, playing, and talking are techniques taught to typically developing peers before intervention takes place.

Staying is meant that the child does not leave his/her buddy and that he/she plays in the same area. Playing means sharing and participating in the same games, toys, and so forth, as the buddy. Talking means the peer will have a conversation about the playing that is taking place, even if the buddy is not participating in the talking. Peer buddy interventions have been shown to be effective at increasing social skills for children with ASD (English, Goldstein, Kaczmarek, & Shafer, 1997; Kohler, Greteman, Raschke, & Highnam, 2007; Laushey & Heflin, 2000). Laushey and Heflin (2000) conducted a multiple-baseline study using a peer buddy intervention in which two students with ASD increased their social interactions by 36% during the intervention phase. Generalization probes were not used in this particular study. Kohler et al. (2007) in their studies have found peer buddy interventions to generalize across settings.

### **Video Modeling**

Video modeling is a newer approach to increase social interactions of students with ASD. It involves showing a video to a student with ASD in which a model is demonstrating desired social behaviors. The models in the video can be a peer, adult, sibling, or self (Bellini & Akullian, 2007; Buggey, 2007). The hope with video modeling is that the child will watch the model perform desired social behaviors such as imitation, reciprocating play, sharing, greetings, and so forth, and then, in turn, act out the behaviors themselves. Some children with ASD can be overwhelmed in highly stimulating contexts such as meeting new people and socializing. Using a video eliminates unnecessary distractions and stress during training. Some individuals with ASD find watching videos

rewarding, which could possibly increase attention to the modeled behaviors (Bellini & Akullian, 2007). Video modeling shows some effectiveness at helping to increase social interactions of children with ASD, but more research is needed in this area (Bellini & Akullian, 2007; Buggey, 2005; MacDonald, Clark, Garrigan, & Vangala, 2005; Nikopoulos & Keenan, 2003; Simpson, Langone, & Ayres, 2004).

Nikopoulos and Keenan (2003) conducted a multiple baseline across-subjects study involving a video modeling intervention. The participants were three children with ASD ages 6 to 7. Five behaviors were targeted in the modeling video. These behaviors were social initiation, reciprocal play, imitative response, object engagement, and other behaviors. A 10-year-old old child with average social interaction skills and the experimenter were used as models in the videos. Four videos were constructed to show the target behaviors. A room was set up so that it was similar and contained similar objects as the one videotaped with the models. During data collection the TV was covered and the experimenter sat in a chair away from the participant. If the participant performed the target behaviors (initiated contact with the experimenter, reciprocated play, imitated the video responses and engaged with the objects presented in the room) without instructions, it was counted as a success of treatment. The results of the study indicated video modeling was successfully used to increase social behaviors of the four children in this study. Generalization of social behaviors outside of the training setting took place, but only in settings similar to the training setting.

Similar studies using video modeling have also been conducted. Nikopoulos and Keenan (2003) used the video modeling intervention with seven students with ASD ages 9 to 15. Two target behaviors, social initiation and appropriate play, were presented in

three different videos. The results of this study showed video modeling helped to increase social initiation and appropriate play for 4 of the 7 participants. Simpson and colleagues (2004) conducted a multiple probe design in which computer-based video modeling was used to help increase social skills for four students with ASD. The four students were ages 5 and 6. The targeted behaviors were complying to teacher directions, sharing, and using appropriate social vocabulary. The students watched these videos for 30 minutes in a research location each day and then were to show the modeled behaviors during academic activities in the classroom. The results of this study showed that three of the four students increased target social behaviors after intervention. Generalization was not conducted in either of these studies; therefore it is not possible to conclude how well social behaviors were maintained.

### **Classwide Interventions**

According to Conroy, Sutherland, Snyder, and Marsh (2008) classroom or classwide interventions are effective teaching strategies use to promote and reinforce social and behavioral competence. Classwide interventions include combinations of behavior management practices, social skills lessons, and any other strategies applied to the class of students as a whole in hopes that social skills will increase for students with ASD that are participants in the class interventions. Most classwide interventions are implemented by the classroom teacher, but others can also be responsible for organizing and/or conducting the interventions.

Harrist and Bradley (2003) conducted a study in which 10 kindergarten classes participated in a classwide intervention to decrease isolation and exclusion for students with less-developed social skills. Four of the 10 classes were assigned as a control

group. The intervention consisted of a story being shared that focused on including others and not excluding peers in play situations. A rule that exclusion could not take place in class was established and reviewed each week for 6-8 weeks by the interventionist. Six pre-posttest assessments were used to determine effectiveness of the classwide intervention and were collected from three sources: children (self and peers), teachers, and outside observers. A 2 X 2 analysis of covariance (ANCOVA) computed with Wave II variable as the dependent variable, Wave I variable as a covariate, and class status (Target vs. Control) and sociometric status (Peer Excluded vs. Peer Accepted) as the two factors. At the end of the study peer relations were found to have increased slightly for the target group versus the control group (peer liking effect size = .17; social dissatisfaction effect size = .21). Treatment fidelity was a concern in this study, as the intervention procedures were not operationally conducted the same across classes.

Pollard (1998) reviewed literature on three studies that used classwide social skills trainings for students with ASD as their intervention. The social skills training used in all three studies was created by Kohler, Shearer, and Strain in 1990 (Pollard, 1998). The training consisted of teaching classes of children, including children with ASD. The skills training focused on verbalizing during play, sharing, requesting, and assisting others' requests. According to Pollard's review of these three studies classwide interventions have generally positive results. Limitations of these studies included confounding variables such as teacher facilitation of other interventions, group and individual contingencies, and self-monitoring components. In summary, Pollard indicates that students with ASD may have not learned social skills, but their typically developing peers learned how to elicit responses from students with ASD.

In summary it is difficult to gain information on effectiveness and generalization of increased social skills. There are few studies on classwide interventions for students with ASD. The studies that exist have limitations due to confounding factors and lack of a structured classwide training program (Mazurik-Charles & Stefanou, 2010; Pollard, 1998). Classwide may be a good intervention in combination to other interventions such as peer mediated or child centered interventions.

### **Conclusion**

Students with ASD have social skill deficits, which can lead to decreases in their educational performance. When a student with ASD is shown to have lower educational performance they may be eligible to receive special education services under IDEA 2004. Often school psychologists are invited as team members to provide related services for students with ASD who may have impairments in social interactions and therefore need interventions to increase social skills. There are different types of social skills interventions that can be organized and implemented in a school setting. Some of these interventions have been shown to be effective at increasing social interactions for students with ASD, but most studies are based on small sample sizes. Generalization is another key factor in determining the effectiveness of a social skills intervention for students with ASD. More information is needed on the types of social skills interventions that are promising to be effective at increasing social skills for students with ASD in an educational setting.

## **Purpose and Objectives**

The purpose of this study was to survey a national sample of school psychologists in order to obtain knowledge regarding the use of social skills interventions organized and implemented for students with ASD in school settings. The study was also used to investigate the number of school psychologists providing services for students with ASD, training on ASD that takes place for school psychologists, and whether more training on effective social skills interventions for students with ASD is needed.

## **Research Questions**

The following questions were investigated:

1. What percentage of school psychologists have worked with students with autism spectrum disorders?
2. How effective do school psychologists rate themselves according to their work with students with an autism spectrum disorder?
3. What percentage of school psychologists have organized or implemented social skills interventions for students with autism spectrum disorders?
4. What are the most frequently used social skills interventions for students with autism spectrum disorders?
5. What are perceived by school psychologists to be the most effective social skills interventions for increasing social interactions for students with autism spectrum disorders?
6. What social skills interventions for students with autism spectrum disorders

are perceived by school psychologists to be best at generalizing to other settings outside of training?

## CHAPTER III

### METHODS

#### **Participants**

Participants in this study consisted of 221 practicing school psychologists working within in a school setting (prekindergarten through high school). School psychologists from 44 different states were represented in this sample. The states were divided according to regions obtained from the U.S. Census Bureau 2007 Economic Census. Most participants indicated practicing in the Northeast region. Participants' ages ranged from 26 to 74 with a mean of 45.13 ( $sd = 11.77$ ). The majority of participants responded that they obtained a masters+30 or an EdS degree. Other respondents selected a doctorate, masters, or other as their highest degree obtained. The number of years participants have been practicing as a school psychologist ranged from 1 to 40 years ( $M = 14.82$ ,  $SD = 9.86$ ,  $n = 221$ ). Respondents indicated that an elementary grade level was worked with the most. See Table 1 for more details about participants.

