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Current Research on Social Skills Training and Autism Spectrum Disorders

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Abstract

Autism spectrum disorders (ASD) create specific impairments in the area of social skills functioning. A variety of social skills training programs have been developed in an effort to increase social skills in children with ASD. This monograph examined the basic components of social skills training programs and their feasibility and effectiveness in increasing social skills. The effectiveness of the programs is compared to the outcomes of meta-analyses including social skills interventions with children with ASD.

Current Research on Social Skills Training and Autism Spectrum Disorders

The range of difficulties experienced by students with ASD include difficulties in communicating with others, processing and integrating information from the environment, establishing and sustaining social relationships with others, and participating in new environments (Bellini, Peters, Benner, & Hopf, 2007). Hume, Bellini, & Pratt (2005) indicated that although social skills deficits are a primary characteristic of ASD, some interventions recommended by research are not being utilized by families and early interventionists. A lack of access to social skills training can further delay a child's development of social skills and negatively affect their relationships with their peers in and out of the classroom setting. Children who face rejection from their peers are prone to social withdrawal and possible delays in social, emotional and cognitive development.

Although children with more severe characteristics of autism may not be aware of rejection from peers or their lack of social connections, these concerns are relevant to children with high functioning autism who are more aware of their role in social situations and their lack of meaningful relationships with peers. These students may be at risk for depression and anxiety related to isolation from peers, rejection, or bullying. A lack of successful interactions with peers at an early age can further increase anxiety related to social interactions in the future. Additionally as these children approach adulthood, lack of social competence may also become a barrier to vocational opportunities as indicated by Howlin & Krazny's studies (as cited in Tse, Strulovitch, Tagalakis, Meng, & Fombonne, 2007).

In an effort to improve social skills, numerous attempts have been made to develop research based social skills interventions for individuals with autism. Data obtained from these interventions suggest children with autism may show significant improvements when trained facilitators implement highly structured social skills training programs as indicated by Kohler, Odom & Watts, Shabani, & Thieman & Goldstein (as cited in Chung, Reavis, Mosconi, Drewry, Matthews & Tasse, 2007). Chung et al. (2007) stressed the considerations of individual characteristics when designing effective social skills programs including the child's age, cognitive level, behavior problems, and pretreatment social interactions skills. Attention to individual characteristics allows the facilitator to address a child's individual needs while fostering their participation in a group setting. Another important factor advocated by Koegel & Koegel, Kohler, Strain & Kohler, Taylor & Weiss & Harris (as cited in Chung et al. 2007) is the attention to behavior management systems. Behavior management systems aim to promote a child's independence and increase the likelihood that they will generalize acquired skills over time and across setting. The generalization of new skills is an important obstacle within social skills training programs due to the difficulty children have in learning to transfer acquired skills from one setting to another. Chung et al. (2007) also stress the importance of the relationship of the person to the targeted child in effective treatment delivery as well as teaching modality of social skills training.

Although social skills training with other populations may rely on the above-mentioned factors for successful outcomes, a growing body of research supports these factors and their effectiveness in working with children with ASD.

Rogers' (2000) identified several strategies to facilitate adult-child and child-child interactions including pivotal response training, adult prompting, environmental modifications, social skills groups, social stories, video modeling, and peer-mediated instruction. These strategies provide facilitators with a framework to develop effective social skills intervention programs. McConnell's meta-analysis (as cited in Bellini et al. 2007) divided social skills interventions into the following five categories: (a) environmental modifications, (b) child specific interventions, (c) collateral skills interventions, (d) peer-mediated interventions, and (e) comprehensive interventions. McConnell describes environmental modifications as modifications that involve changes to the physical and social environment that promote social interactions between children with ASD and their typical peers. Child specific interventions include the direct instruction of social behaviors such as initiating and responding. Collateral skills interventions include strategies that promote social interactions through the delivery of training in related skills, such as play behavior and language, rather than training specific social behaviors. Peer-mediated interventions involve training typical peers to direct and respond to the social behaviors of children with ASD. Comprehensive interventions involve social skills interventions combining two or more of the aforementioned intervention categories.