Demographic information for gender, age, and highest degree earned were similar to NASP membership statistics (Curtis et al., 2008). Curtis and colleagues conducted a survey study for the 2004-2005 year and reported that 74% of the school psychologist respondents were female. This sample's percentage of female school psychologists is higher than NASP membership statistics. The mean age of the NASP survey study of school psychologists was 45.2, which is almost exactly the same as this survey study of 45.13. With respect to highest degree earned from the NASP membership statistics study, 67.5% reported having a master's degree or a specialist

Table 1

*School Psychologist Demographics*

Characteristic	Grouping	Frequency	Percentage
Sex ( <i>n</i> = 221)	Female	180	81.4
	Male	41	18.6
Highest Degree obtained ( <i>n</i> = 221)	M.S./M.A.	14	6.3
	M.S./M.A. + 30 or EdS	146	66.1
	Ph.D./Ed.D/Psy.D	57	25.8
	Other	4	1.8
Grades Served ( <i>n</i> = 219)	Pre-School	87	39.7
	Elementary	175	79.9
	Junior High/Middle	117	79.9
	High School	102	46.6
State where working ( <i>n</i> = 221)	Northeast	72	32.6
	South	60	27.2
	Midwest	54	24.4
	West	35	15.8
Student Population ( <i>n</i> = 218)	General Education	6	2.7
	Special Education	57	25.8
	Both	158	71.5

degree (Ed.S. or +30), and 32.4% a doctorate. This current demographic sample differs in that slightly fewer individuals reported having a doctoral degree.

### **Instrumentation**

Data were collected through the use of a survey that had two sections including general information and information regarding social skills interventions used for students with ASD. The general information section consisted of demographic information including age, gender, place of employment, and so forth. The autism social skills intervention section consisted of questions regarding school psychologists' practice

with students with autism, the types of social skills interventions they chose to use for students with autism, how effective they found the social skills intervention, and how well they think the social interactions generalized to other settings outside of training. Questions within the sections of the survey were developed based upon the information obtained from different literature on empirically supported interventions to help develop the list of included interventions (Bellini, Peters, Benner, & Hopf, 2007; McConnell, 2002; Rogers, 2000; Scattone, 2007; White, Keonig, & Scahill, 2006; Williams et al., 2005). See Appendix A for a copy of the survey.

### **Procedures**

The population of the study consisted of a representative sample of the membership of the National Association of School Psychologists (NASP). The sampling frame consisted of 500 associated members randomly selected from the active membership list generated by NASP. Trainers, retired members, and students were asked to be excluded when labels were requested from NASP. The minimum number of expected participants was 150 full-time or part-time school psychologists.

Prior to beginning the study the Institutional Review Board (IRB) at Utah State University reviewed the study. Once the IRB approved the study, the survey was piloted with eight school psychologists in Utah. These school psychologists were asked to complete the survey as if they were participants in the study. They were asked to provide feedback and suggestions regarding the survey. These suggestions were then taken into account in the revision of the final survey. Once the survey was finalized it was submitted and accepted by NASP to receive permission to obtain mailing labels.

In the spring of 2010, 500 members of NASP were sent a copy of the survey with a cover letter (see Appendix B for a copy of the cover letter) and a stamped, self-addressed envelope. The cover letter contained confidentiality information, the purpose and objectives of the study, and contact persons for questions regarding the study. Participants were assigned a code number linked to their name so that surveys would be confidential. Participants were given four weeks to complete the initial survey and return it in the stamped, self-addressed envelope provided. A second survey was then mailed to those individuals who did not respond to the first mailing. Those who did not return the initial survey were determined by using the code numbers. Following the second mailing, the list of linked names and code numbers were destroyed.

There were 167 surveys returned from the initial mailing. After the second mailing another 51 surveys were returned. The total response rate of surveys returned was 44%. Seven of the surveys returned were excluded from the study because the respondents were not currently working part-time or full-time as a school psychologist. One of the seven excluded respondents was working as a private practitioner and the others were working for school systems as an administrator. The final sample size for this study was 221 school psychologists.

## CHAPTER IV

### RESULTS

The purpose of this thesis research study was to determine training of social skills interventions for students with autism that school psychologists are receiving, using and finding useful in their practice. Preliminary information about school psychologists' practice with students with autism and the social skills interventions used during their practice was obtained. Descriptive statistics were used as the primary method of analysis for the survey data. Means, standard deviations, frequencies, and percentages were calculated and used to answer the research questions.

#### **Percentage of School Psychologists**

##### **Working with Students with ASD**

To answer the first research question (what percentage of school psychologists have worked with students with autism) responses to a question asking what the typical role of the school psychologist is when working with students with autism or ASD were examined. The question was split into three separate parts. Respondents were to indicate if their typical role was one or more of the following: Classification including Evaluation and Assessment, Direct Intervention with students and/or Indirect Intervention. The majority of school psychologists indicated that they classified students with ASD (79.5%,  $n = 174$ ) and participated in indirect interventions (78%,  $n = 170$ ). Fewer (41.7%,  $n = 91$ ) participated in giving direct interventions. The second part to this question asked participants to estimate the number of students they served for each role category. The

minimum number of students being classified was 1 and the maximum amount of students was 65, with a mean of 12.04 ( $sd = 12.47$ ). The minimum number of students given direct interventions was 0 and the maximum number of students was 75, with a mean of 8.29 ( $sd = 11.12$ ). For indirect interventions 0 was the minimum number of students and 225 was the maximum number, with a mean of 15.28 ( $sd = 22.62$ ).

A question regarding the types of training school psychologists have been involved in regarding autism or ASD also helps to answer the first research question. A little more than half the respondents indicated their training on ASD came from University graduate courses ( $n = 120, 54.3\%$ ). The majority of participants received ASD training in professional workshops or conferences ( $n = 207, 93.7\%$ ). See Table 2 for more information.

### **Effectiveness of School Psychologists When Working with Students with ASD**

Participants were asked to rate their effectiveness in assessment/evaluation, direct intervention and indirect intervention roles for students with ASD. Each role was split into a separate section. Participants rated if they viewed their effectiveness for each role as 1 (*not at all confident*) to 5 (*very confident*) with all other numbers in between as degrees between 1 and 5.

Participants rated their confidence in their abilities to effectively assess/evaluate a child suspected of having ASD with mean of 3.67 ( $sd = .97$ ). Their confidence in their abilities to provide direct intervention services as part of team of professionals for a

Table 2

*Types of Training School Psychologists Have Received*

Social skills intervention	Organization	
	Frequency	Percentage
Professional workshops or conferences	207	93.7
Talking with peers	199	90.0
Independent readings	197	89.1
University graduate courses	120	54.3
Other types of training (including Autism Society of America, on-the-job experience, independent counseling practices and observations of students)	38	17.2
University courses beyond graduate school	31	14

student with ASD was rated at a mean of 3.13 ( $sd = 1.0$ ). Confidence in effectiveness of indirect interventions was rated as a mean of 3.69 ( $sd = .92$ ). It appears that the majority of school psychologists are fairly confident in their effectiveness of evaluating/assessing students for ASD. It also appears that the school psychologists are more confident in their abilities to effectively use indirect interventions rather than direct interventions, but only slightly.

**School Psychologists' Organization or Implementation  
of Social Skills Interventions for Students with ASD**

The third research question related to school psychologists' organization or implementation of social skills interventions for students with autism. If respondents indicated that they have not organized or implemented social skills interventions for students with ASD, then they were asked to discontinue the survey. Less than half of the

participants ( $n = 136$ ; 39.7%) answered “yes” they have implemented or organized a social skills intervention for a student(s) with ASD.

### **Most Frequently Used Social Skills by School**

#### **Psychologists for Students with Autism**

The second part of the survey was to only be completed by the 136 participants who indicated that they had implemented or organized a social skills intervention for students with ASD. In order to determine the most frequently used social skills interventions participants were to indicate “yes” or “no” if they (a) organized the social skills intervention listed, and/or (b) implemented the social skills intervention. Participants were given descriptions of “organized” and “implemented” to better help them with their answers. Eleven social skills interventions for students with autism or an ASD were used in this survey study. The social skills interventions were also briefly described, so respondents knew what type of intervention they were selecting.

One of the interventions listed on the survey was titled “other” indicating other types of social skills intervention school psychologists may have implemented and/or organized. Six respondents indicated “other” ( $n = 6$ , 4.4%) as an implemented and organized social skills intervention. These six respondents’ descriptions of the “other” social skills intervention were similar and could be categorized as “training of other staff members.”

Social stories was the most frequently organized social skills intervention. Direct instruction or pivotal response training was the next most frequently organized social skills intervention. Other frequently organized interventions included classwide

interventions, Groups with typically developing peers, peer training/social skills training, integrated play groups, groups with no typical developing peers, and social scripting. Interventions that were not as frequently organized were Peer tutoring and video modeling.

More participants organized social skills interventions than implemented interventions. The most frequently implemented social skills intervention was pivotal response training or direct instruction followed closely by social stories. About a quarter of respondents indicated implementation of groups with typically developing peers, Classwide, peer/social skills training, groups with no typically developing peers, integrated play groups as frequently used. Social scripts and P\peer tutoring social skills interventions were implemented moderately compared to the other social skills trainings. A minimal number of participants implemented video modeling social skills interventions. See Table 3 for details on these results.

**School Psychologists' Perceptions of Most Effective Social Skill  
Interventions for Increasing Social Interactions  
for Students with ASD**

After indicating what interventions they organized and implemented, participants were asked to rate the effectiveness of the interventions that they implemented or organized. The rating scale was based on a 5-point Likert scale with 1 being *not at all effective* and 5 being *very effective*. Respondents were asked to circle their ratings for each intervention they either implemented, organized or both. The highest rating of 3.83 ( $sd = 1.16$ ) was for other intervention, which includes training staff members how to

Table 3

*Social Skills Interventions Used by School Psychologists for Students with Autism*

<b>Social skills intervention</b>	<b>Organization</b>		<b>Implementation</b>	
	Frequency	Percentage	Frequency	Percentage
Social Stories	102	75	59	43.4
Direct Instruction/Pivotal Response Training	101	74.3	61	44.9
Classwide	64	47.1	38	27.9
Groups with typically developing peers	59	43.4	42	30.9
Peer Training/Social Skills Training	51	37.5	35	25.7
Integrated Play Groups	48	35.3	29	21.3
Social Scripting	40	29.4	27	19.9
Groups with no typically developing peers	40	29.4	30	22.1
Peer Tutoring	29	21.3	14	10.3
Video Modeling	17	12.5	9	6.6
Other	6	4.4	6	4.4

work with students with ASD. The second highest rating was for direct instruction/pivotal response training with a mean of 3.57 ( $sd = .70$ ). The lowest rated intervention was social scripting with a mean of 3.19 ( $sd = .85$ ). All effectiveness means for interventions fell in a range between 3.19 and 3.83 (between moderately to highly effective). See Table 4 for complete results on perceived effectiveness.

Participants were asked to state “yes” or “no” whether they recommended the interventions they organized and/or implemented to other school psychologists. Most participants that chose to implement or organize an intervention recommended those interventions to other school psychologists. All participants who implemented/organized

Table 4

*School Psychologists' Perceptions of the Effectiveness and Recommendation of Social Skills Interventions*

	Effectiveness	Recommended	Recommended
Social skills intervention	Mean ( <i>sd</i> )	Percentage over all ( <i>n</i> )	Percentages ( <i>n</i> )
Other ( <i>n</i> = 6)	3.83 (1.16)	4.4	100 (6)
Direct instruction/ pivotal response training ( <i>n</i> = 106)	3.57 (.70)	76.5	98.1 (104)
Peer tutoring ( <i>n</i> = 32)	3.47 (.80)	21.3	93.5(29)
Peer training/social skills training ( <i>n</i> = 53)	3.45 (.87)	34.6	92 (47)
Groups with typically developing peers ( <i>n</i> = 62)	3.45 (.84)	42.6	92 (58)
Integrated play groups ( <i>n</i> = 49)	3.43 (.79)	33.1	95.7 (45)
Social Sstories ( <i>n</i> = 106)	3.41 (.87)	69.9	92 (95)
Classwide ( <i>n</i> = 65)	3.35 (.79)	44.1	90.9 (60)
Video modeling ( <i>n</i> = 16)	3.31 (.70)	11.8	94 (16)
Groups with no typically developing peers ( <i>n</i> = 42)	3.29 (.99)	27.2	86 (37)
Social scripting ( <i>n</i> = 43)	3.19 (.85)	25.7	85.4 (35)

“other” social skills interventions (training staff members) recommended their intervention to other school psychologists. The least recommended social skills intervention was social scripting followed by groups with no typically developing peers. See Table 4 for results on recommendations of each intervention.

**School Psychologists' Perceptions of Social Skills  
Interventions Most Effective at Generalizing  
Outside of Training Sessions**

Participants were asked to rate the generalization of the interventions outside of the training session (other settings and around other peers). The rating scale was based on a 5-point Likert scale with 1 being *no generalization took place* and 5 being *the intervention generalized very well*. Respondents were asked to circle their ratings for each intervention they either implemented, organized, or both. See Table 5 below for full results on the generalization of each intervention.

The highest rating of 3.22 ( $sd = .91$ ) was for peer tutoring. The second highest ratings were for “other” intervention (training of staff members) with a mean of 3.17 ( $sd = 1.47$ ) and groups with typically developing peers (3.13,  $sd = .90$ ). The lowest rated intervention for generalization was social scripting with a mean of 2.76 ( $sd = 1.03$ ) followed closely by direct instruction/pivotal response training with a mean of 2.77 ( $sd = .78$ ). All generalization means for interventions fell in a range between 2.76 and 3.22 (between some generalization and moderate generalization).

Table 5

*Generalization of Social Skills Interventions*

Intervention	Mean	Standard deviation
Peer tutoring	3.22	.91
Other	3.17	1.47
Groups with typically developing peers	3.13	.90
Classwide	3.12	.857
Integrated play groups	3.10	.92
Peer training/social skills training	3.08	.96
Video modeling	3.00	.894
Social stories	2.98	.97
Groups with no typically developing peers	2.86	1.00
Direct instruction/pivotal response training	2.77	.78
Social scripting	2.76	1.03

## CHAPTER V

### DISCUSSION

A sample of school psychologists from the NASP were mailed a survey in order to gain information on the types of social skills interventions used for students with ASD. The goal of the current study was to gain perspectives on the effectiveness, generalization, and needed training from school psychologists who implement and organize social skills interventions for students with ASD. Information from this survey may be useful in helping school psychologists train more appropriately for the use of effective social skills interventions for students with ASD. An added benefit of this survey was information regarding the current training school psychologists are receiving on ASD and how future training can be more effective. The survey results, for each research question, will be discussed in regard to the information presented in the literature review. This chapter will also present the limitations and directions of the study for future research.

#### **Roles of School Psychologists in Regards to Autism Spectrum Disorders**

The educational performance of students with ASD may be inhibited due to impairments in social skills. These students may qualify for services under IDEA or Section 504 (IDEA, 2004; Wilczynski et al., 2007). Because of the increase in the numbers of students with ASD in school settings, school psychologists may find themselves working with students with ASD more often than in the past (U.S.

Department of Education, 2002). School psychologists are key members in the classification and evaluation process for students with ASD (Skokut et al., 2008). School psychologists are also important as members on a team of professionals that can help implement and organize social skill interventions (Ivey, 2007; Olley, 1999; Williams et al., 2005). Results from this study indicate about 80% of the participants have evaluated/assessed and classified one or more students with ASD. Seventy-eight percent participated in giving indirect interventions to students with ASD and about 42% gave direct interventions. Indirect interventions include consultation, treatment development, training staff, and progress monitoring. Direct interventions were defined as directly giving skills training/interventions to students with ASD. It appears that most school psychologists are classifying and giving indirect interventions for students with ASD, rather than giving direct interventions. This could be due to many factors including the school psychologist's job description, time constraints to address interventions for students directly, lack of training for direct interventions, or less confidence in giving direct interventions. Another factor influencing the number of school psychologists giving direct intervention services could be that it is not appropriate for them to do so. Other professionals (classroom teacher, special education teacher, paraprofessional, etc.) may be a more appropriate professional for giving direct services to students with ASD, because they work closely with the students on a daily basis.

When it comes to training, the majority of school psychologists in this sample indicated their training on ASD came from professional workshops/conferences, talking with peers/colleagues and independent readings. A little over half of the participants (54.3%) reported training from university classes while in graduate school. Less than

20% of participants gained training from university classes since completing graduate school or from other outside training sources (one-on-one counseling, experience and observations of students). Based on these data, most school psychologists may find they need more training on ASD after graduate school and therefore are taking it upon themselves to gain that training through workshops/conferences, independent readings and from peers. Considering the increase of the number of students with ASD in special education (IDEA, 2004), it may be likely more school psychologists will receive training while in graduate school from this point forward.