The setting in which autism social skills training is an additional variable that has been discussed in research due to the prevalence of children receiving social skills training in an outpatient clinic setting. The setting in which these services are provided is a popular topic in social skills research due to the issues that occur with the ability to generalize skills from an outpatient setting to a classroom. Some proponents of social skills training in the classroom point to the feasibility in transferring newly learned social skills in a natural setting in which the child spends the majority of their day with typical peers.

Studies on school-based interventions for children with autism have focused on improving a broad range of skills including initiating, responding, greeting others, conversing on a variety of topics, giving and accepting compliments and sharing as indicated by Kamps, Leonard, Vernon Dugan, & Delquadri (1992); Matson, Fee, Coe, & Smith (1991). Matson et al. (1991) evaluated a social skills program for developmentally delayed preschoolers, in which students with disabilities were taught appropriate social behaviors through the use of puppets, peer modeling, role playing, instructions, and reinforcement of the target behaviors. Matson and colleagues found improvements in positive social interactions and a decrease in inappropriate behaviors. School based interventions may also provide an advantage to children with ASD due to their ease in implementing multiple interventions throughout the course of a week. Clinic settings often differ in this aspect due to most programs implementing intervention session on a weekly basis. Clinic settings may also fail to provide

children with ASD an opportunity to practice their social skills with non-disabled peers.

Laushey & Heflin (2000) have also advocated educating and training typical peers to encourage children with autism to engage in social exchanges. Barry et al. (2003) describes peer-mediated interventions as teaching typical children skills to help them better interact with their classmates with disabilities. Typical peers can practice these strategies through role-plays with adults and transfer their use with their peers with autism. Studies evaluating peer-mediated approaches have demonstrated children with autism become more responsive to social interactions when increased peer support is present. However, Sainato, Goldstein, & Strain (1992) indicated a greater increase in social initiations by typical children than by children with autism.

Rogers (2000) indicated social initiations of children with autism are less affected by peer-mediated approaches than social responses. These findings suggest students can be well trained to respond appropriately but may not initiate with their peers independently. However, without initiation from the children with autism, typical children may give up in their efforts to interact with children with autism. Another concern related to peer mediated training is the unlikelihood that social skills will generalize to situations with untrained peers which may result in a complete lack of initiation without appropriate social skills cues or prompting in a controlled setting.

Disadvantages aside, the school setting has clear advantages over an outpatient setting including trained professionals qualified to teach social skills, such as teachers, therapists, and psychologists. Welsh, Park, Widaman, & Oneil (2001) suggested schools are perceptive in their attention to the specific deficits interfering with the child's relationships and academic performance, making them ideal settings to fully address a child's difficulties. In turn professionals working with children over multiple sessions have a first hand account of the gains made by students with ASD in regards to social skills and academic performance.

Despite of these advantages, Bellini et al. (2007) found that school-based social skills interventions are minimally effective for children with ASD. Social skills interventions produced low treatment effects and low generalization effects across participants, settings, and play stimuli, which are consistent with previous social skills intervention meta-analyses. However, Bellini's study indicated higher generalization effects for individual interventions than group interventions. The study also suggested social skills implemented in the child's typical classroom setting produced significantly higher intervention, maintenance, and generalization effects than interventions that involved removing the child from the classroom. These results suggest specific implications for practice in the school setting and overall effectiveness of social skills training programs. The marker of effective treatment is likely the student's ability to function socially and academically within

their own peer group of disabled and non-disabled peers as opposed to a small group of other children with ASD.

Implications for practice in the school setting were outlined by Gresham, Sugai, & Horner (2001) who suggested increasing the dosage of intervention, providing instruction in the child's natural setting, matching the intervention strategy with the type of skill deficit, and ensuring intervention fidelity to improve the effectiveness of social skills interventions. Gresham also recommended social skills interventions be implemented more intensely and frequently than present levels delivered to children with social skills deficits. Thirty hours of Gresham suggested instruction spread over 10 to 12 weeks. Bellini et al. (2007) advocates the teaching and reinforcing of social skills as frequently as possible throughout the school day to increase generalization of acquired skills.