### **School Psychologists' Confidence in Effectiveness of Services**

Because there is not a comprehensive guide for developing services for students with ASD and because each student has individual needs, it can be difficult for professionals, including school psychologists, to feel confident in their ability to provide services (Iovanne et al., 2003; Simpson et al., 2003; Wilczynski et al., 2007). This study's participants were asked to rate their confidence in their ability to effectively assess/evaluate, give direct interventions and indirect interventions for students with ASD. This information can provide information as to where more training needs to take place for school psychologists when working with students with ASD. It appears that the majority of school psychologists are moderately confident in their effectiveness of evaluating/assessing students for ASD (mean = 3.67, *sd* = .97). It also appears that the school psychologists are moderately confident in their abilities to effectively use indirect interventions (mean = 3.69, *sd* = .92) and direct interventions (mean = 3.13, *sd* = 1.0),

although the mean ratings for indirect interventions is lower than that for direct interventions. This information appears consistent with the number of school psychologists providing indirect and direct intervention services, as mentioned above. As confidence in effectively providing direct interventions for students with ASD is increased, perhaps then the number of students with ASD receiving direct interventions from school psychologists will also increase. It may also be that school psychologists who are trained exclusively on one intervention or provide just one intervention may feel more confident in providing that intervention.

As mentioned before many school psychologists from this study seek training outside of their graduate program. Lack of training regarding ASD may correlate with a lower view of confidence providing effective interventions. Spears, Tollefson, and Simpson (2001), found that school psychologists need more training in planning interventions for students with ASD. Increasing confidence through more training was not addressed in the study, but may be considered in future research.

## **Organization and Implementation of Social Skills**

### **Interventions for Students with ASD**

Social skills interventions can be part of the direct or indirect services that school psychologists provide for students with ASD. Thirty-nine percent of the participants in this study have organized and/or implemented a social skills intervention for at least one student with ASD in the past 3 years. It is unclear why fewer than half of the participants have implemented or organized social skills interventions for students with ASD. There are many contributing factors as to why school psychologists do not implement or

organize social skills interventions. First, lack of training on interventions or ASD services could be a reason (Skokut et al., 2008). Also, the role of the school psychologist may be defined differently depending upon where and who the school psychologist works for. Some school psychologists may not feel that they have time or it is not in their job description to implement or organize social skills for students with ASD. While this study does not go into depth as to why the majority of school psychologists in this study do not implement or organize social skills interventions for students with ASD, it could be something considered for future research.

Of those 39.7% of participants that did answer “yes” to implementing or organizing social skills interventions for students with ASD they were asked to indicate which social skills intervention they had either implemented, organized, or both. Social stories and direct instruction/pivotal response training were the most organized social skills interventions. These interventions are both considered child-centered interventions, because they focus solely on the individual child’s needs using behavioral techniques and prompting (McConnell, 2002). These two interventions were also the most implemented social skills interventions by the participants. This means that school psychologists who are organizing the use of social stories and direct instruction/pivotal response training are also implementing them more often than other social skills interventions.

Social stories can be an effective intervention for students with ASD, but usually in combination with other interventions. Social stories as a solo intervention lead to moderate increases in social interactions for students with ASD. Also, Social stories interventions do not generalize as well as other interventions (Barry & Burlew, 2004;

Scattone et al., 2006). However, social stories interventions are presented in a clear and easily understood format for trainers to use (Ali & Frederickson, 2006; Gray, 1998, 2002; Gray & Garand, 1993; Scattone et al., 2006). It may be that school psychologists find the organization and implementation of social stories easier to use because of the structure.

Direct instruction or pivotal response training as a social skills intervention is often used as a comprehensive treatment for ASD and not just for social skills development (Koegel et al., 1999). One reason that school psychologists reported implementing and organizing this type of intervention more often could be because the strategies are based on techniques that most school psychologists use in other situations surrounding children's behaviors, especially for students with ASD (Skokut et al., 2008). Most school psychologists are trained on these approaches as a requirement in completing graduate courses. Also, pivotal response training and direct instruction, especially with the use of self-management as a pivotal behavior, are found to be highly effective at increasing social skills for students with ASD (Koegel, Koegel, Hurley, & Frea, 1992; Koegel & Frea, 1993; Lee et al., 2007; National Research Council, 2001; Shearer et al., 1996).

### **Perceived Effectiveness of Social Skills Interventions**

School psychologists were asked to express their opinions and give a rating on how effective they thought an intervention was at increasing social interactions for students with ASD. They were also asked to indicate whether they would recommend that intervention to other school psychologists. The highest rated intervention was "other" intervention. All of the participants who implemented/organized "other" interventions

recommend it to school psychologists. The “other” intervention participants used was “training of paraprofessionals/staff on how to work with students with ASD.”

The second highest rated intervention was direct instruction/pivotal response training interventions. This is consistent with the information above, that this intervention was implemented and organized more often than other interventions. Ninety-eight percent of participants who implemented or organized this intervention recommended it to other school psychologists. As mentioned above direct instruction/pivotal response training uses traditional behavioral strategies that have been shown to benefit students with ASD (National Research Council, 2001).

While social stories was the most organized and the second most implemented social skills intervention, it was only rated as the seventh out of 11 interventions for perceived effectiveness at increasing social interactions. Ninety-two percent of participants who implemented or organized social stories recommended it to other school psychologists. As mentioned above, while social stories are starting to be more widely used in school settings at helping students with ASD, data are lacking on their effectiveness to increase social skills interactions. (Ali & Frederickson, 2006; Gray & Garand, 1993; Nichols et al., 2005; Reynhout & Carter, 2006).

All of the eleven interventions that were rated for perceived effectiveness in this study obtained means between 3.19 (video modeling) and 3.89 (other intervention), which is considered between moderately effective and highly effective. This means that while some interventions may be viewed as slightly more effective than others, most interventions are viewed as moderately to highly effective at increasing social interactions for students with ASD. This is encouraging and supports the need for social

skills interventions to help students with ASD increase social interactions, competence, and, therefore, educational performance.

### **Perceived Generalization of Social Skills Interventions**

Generalization of social skills is important when considering the effectiveness of how the intervention was at increasing social interactions for students outside of the training session and around novel peers. Most interventions take place in a classroom, or smaller office setting where the student with ASD is either trained in isolation away from peers or with the same peers every training session. It is important that students with ASD can use learned social skills in everyday settings (recess, lunch, home, and community) and around other peers that were not present during training. Generalization of social skills is the true test of determining how effective the intervention really is. If a student can consistently display social competence in all settings and around different persons, then the intervention can be deemed successful (Gresham et al., 2001; Rao et al., 2008; Wilczynski et al., 2007).

It seems in terms of how the participants in this study perceived generalization, the results are opposite of the perceived effectiveness data. While direct instruction/pivotal response training was rated at being viewed as one of the top interventions for implementation, organization, recommendation, and effectiveness, it was rated in the bottom two interventions for generalization. The highest rated intervention for perceived generalization was peer tutoring. Peer tutoring consists of the student with ASD being paired with a specific peer in order to tutor one another on academic subjects. The hope is that the students will then interact outside of the tutoring sessions.

All of the eleven interventions that were rated for perceived generalization in this study obtained means between 2.76 (social scripting) and 3.22 (peer tutoring), which is considered between some generalization and moderate generalization. Perceived generalization ratings overall were not as high as perceived effective ratings.

Generalization of learned skills can be difficult to view compared to seeing effective results in the controlled training session. Generalization can also be difficult to measure outside of a controlled training sessions (Gresham et al., 2001).

Those interventions (peer tutoring, “other,” groups with typically developing peers, classwide, integrated play groups, Peer training/social skills training, and video modeling) that were perceived to be better at generalization (mean rating above 2) seem to have a common theme. All these interventions are considered peer-mediated interventions, which means typically developing peers were involved in the training sessions. Social stories, direct instruction/pivotal response training, groups with no typically developing peers, and social stories either rarely use typically developing peers during training, or no peers are used at all. This information supports the concept that with typically developing peers present during training, social interactions are more likely to generalize across other settings and novel peers outside of training (Kamps et al., 2002; McEvoy et al. 1992; Rogers, 2000; Strain & Fox, 1981; Strain & Kohler, 1998).

### **Limitations**

Because this is a survey study, there are limitations having to do with the response bias of the participants. School psychologists were asked to rate their confidence in their abilities at evaluating and providing services to students. Their ratings are subjective and

may not accurately portray their true effectiveness in those areas when rated by others or compared to general standards of effectiveness.