Gresham et al. (2001) noted that the weak outcomes of social skills intervention can be attributed to the fact that intervention usually takes place in restricted settings such as resource rooms or other pullout settings. Gresham's research suggests social skills training in restricted areas results in poor maintenance and generalization. Bellini et al. (2007) also found interventions implemented in a child's typical classroom setting produced higher maintenance effects and higher generalization effects across participants, settings, and play stimuli. These results have particular importance for professionals in the school setting in terms of their role in social skills training. For many professionals this

research indicates a need for restructuring of current practices to provide the most effective interventions to children with ASD.

As suggested by Gresham et al. (2001), interventions should focus on a specific skill deficit rather than prescribing a general social skills program for all students, which may not address their individual areas of difficulty. Bellini et al. (2007) stresses the need for school professionals to math intervention strategies to the type of skill deficit exhibited by the child. For example, students who have difficulty with initiating with their peers may not benefit from interventions to increase spontaneous speech if they do not demonstrate delays in that particular area. In addition students who do not benefit from individualized interventions may fall behind in areas they have made previously made progress in if they are not allowed to practice and demonstrate the learned skills.

Gresham et al. (2001) also outlined intervention fidelity as a key component of effective social skills programming. However, Bellini et al. (2007) explained the complexities that arise in determining the effectiveness of social skills programming due to the difficulty in concluding whether a social skills intervention was ineffective due to an ineffectual intervention strategy or a poorly implemented strategy. The difficulty in making this determination is further complicated by the variety of programs available to school professionals and the amount of staff trained to work with students with ASD. Effective outcomes for students with ASD can only be expected if school professionals can ensure the reliability of a program and the consistency in which it is delivered between multiple staff members. Bellini also

describes the importance of social validity identified by Gresham, in reference to the social significance of treatment objectives, intervention strategies, and intervention results as an insurance that parents and teachers believe in the appropriateness and effectiveness of selected social skills interventions. School professionals and researchers will likely benefit from the monitoring of social validity given its impact on an intervention's overall effectiveness and its generalization between the home and school setting.

Although there are a wide variety of social skills training programs available for students with ASD in both school and clinic settings, Bellini & Peters (2008) identified specific empirically based social skills programs that are commonly used with children in clinic settings. Bellini & Peters (2008) included programs that adhered to studies identifying key components of social skills programming including Gresham et al. (2001) and McConnell (2002). The social skills training interventions from the above mentioned areas of programming included in Bellini & Peters study included social stories, video modeling interventions, social problem solving, pivotal response training, scripting procedures, computer-based interventions, priming procedures, prompting procedures, and self-monitoring.

Bellini & Peters describe social stories as a method of presenting social concepts and rules to children in the form of a brief story. It can be used to teach a number of social and behavioral concepts including initiating interactions, making transitions, or going on a field trip. Social stories should be written in response to a

child's personal need and should be individualized to assist the child with the

setting or situation in which they are experiencing the greatest amount of difficulty.

Social stories should also be consistent with the child's ability and comprehension

level. Researchers such as Sansosti, Powell-Smith & Kincaid (2004) as well as Kuoch

& Mirenda (2003) concluded social stories are an effective intervention strategy for

addressing the social, communicative, and behavioral functioning of children with

ASD. Hagiwara & Myles (1999) implemented interventions using computer-based

social stories for children with ASD, which consisted of reading and listening to

stories targeting specific tasks on a computer screen. Student later watched a short

movie clip portraying them performing the same task as a form of video modeling.