A second limitation is that the participants were all members of NASP. Therefore, it is possible that school psychologists who are not NASP members may have answered differently to the survey. Also, not all members that were solicited responded to the survey, so it is difficult to know if those who did not respond had no interest or background in the use of social skills interventions for students with ASD. Most likely the school psychologists who did respond to the survey had an interest in providing social skills interventions for students with ASD. The participants who responded may have invested more time, commitment, and willingness to make the interventions work for their students with ASD. Having participants that are not as invested in implementing or organizing social skills interventions for students with ASD may have changed the results of perceived effectiveness, generalization, and recommendation of the interventions.

Last, the definitions that were used for items in the survey may have been too vague. For instance, the social skills interventions were each described briefly. The information given about the interventions may not have given the respondent enough information in distinguishing one intervention from another. Therefore the participants' responses to the questions of implementation and organization of social skills interventions may not have been accurate. It also appeared that some participants just marked all interventions as implemented/organized. A better way to have conducted the survey would be to have a list of the interventions with longer descriptions and then have the participants rate one or two of the interventions, rather than allowing them to have the choice to rate all.

## Future Directions

This study explored information regarding school psychologists' perceptions of their confidence in their abilities to evaluate and give direct/indirect social skills interventions to students with ASD. It would be interesting to see future research on how that confidence can be increased. It appears, from this study, that if confidence in the ability to implement/organize direct interventions for students with ASD increases so would the actual practice of implementing/organizing those interventions. School psychologists may need more support and training in the area of providing direct and indirect interventions. Future research on what types of training, how much training, and when training should take place for school psychologists to feel more confident in their abilities to provide interventions could be taken into consideration.

It appears, based on this study, perceived generalization ratings were lower overall compared to perceived effectiveness of interventions. While this current study did not obtain data on actual generalization of interventions, this information is consistent with data-based studies on the difficulties of generalizing intervention results (Gresham et al., 2001; Rao et al., 2008; Wilczynski et al., 2007). Future research on how to improve generalization of interventions would be beneficial as more students receive social skills interventions services. For example, pivotal response training/direct instruction has shown to be implemented, organized, recommended, and viewed as an effective intervention according to this study, but it does not appear to have been viewed at generalizing as well as other interventions outside of training. Future research and practice as to making this type of intervention generalize better could be an initial step in

establishing a well-supported social skills intervention that school psychologists can use for students with ASD.

This study contains good exploratory information to guide more in-depth investigations for the most effective and better generalizing social skills interventions that school psychologists can implement or organize. It is also hopeful that school psychologists will become more confident, through training and support, in their ability to use direct intervention services for students with ASD.

## REFERENCES

- Ali, S., & Frederickson, N. (2006). Investigating the evidence base of social stories. *Educational Psychology in Practice, 22*, 355-377.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., Text Revision). Washington, DC: Author.
- Aylward, E. H., Minshew, N. J., Field, K., Sparks, B. F., & Singh, N. (2002). Effects of age on brain volume and head circumference in autism. *Neurology, 59*, 175-183.
- Bailey, A., Palferman, S., Heavey, L., & Le Couteur, A. (1998). Autism: The phenotype in relatives. *Journal of Autism and Developmental Disorders, 28*, 369-92.
- Bandura, A. (1969). *Principles of behavior modification*. New York, NY: Holt, Rinehart, & Winston.
- Barkley, R. A., & Mash, E. J. (2003). *Child psychopathology* (2nd ed.). New York, NY: Guilford Press.
- Barry, L. M., & Burlew, S. B. (2004). Using social stories to teach choice and play skills to children with autism. *Focus on Autism and Other Developmental Disabilities, 19*, 45-51.
- Bass, J. D., & Mulick, J. A. (2007). Social play skill enhancement of children with autism using peers and siblings as therapists. *Psychology in the Schools, 44*, 727-735.
- Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Children, 73*, 264-287.

- Bellini, S., Peters, J. K., Benner, L., & Hopf, A. (2007). A meta-analysis of school-based social skills interventions for children with autism spectrum disorders. *Remedial and Special Education, 28*, 153-162.
- Bernard, S., Enayati, A., Roger, H., Binstock, T., & Redwood, L. (2002). The role of mercury in the pathogenesis of autism. *Molecular Psychiatry, 7*(Suppl 2), S42-43.
- Bono, M. A., Daley, T., & Sigman, M. (2004). Relations among joint attention, amount of intervention and language gain in autism. *Journal of Autism and Developmental Disorders, 34*(5), 495-503.
- Boucher, J. (2003). Language development in autism. *International Journal of Pediatric Otorhinilaryngology, 67S1*, S159-S163.
- Brown, J. L., Krantz, P. J., McClannahan, L. E., & Poulson, C. L. (2008). Using script fading to promote natural environment stimulus control of verbal interactions among youths with autism. *Research in Autism Spectrum Disorders, 2*, 480-497.
- Buggey, T. (2005). Video self-modeling applications with students with autism spectrum disorder in a small private school setting. *Focus on Autism and Other Developmental Disabilities, 20*, 52-63.
- Buggey, T. (2007). A picture is worth...video self-modeling applications at school and home. *Journal of Positive Behavior Interventions, 9*, 151-158.
- Caprara, G. V., Barbaranelli, C., Pastorelli C., Bandura, A., & Zimbardo, P. (2000). Prosocial foundations of children's academic achievement. *Psychological Science, 11*, 302-306.

- Carr, E. G., & Jones, E. A. (2004). Joint attention in children with autism: Theory and intervention. *Focus On Autism and Other Developmental Disabilities*, 19(1), 13-26.
- Centers for Disease Control and Prevention. (2007). *Prevalence of autism spectrum disorders in multiple areas of the United States, surveillance years 2000 and 2002*. Surveillance Summaries, February 9, 2007. MMWR; 56 (No.SS #1).
- Conroy, M. A., Sutherland, K. S., Snyder, A. L., & Marsh, S. (2008). Classwide interventions effective instruction makes a difference. *Council for Exceptional Children*, 40, 24-30
- Cotugno, A. J. (2009). Social competence and social skills training and intervention for children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 39, 1268-1277.
- Courchesne, E., Carper, R., & Akshoomoff, N. (2003). Evidence of brain overgrowth in the first year of life in autism. *Journal of the American Medical Association*, 290, 337-344.
- Curtis, M. J., Lopez, A. D., Castillo, J. M., Batsche, G. M., Minch, D., & Smith, C. (2008). The status of school psychology: Demographic characteristics, employment conditions, professional practices, and controlling professional development. *NASP Communique*, 36.
- DiSalvo, C. A., & Oswald, D. P. (2002). Peer-mediated interventions to increase the social interaction of children with autism: consideration of peer expectancies. *Focus on Autism and Other Developmental Disabilities*, 17, 198-207.

- English, K., Goldstein, H., Shafer, K., & Kaczmarek, L. (1997). Interaction among preschoolers with and without disabilities: Effects of across-the-day peer intervention. *Journal of Speech, Language, and Hearing Research, 40*, 33-48.
- Fogt, J. B., Miller, D. N., & Zirkel, P. A. (2003). Defining autism: Professional best practices and published case law. *Journal of School Psychology, 41*, 201-216.
- Folstein, S. E., & Rosen-Sheidley, B. (2001). Genetics of autism: Complex etiology for a heterogeneous disorder. *Nature Reviews Genetics, 2*, 943-955.
- Fombonne, E. (2003). Epidemiological surveys of autism and other pervasive developmental disorders: An update. *Journal of Autism and Developmental Disorders, 33*, 365-382.
- Fombonne, E., & Chakrabarti, S. (2001). No evidence for a new variant of measles-mumps-rubella-induced autism. *Pediatrics, 108*, E58.
- Fombonne, E., Roge, B., Claverie, J., Courty, S., & Fremolle, J. (1999). Microcephaly and macrocephaly in autism. *Journal of Autism and Developmental Disorders, 29*, 113-119.
- Freeman, S., Kasari, C., & Paparella, T. (2006). Joint attention and symbolic play in young children with autism: A randomized controlled intervention study. *Journal of Child Psychology and Psychiatry, 47*(6), 611-620.
- Ganz, J. B., Kaylor, M., Bourgeois, B., & Hadden, K. (2008). The impact of social scripts and visual cues on verbal communication in three children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 23*, 79-94.

- Gonzalez-Lopez, A., & Kamps, D. M. (1997). Social skills training to increase social interactions between children with autism and their typical peers. *Focus on Autism and Other Developmental Disabilities, 12*, 2–14.
- Gray, C. A. (1998). Social stories and comic strip conversations with students with Asperger Syndrome and High-Functioning Autism. In E. Schopler, G. B. Mesibov, & L. J. Kuncie (Eds.), *Asperger syndrome or high-functioning autism?* (pp. 167-198). New York, NY: Plenum.
- Gray, C. A. (2002). *My social stories book*. London, England: Jessica Kingsley.
- Gray, C. A., & Garand, J. D. (1993). Social stories: Improving responses of students with autism with accurate social information. *Focus on Autistic Behavior, 8*(1), 1-10.
- Gresham, F. M., Sugai, G., & Horner, R. H. (2001). Interpreting outcomes of social skills training for students with high-incidence disabilities. *Exceptional Children, 67*, 331-344.
- Harper, C. B., Symon, J. B. G., & Frea, W. D. (2008). Recess is time-in: using peers to improve social skill of children with autism. *Journal of Autism and Developmental Disorders, 38*, 815-826.
- Harrist, A. W., & Bradley, K. D. (2003). “You can’t say you can’t play:” Intervening in the process of social exclusion in the kindergarten classroom. *Early Childhood Research Quarterly, 18*, 185-205.
- Hwang, B., & Hughes, C. (2000). The effects of social interactive training on early social communicative skills of children with autism. *Journal of Autism and Developmental Disorders, 30*(4), 341-342.

- IDEA 204 Regulations: Sec. 300.8 Child with a disability (c)(1)(i). Retrieved from <http://idea.ed.gov/explore/view/p/%2Croot%2Cregs%2C300%2CA%2C300%252E8%2C>
- Ingersoll, B., & Schreibman, L. (2006). Teaching reciprocal imitation skills to young children with autism using a naturalistic behavioral approach: Effects on language, pretend play, and joint attention. *Journal of Autism and Developmental Disorders, 36*(4), 487-503.
- Iovannone, R., Dunlap, G., Huber, H., & Kincaid, D. (2003). Effective educational practices for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 18*, 150-165.
- Ivey, J. K. (2007). Division on developmental disabilities outcomes for students with autism spectrum disorders: What is important and likely according to teachers? *Education and Training in Developmental Disabilities, 42*(1), 3-13.
- Kamps, D., Royer, J., Dugan, E., Kravits, T., Gonzalez-Lopez, A., Garcia, J., Carnazzo, K.,... Kane, L. G. (2002). Peer training to facilitate social interaction for elementary students with autism and their peers. *Exceptional Children, 68*, 173-187.
- Koegel, R. L., & Frea, W. D. (1993). Treatment of social behavior in autism through the modification of pivotal social skills. *Journal of Applied Behavior Analysis, 26*, 369-377.
- Koegel, R. L., Koegel, L. K., & Carter, C. M. (1999). Pivotal teaching interactions for children with autism. *School Psychology Review, 28*, 576-594.

- Koegel, L. K., Koegel, R. L., Frea, W. D., & Fredeen, R. M. (2001). Identifying early intervention targets of children with autism in inclusive school settings. *Behavior Modification, 25*, 745-761.
- Koegel, L. K., Koegel, R. L., Hurley, C., & Frea, W. D. (1992). Improving social skills and disruptive behavior in children with autism through self-management. *Journal of Applied Behavior Analysis, 25*, 341-353.
- Koegel, R. L., Koegel, L. K., & McNerney, E. K. (2001). Pivotal areas in intervention for autism. *Journal of Clinical Child Psychology, 30*, 19-32.
- Kohler, F. W., Greteman, C., Raschke, D., & Highnam, C. (2007). Using a buddy skills package to increase the social interactions between a preschooler with autism and her peers. *Topic in Early Childhood Special Education, 27*, 155-163.
- Krasny, L., Williams, B. J., Provencal, S., & Ozonoff, S. (2003). Social skills interventions for the autism spectrum: Essential ingredients and a model curriculum. *Child and Adolescent Psychiatric Clinics, 12*, 107-122.
- Kupersmidt, J. B., Coie, J. D., & Dodge, K. A. (1990). The role of poor peer relationships in the development of disorder. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 274-305). New York, NY: Cambridge University Press.
- Ladd, G. W. (1990). Having friends, keeping friends, making friends and being liked  
By peers in the classroom: Predictors of children's early school adjustment. *Child Development, 61*, 1081-1100.
- Laushey, K. M., & Heflin, L. J. (2000). Enhancing social skills of kindergarten children with autism through the training of multiple peers as tutors. *Journal of Autism and Related Disorders, 30*, 183-193.

- Lee, S., Simpson, R. L., & Shogren, K. A. (2007). Effects and implications of self-management for students with autism: A meta-analysis. *Focus on Autism and Other Developmental Disabilities, 22*, 2-13.
- Loftin, R. L., Odom, S. L., & Lantz, J. F. (2008). Social interaction and repetitive motor behaviors. *Journal of Autism and Developmental Disorders, 38*, 1124-1135.
- Lord, C., Wagner, A., Rogers, S., Szatmari, P., Aman, M., Charman, T., Dawson, G.,... Yoder, P. (2005). Challenges in evaluating psychosocial interventions for autistic spectrum disorders. *Journal of Autism and Developmental Disorders, 35*, 695-708.
- Lovaas, O. I., Schaeffer, B., & Simmons, J. Q. (1965). Building social behavior in autistic children by use of electric shock. *Journal of Experimental Research in Personality, 1*, 99-109.
- MacDonald, R., Clark, M., Garrigan E., & Madhuri, V. (2005). Using video modeling to teach pretend play to children with autism. *Behavioral Interventions, 20*, 225-238.
- MacKay, T., Knott, F., & Dunlop, A. (2007). Developing social interaction and understanding in individuals with autism spectrum disorder: A groupwork intervention. *Journal of Intellectual & Developmental Disability, 32*, 279-290.
- Mazurik-Charles, R., & Stefanou, C. (2010). Using paraprofessionals to teach social skills to children with autism spectrum disorders in the general education classroom. *Journal of Instructional Psychology, 37*, 161-169.

- McConnell, S. R. (2002). Interventions to facilitate social interaction for young children with autism: Review of available research and recommendations for educational intervention and future research. *Journal of Autism and Developmental Disorders, 32*, 351-372.
- McEvoy, M. A., Odom, S. L., & McConnell, S. R. (1992). Peer social competence intervention for young children with disabilities. In S. L. Odom, S. R. McConnell, & M. A. McEvoy (Eds.), *Social competence of young children with disabilities: Issues and strategies for intervention* (pp. 113-133). Baltimore, MD: Paul Brooks.
- McFall, R. (1982). A review and reformulation of the concept of social skills. *Behavioral Assessment, 4*, 1-33.
- Morrison, L., Kamps, D., Garcia, J., & Parker, D. (2001). Peer mediation and monitoring strategies to improve initiations and social skills for students with autism. *Journal of Positive Behavior Interventions, 3*, 237-250.
- National Research Council. (2001). Educating children with autism. Committee on educational interventions for children with autism. In C. Lord & J. P. McGee (Eds.), *Division of Behavioral and Social Sciences and Education* (pp. 66-81, 171). Washington, DC: National Academy Press.
- Nichols, S. L., Hupp, S. D. A., Jewell, J. D., & Zeigler, C. S. (2005). Review of social story interventions for children diagnosed with autism spectrum disorders. *Journal of Evidence-Based Practices for Schools, 6*, 90-120.
- Nikopoulos, C. K., & Keenan, M. (2003). Promoting social initiation in children with autism using video modeling. *Behavioral Interventions, 18*, 87-108.

- Olley, J. G. (1999). Curriculum for students with autism. *School Psychology Review, 28*, 595-607.
- O'Neil, R., Welsh, M., Parke, R. D., Wang, S., & Strand, C. (1997). A longitudinal assessment of the academic correlates of early peer acceptance and rejection. *Journal of Clinical Child Psychology, 26*, 290-303.
- Patrick, H. (1997). Social self-regulation: Exploring the relations between children's social relationships, academic self-regulation, and school performance. *Educational Psychologist, 32*, 209-220.
- Pollard, N. L. (1998). Development of social interaction skills in preschool children with autism: A review of the literature. *Child & Family Behavior Therapy, 20*, 1-16.
- Piven, J., Arndt, S., Bailey, J., Havercamp, S., Andreasen, N. C., & Palmer, P. (1995). An MRI study of brain size in autism. *American Journal of Psychiatry, 152*, 1145-1149.
- Quinn, M., Kavale, K., Mathur, S., Rutherford, J., & Forness, S (1999). A meta-analysis of social skill interventions for students with emotional or behavioral disorders. *Journal of Emotional & Behavioral Disorders, 7*, 1-20.
- Rao, P. A., Beidel, D. C., & Murray, M. J. (2008). Social skills interventions for children with asperger's syndrome or high-functioning autism: A review and recommendations. *Journal of Autism and Developmental Disorders, 38*, 353-361.
- Ray, C. E., & Elliot, S. N. (2006). Social adjustment and academic achievement a predictive model for students with diverse academic and behavior competencies. *School Psychology Review, 35*, 493-501.