Bellini & Peters (2008) describe video modeling as involving an individual

watching a video demonstration of positive behavior and then imitating the

behavior of the model. Video self-modeling (VSM) is identified as a specific

application of video modeling where the individual learns by watching his or her

own positive behavior. Bellini & Akillian (2007) suggest video modeling and VSM

are an effective intervention strategy for addressing social-communication skills,

behavior functioning, and adaptive skills in children with ASD. Results also indicated

video modeling and VSM effectively promote skill acquisition and skills acquired

through video modeling and VSM are generally maintained over time and

transferred across peers and settings. Bellini, Akullian, & Hopf (2007) used VSM to

increase social engagement of preschool children with ASD. Preschool children were

prompted to interact with peers during free play, the children viewed one

video per school day for 4 weeks. The intervention resulted in rapid social engagement and effects were maintained after the videos were no longer shown. Buggey (2005) found immediate and significant gains were maintained in social-communication and behavioral functioning through the use of scripted role-playing procedures.

Social functioning in children with ASD is often complicated by difficulties including lack of self-awareness, failure to read nonverbal and contextual cues, difficulties with perspective taking, and failure to understand social rules, Bellini & Peters (2008). Social problem solving (SPS) as a social skills intervention aims to assist children with ASD in analyzing and interpreting difficult social situations involving nonverbal behavior and an inability to attend to multiple environmental cues. Although Beelman, Pfinsten, & Losel (1994) determine SPS strategies to be effective in increasing performance on social tasks, generalization and carryover effects to other areas of social functioning appear limited. Although SPS may increase social skills in contrived settings, children with ASD may have difficulty applying these skills in spontaneous settings without the assistance of cues or prompting.

In an effort to combat the difficulty in generalization experienced with the use of some social skills programs for children with ASD, pivotal response training (PRT) was developed on the principle of applied behavior analysis. The goal of PRT is to guide social skills training within the child's natural environment where naturally occurring reinforcers are available. PRT targets pivotal behaviors which

are assumed to result in widespread changes and the generalization of skills in multiple settings. These skills target four areas: responsiveness to multiple cues, initiation, motivation, and self-management. Instruction to multiple cues is designed to teach children to select cues that are relevant in a specific context of situation. Intervention in the area of initiation is designed to teach a child to effectively initiate interactions with others. Instruction in motivation includes increasing the child's motivation related to participation in social situations. Interventions in self-management are structured to teach the child to gain independence while becoming less reliant on prompts from peers and others in the child's environment. Symon (2005) trained parents of children with ASD in PRT and found improvements in children's social communication and behaviors during interventions with parents. Symon's study relied on the cooperation between experts and parents in order to increase parental involvement and a sense of "buying in" to treatment.

Scripting procedures have also been studied as a means to increase social interaction of children with ASD. A scripting intervention involves training a child to use a structured script, which explains in detail what a child should do, or say during a social interaction. Scripts may provide steps for an entire interaction such as the rules of a game, or only the initiation for joining a specific activity. Although researchers such as Goldstein & Cisar (1992) have found success in scripting interventions with preschoolers leading to improved social and communicative behavior in free play, concerns remain over the ability of children to interact socially when scripts have been faded or removed. Fading is described as a limitation to

scripting procedures due to the reliance of the child upon the script and their difficulty in engaging in spontaneous and unscripted interactions once the script has been removed. Goldstein & Cisar (1992, p.279) suggest "teachers should continue to provide some low rate of prompts and praise statements in order to prevent episodes that require intervention, such as disputes over materials or aggressive behavior."

Computer-based instruction has also been used as method of increased social cognitive skills in children with ASD. In Silver & Oakes (2001) study children showed improvement on both the computer program and on other assessment measures in the areas of recognizing emotions and facial expression. Lacava, Golan, Baron-Cohen, & Myles (2006) demonstrated children with ASD who used Mind Reading software over 10 weeks for an average of 10.5 hours displayed improvements in emotion recognition for faces and voices. According to Bellini & Peters (2007 p.863) "Mind Reading is an interactive computer software program designed to teach individuals to recognize emotions through the use of video clips, photographs, voice recordings, lessons, and games involving individuals displaying a range of emotions." Several of the suggestion for the use of Mind Reading software given by Lacava et al. (2006) are outlined below: Mind Reading can be used by children in multiple settings including both the classroom and home, student with ASD can use Mind Reading with typical peers as a means of developing relationships while learning about emotions, Mind Reading can also be used with counselors or other school professional to address specific areas of difficulty as a means to

educate students about specific emotions and their range and use. Mind Reading

appears to be capable of use in a variety of settings, which may further increase

generalization of newly learned skills.