- Reinecke, D. R., Newman, B., & Meinberg, D. L. (1999). Self-management of sharing in three pre-schoolers with autism. *Education and Training in Mental Retardation and Developmental Disabilities, 34*, 312-317.
- Reynhout, G., & Carter, M. (2006). Social stories for children with disabilities. *Journal of Autism and Developmental Disorders, 36*, 445-469.
- Robertson, K., Chamberlain, B., & Kasari, C. (2003). General education teachers' relationships with included students with autism. *Journal of Autism and Developmental Disorders, 33*, 123-130.
- Rogers, S. J. (2000). Interventions that facilitate socialization in children with autism. *Journal of Autism and Developmental Disorders, 30*, 399-409.
- Sarokoff, R. A., Taylor, B. A. & Poulson, C. L. (2001). Teaching children with autism to engage in conversational exchanges: Script fading with embedded textual stimuli. *Journal of Applied Behavior Analysis, 34*, 81-84.
- Scattone, D. (2007). Social skills interventions for children with autism. *Psychology in the schools, 44*, 717-725.
- Scattone, D., Tingstrom, D. H., & Wilczynski, S. M. (2006). Increasing appropriate social interactions of children with autism spectrum disorders using social stories. *Focus on Autism and Other Developmental Disabilities, 21*, 211-222.
- Shearer, D., Kohler, F., Buchan, K., & McCullough, K. (1996). Promoting independent interactions between preschoolers with autism and their nondisabled peers: An analysis of self-monitoring. *Early, Education and Development, 7*, 205-220.
- Simpson, R. (1999). Social stories: Improving responses of students with autism with accurate social information. *Focus on Autistic Behavior, 8*, 1-10.

- Simpson, R. L., de Boer-Ott, S. R., & Smith-Myles, B. (2003). Inclusion of learners with autism spectrum disorders in general education settings, *Topics in Language Disorders, 23*(2003), 116-133.
- Simpson, A., Langone, J., & Ayres, K. M. (2004). Embedded video and computer based instruction to improve social skills for students with autism. *Education and Training in Developmental Disabilities, 39*, 240-252.
- Skokut, M., Robinson, S., Openden, D., & Jimerson, S. R. (2008). Promoting the social and cognitive competence of children with autism: Interventions at school. *The California School Psychologist, 13*, 93-109
- Sparks, B. F., Friedman, S. D., Shaw, D. W., Aylward, E. H., Echelard, D., Artru, A. A., Maravilla, K. R.,.... Dager, S. R. (2002). Brain structural abnormalities in young Children with autism spectrum disorder. *Neurology, 59*, 184-192.
- Spears, R., Tollefson, N., & Simpson, R. (2001). Usefulness of different types of assessment data in diagnosing and planning for a student with high-functioning autism. *Behavioral Disorders, 26*(3), 227-242.
- Stahmer, A.C. (1999). Using pivotal response training to facilitate appropriate play in children with autistic spectrum disorders. *Child Language Teaching and Therapy, 15*, 29-40.
- Stahmer, A. C., & Schreibman, L. (1992). Teaching children with autism appropriate play in unsupervised environments using a self-management treatment package. *Journal of Applied Behavior Analysis, 25*, 447-459.

- Stichter, J. P., Randolph, J., Gage, N., & Schmidt, C. (2007). A review of recommended practices in effective social competency programs for students with ASD. *Exceptionality, 15*(4), 219-232.
- Strain, P. S., & Fox, J. J. (1981). Peer social initiations and the modification of social withdrawal: A review and future perspective. *Journal of Pediatric Psychology, 6*, 417-433.
- Strain, P. S., & Kohler, F. (1998). Peer-mediated social intervention for young children with autism. *Seminars in Speech and Language, 19*(4), 391-405.
- Strain, P. S., Kohler, F. W., Storey, K., & Danko, C. D. (1994). Teaching preschoolers with autism to self-monitor their social interactions: An analysis of results in home and school settings. *Journal of Emotional and Behavioral Disorders, 2*, 78-88.
- Szatmari, P., Jones, M. B., Zwaigenbaum, L., & Mac-Lean, J. E. (1998). Genetics of autism: Overview and new directions. *Journal of Autism and Developmental Disorders, 28*, 351-368.
- Tager-Flusberg, H. (1999). A psychological approach to understanding the social and language impairments in autism. *International Review of Psychiatry, 11*, 325-334.
- United States Department of Education. (2002). 24<sup>th</sup> Annual report. Retrieved from <http://www2.ed.gov/about/reports/annual/osep/2002/section-ii.pdf>
- Volkmar, F. R., Lord, C., Bailey, A., Schultz, R. T., & Klin, A. (2004). Autism and pervasive developmental disorders. *Journal of Child Psychology and Psychiatry, 45*, 135-170.

- Williams, S., Johnson, C., & Sukhodolsky, D. G. (2005). The role of the school psychologist in the inclusive education of school-age children with autism spectrum disorders. *Journal of School Psychology, 43*(2), 117-136.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Weiss, M. J., & Harris, S. L. (2001). Teaching social skills to people with autism. *Behavior Modification, 25*, 785-802.
- Welsh, M., Parke, R. D., Widaman, K., & O'Neil, R. (2001). Linkages between children's social and academic competence: A longitudinal analysis. *Journal of School Psychology, 39*, 463-481.
- Wentzel, K. R. (1991a). Relations between social competence and academic achievement in early adolescence. *Child Development, 62*, 1066-1078.
- Wentzel, K. R. (1991b). Social competence at school: Relation between social responsibility and academic achievement. *Review of Educational Research, 61*, 1-24.
- Wentzel, K. R. (1996). Social goals and social relationships as motivators of school adjustment. In J. Juvonen & K. R. Wentzel (Eds.), *Social motivation: Understanding children's school adjustment* (pp. 226-247). Cambridge, MA: Cambridge University Press.
- Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology and Psychiatry, 44*, 456-468.

- White, S. W., Keonig, K., & Scahill, L. (2006). Social skills development in children with autism spectrum disorders: A review of the intervention research. *Journal of Autism and Developmental Disorders* 37, 1858-1868.
- Wilczynski, S. M., Menousek, K., Hunter, M., & Mudgal, D. (2007). Individualized education programs for youth with autism spectrum disorders. *Psychology in the Schools*, 44, 653-666.
- Williams, S. K., Johnson C., & Sukhodolsky, D. G. (2005). The role of the school psychologist in the inclusive education of school-age children with autism spectrum disorders. *Journal of School Psychology*, 45, 117-136.
- Wilson, K., Mills, E., Ross, C., McGowan, J., & Jadad, A. (2003). Association of autistic spectrum disorder and the measles, mumps, and rubella vaccine: A systematic review of current epidemiological evidence. *Comment in: Archives of Pediatric and Adolescent Medicine*, 157, 619-621.
- Wolfberg, P. J., & Schuler, A. L. (1993). Integrate play groups: A model for promoting the social and cognitive dimensions of play in children with autism. *Journal of Autism and Developmental Disorders*, 23, 467-487.
- Wolff, S. (2004). The history of autism. *European Child & Adolescent Psychiatry*, 13, 201-208.
- Yell, M. L., Drasgow, E., & Lowrey, K. A. (2005). No child left behind and students with autism spectrum disorders. *Focus On Autism and Other Developmental Disabilities*, 20, 130-139.

APPENDICES

## Appendix A:

## Survey

**General Information**

1. Age \_\_\_\_\_
2. State of Residence \_\_\_\_\_
3. Gender (check one):  Male  Female
4. Educational Level (check highest degree obtained):  
 B.S.             M.S./M.A.             M.S./M.A. + 30 or Ed.S.  
 Ph.D./ Ed.D/ Psy.D.             Other \_\_\_\_\_
5. Number of years as a practicing school psychologist \_\_\_\_\_ years
6. What student population do you typically work with:  
 Special Education             General Education             Both
7. What grade level do you typically work with (check all that apply):  
 Pre-school  Elementary  Junior High/Middle School  High School

### **Autism Information**

8. What is your typical role when working with students with Autism or Autism

Spectrum Disorders? (Check all that apply)

Classification (Evaluation/Assessment)

Please write the estimated number of students with Autism/Autism Spectrum Disorders you have provided classification for in the past 3 years \_\_\_\_\_

Direct Intervention ( e.g. child skills training, one on one counseling, group skills training)

Please write the estimated number of students with Autism/Autism Spectrum Disorders you have provided direct intervention services for in the past 3 years \_\_\_\_\_

Indirect Intervention (e.g. consultation, treatment development, training, progress monitoring)

Please write the estimated number of students with Autism/Autism Spectrum Disorders you have provided indirect intervention services for in the past 3 years \_\_\_\_\_

9. What types of training have you been involved in regarding Autism/Autism Spectrum

Disorders overall? (please check all that apply):

University classes while in graduate school

University classes since completing graduate school

Professional workshops/conferences

Independent readings

Talking with colleagues/peers

Other (please list) \_\_\_\_\_

10. On a 5-point scale please rate how confident you are in your abilities to effectively assess/evaluate a child suspected of having Autism/Autism Spectrum Disorders

<b>Not at all confident</b>		<b>confident</b>		<b>very confident</b>
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

11. On a 5-point scale please rate how confident you are in your abilities to provide direct intervention services as part of a team of professionals for a student with Autism/Autism Spectrum Disorders.

<b>Not at all confident</b>		<b>confident</b>		<b>very confident</b>
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

12. On a 5-point scale please rate how confident you are in your abilities to provide indirect intervention services as part of a team of professionals for a student with Autism/Autism Spectrum Disorders

<b>Not at all confident</b>		<b>confident</b>		<b>very confident</b>
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

13. Have you organized or implemented a **social skills intervention** for a student with Autism/Autism Spectrum Disorders in the past 3 years? (Check yes even if you did not implement the intervention – as long as you had a substantial role in planning the intervention)

Yes  No

- **If you answered No please stop here and return the survey, if you answered yes please continue the survey**

## **Social Skills Interventions For Students With Autism or Autism Spectrum**

### **Disorders**

14. Listed below are some interventions used for students with autism in order to increase social interactions. Please check all interventions that you have organized and/or implemented for students with autism (as defined below).

**Organized:** You are part of a team or you individually developed and organized the social skills intervention.

**Implemented:** You may or may not have been part of the organization of the social skills intervention, but you are the one actually running the intervention.

Once you have selected your interventions please rate effectiveness and generalization (as defined below).

**Effectiveness:** there was a noticeable increase in the student with autism's social interactions after the intervention was complete

**Generalization:** social interactions by the student with autism took place in other settings (recess, lunch, P.E., other classrooms) outside of the training sessions and continued in other settings well after treatment was complete. Interactions also took place with novel peers away from peers that were in the training setting.

Last, please indicate whether you would recommend the intervention(s) you selected to other school psychologists who want to implement a social skills intervention for students with autism.

<b>Social Skills Intervention</b>			<b>Effectiveness</b> 1=Not at all effective 2= slightly effective 3= moderately effective 4= highly effective 5= very effective	<b>Generalization</b> 1= no generalization took place 2= some generalization 3= moderate generalization 4= high generalization 5= generalized very well	<b>Recommend to other school psychologists</b>  Please circle yes or no
organized	implemented				
<input type="checkbox"/>	<input type="checkbox"/>	<b>Direct Instruction/ Pivotal Response Training</b> Behavioral approaches such as modeling, prompts and reinforcement are used to increase social behaviors.	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<b>Social Stories</b> Short individualized stories are designed to teach students with autism appropriate social behaviors for different social situations that the student may find challenging.	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<b>Integrated Play Groups</b> A structured environment is provided and an adult mediates play between students with autism and peers without autism	1 2 3 4 5	1 2 3 4 5	YES NO

<input type="checkbox"/>	<input type="checkbox"/>	<p><b>Peer Training/Social Skills Trainings</b>  Students are trained on appropriate social skills during group settings and given feedback on skill use during free play. (students without autism are typically taught the skills and then required to teach students with autism the skills either by modeling or directing)</p>	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<p><b>Peer Tutoring</b>  Student is paired with another specific peer; students tutor each other on academic subjects (i.e. math, reading, etc.) in hopes that during free play these students will interact with one another.</p>	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<p><b>Video Modeling</b>  Student watches a video in which a model (either self or other) performs social skills. A similar environment to that in the video is presented after watching and the student is expected to perform the same as the model.</p>	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>		1 2 3 4 5	1 2 3 4 5	YES NO

		<p><b>Classwide Interventions</b> Teaching social skills to an entire class, which usually includes skills on accepting and being friends to students with autism or other disabilities.</p>			
<input type="checkbox"/>	<input type="checkbox"/>	<p><b>Social Scripting</b> A student is given a script on how to play a particular activity or situation. They are to follow the script verbatim. (scripts sometimes include visual cues with or without words)</p>	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<p><b>Groups with <u>no</u> typically developing peers (only students with autism).</b> Students are brought together in a group setting to learn and develop social skills, no set script.</p>	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<p><b>Groups with <u>with</u> typically developing peers.</b> Students are brought together in a group to learn and develop social skills, no set script</p>	1 2 3 4 5	1 2 3 4 5	YES NO
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <b>Other</b> (please list)			

		_____	1 2 3 4 5	1 2 3 4 5	YES	NO
		_____	1 2 3 4 5	1 2 3 4 5	YES	NO
		_____	1 2 3 4 5	1 2 3 4 5	YES	NO

Appendix B:

Letter of Information

Dear School Psychologist,

Please take note that this is the second mailing of this questionnaire you have received.

**Introduction/Purpose:** My name is Amanda Day and I am a graduate student working under the direction of Dr. Gretchen Gimpel Peacock in the Psychology Department at Utah State University. I am conducting a research study for my master's thesis to gain information on the practice, effectiveness and generalization of social skills interventions for students with Autism or Autism Spectrum Disorders as implemented or organized by school psychologists

**Procedures:** I am inviting your participation in this study, which will involve the completion of the included questionnaire that is expected to take 15-30 minutes of your time. The survey consists of two sections: 1) demographic information and 2) questions about your practice with students with Autism, the types of social skills interventions used and how effective they are, and how well you think intervention results generalize. Please complete the questionnaire and return it within 30 days. No further mailings will be sent after this.

**Risks/Benefits:** There is minimal risk in participating in this research. Participation in this study may allow for the analysis of valuable information in relation to current practices and beliefs among school psychologists working with students with Autism or Autism Spectrum Disorders. Although there may be no direct benefits to you from participating, information gained from this study may be beneficial in identifying areas of future training and intervention for students with Autism or Autism Spectrum Disorders.

**Explanation & Offer to Answer Questions:** If you have any questions you may contact Amanda Day at (801) 589-3738; by email at [amanda.day@aggiemail.usu.edu](mailto:amanda.day@aggiemail.usu.edu) or Gretchen Peacock at (435) 797-0721 or email at [gretchen.peacock@usu.edu](mailto:gretchen.peacock@usu.edu)

**Voluntary Nature of Participation and Right to Withdraw without Consequence:** Your participation in this study is voluntary. If you do not wish to participate, simply discard your questionnaire. If you choose not to participate or to withdraw from the study at any time, there will be no penalty.

**Confidentiality:** Research records will be kept confidential, consistent with federal and state regulations. To protect your privacy, your name will not appear on the questionnaire. Each questionnaire has a code number that is linked to your name so that we can send follow-up questionnaires if needed. The list of names and code numbers will be kept separate from the data collected and stored in a locked file cabinet. This list will be destroyed after the second mailing. To maintain confidentiality, the data and information obtained from the surveys will also be stored in a locked file cabinet and only the researchers will have access to this information. The results of this study may be used in reports, presentations, or publications but names of participants will not be known. Return of the questionnaire will be considered your consent to participate.

**IRB Approval Statement:** The Institutional Review Board for the protection of human participants at USU has approved this research study. If you have any pertinent questions

or concerns about your rights or a research-related injury, you may contact the IRB Administrator at (435) 797-0567. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

Thank you very much for your time. We appreciate your consideration of participating in this research project.

Sincerely,

---

Gretchen Peacock, Ph.D.  
Principal Investigator  
435-797-0721  
gretchen.peacock@usu.edu

---

Amanda S. Day  
Student Researcher  
801-589-3738  
amanda.day@aggiemail.usu.edu