 Priming procedures have also been described as a way to increase social

skills by presenting cognitive or behavioral primes before performance of the skills

or behavior in a natural setting. Bellini & Peters (2008) describe these as cognitive

priming strategies that can be either visual (eg, pictures, videos, modeling, or visual

prompts) or verbal instruction (eg, verbal description of the behavior, discussion of

the behaviors, or verbal prompts). Behavioral priming strategies consist of

rehearsal, or practicing the skill or behavior before performing it in the natural

environment. Priming has resulted in positive effects on social behavior when used

to increase social initiations of preschool children with ASD, Zanolli, Daggett, &

Adams (1996). Priming procedures are designed to activate knowledge structures

and facilitate social cognition and social behaviors of children with ASD.

Similar to priming procedures, prompting procedures are supports and

assistance provided to the child to help him or her acquire skills and successfully

perform behaviors, Bellini & Peters (2008, p. 864). Prompts can be used to both

teach new social skills and maintain and improve previously learned social skills.

Prompting procedures are designed to be used across settings, with a variety of

professionals, verbal and nonverbal children, and can also be used through

preschool to adulthood. Although studies have indicated teacher prompting

increases social interactions, Gunter, Fox, Brady, Shores, et al. (1988), prompting

procedures face limitations in regards to the possible inability of children to generalize social skills after prompting has been removed.

Self-monitoring has also been used as a strategy to address lack of self-awareness in children with ASD. Self-monitoring usually requires children to monitor their own behavior through self-recording and be used during behavioral performance of after the performance. Self-monitoring may be used to record externalizing behaviors and internalized processes including thoughts and feelings. These strategies may include the recording data such as occurrences, duration, and frequency of a behavior as well as the degree to which the behavior was performed. Coyle & Cole (2004) combined both video self monitoring and self-monitoring to decrease off-task behavior in children with ASD. Children who were taught on-task behavior through video demonstrated decreases in off-task behavior and results were maintained after the intervention was removed. Self-monitoring is likely more successful when working with higher functioning children with ASD rather than lower functioning students due to the difficulty these students may have in monitoring and identifying their own thoughts and behaviors. However, self-monitoring in conjunction with other forms of social skills interventions may help children gain independence and cope with the fading of prompts from adults and peers.

Given the wide range of social skills training programs available for working with children with ASD, it is important to establish guidelines regarding the

effectiveness of these programs as well as guidelines for their successful implementation. A few of these guidelines include recommendations for social skills training programs to include frequent and intense interventions, suggesting 30 hours of instruction spread over 10 to 12 weeks is not sufficient for adequate progress. Another attribute of successful social skills training programs includes the ability for children to generalize and maintain skills learned during training. To facilitate generalization and maintenance of effects, social skills training programs should occur in natural settings such as their classroom instead of resource rooms or other pullout settings. The effectiveness of social skills training programs is also based on the interventionist's ability to match social skills strategies with specific skill deficits while enabling children to practice existing skills before moving on to a more novel skills. Intervention fidelity has also been identified as a factor in social skills training implementation in the sense that school professionals and clinicians receive adequate training in social skills training prior to implementing interventions.

Due to the deficits in social skills characteristic of ASD, social skills treatment programs are a critical component of treatment programs. Social skills training programs are varied in their scope and design, however, most programs focus on the remediation of social skills and communication delays. These programs have demonstrated effects in improving independence in both of these areas when programs are designed around a child's specific cognitive ability, skill level, and

inclusion of an effective behavior management system to address problematic

behaviors. These factors have been designated as effective components of social

skills training programs and provide school professionals and clinicians with

specific guidelines when choosing successful social skills training programs for

children with ASD.

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