3

An Evidence-Based Social Skills Group for Children with Autism

Marjorie H. Charlop and Melaura Andree Erickson

Social skills are a set of behaviors that consist of the ability to relate to others in a reciprocally reinforcing manner, and the ability to adapt social behaviors to different contexts (Schopler & Mesibov, 1986). Children with autism display profound deficits in social behavior (Kanner, 1943; Rimland, 1964; Rutter, 1978), and one of the defining characteristics of this disorder is an unwillingness to engage in social interactions (American Psychiatric Association, 2000).

Social deficits are evident from an extremely early age in individuals with autism and persist throughout development. As infants, they may not reach out in anticipation of being picked up or may not mold to their parents' bodies when held (Charlop-Christy, Schreibman, Pierce, & Kurtz, 1998). They may also display less obvious patterns of attachment to their parents and may demonstrate little to no separation distress that is common in typically developing children (Weiss & Harris, 2001a). For example, infants with autism may cry when their parents approach and may seem quite content to be alone in their cribs. An additional deficit that first appears during infancy in individuals with autism is lack of eye contact and gaze aversion (American Psychiatric Association, 1994). Affectionate gestures such as hugs and kisses may also not be sought or given.

As children with autism get older, these social deficits continue and other deficiencies in social behavior also become apparent. Young preschool-age children with autism have difficulties with joint attention, imitation, and responding to social stimuli. For example, young children generally like to imitate things that adults do, such as using tools like their

dad or cooking like their mom. This kind of imitation occurs spontaneously in typically developing children, while children with autism often have to be taught simple imitations such as clapping hands or standing up. This lack of ability or interest in imitating others interferes with development of a variety of social skills learned through imitation of adults or peers.

An additional area of impairment seen in young children with autism that interferes with early socialization is an atypical and delayed progression of play skills. While children with autism may engage in solitary play, they show little, if any, interest in initiating playful interactions with other children. Further, the solitary play exhibited by young children with autism often lacks creativity and is rather characterized by the use of a limited number of preferred toys and behavior that is stereotypic or repetitive (e.g., staring at the wheels of a car as they turn, lining up toy cars). In children with autism who do develop some imaginary play, the scenarios are often simple and repetitive and lack the variation that is common in same age typically developing peers.

As children with autism enter the school-age years, social deficits become even more apparent at a time when socialization is of extreme importance. School-age children with autism often fail to initiate or respond to interactions with peers. When they do initiate interactions, it is often in an atypical or inappropriate way (e.g., excessive touching to gain attention or being too close to the peer). An additional deficit that hinders social relationships at this age is an inability to initiate or sustain conversations. Approximately 50 percent of children with autism fail to acquire functional speech (Charlop & Haymes, 1994; Rimland, 1964; Rutter, 1978).

Children with autism who do acquire expressive language often demonstrate speech that is limited to simple responses to questions, or to brief expressions of a need or desire (e.g., "I want cookie") (Schreibman, 1988). This type of speech differs from conversational speech. Conversational speech requires the use of multiple, complex language skills including initiation and expansion of a conversational topic, establishing an interactive "to and fro" pattern of a conversation, and maintaining a verbal exchange (Charlop & Milstein, 1989; Charlop-Christy & Kelso, 2003). There are important consequences that result from children with autism failing to develop this type of conversational speech. For example, it eliminates opportunities to have extended verbal interactions with others and to learn through social interaction. Therefore, this deficit exacerbates the severe social withdrawal and aloofness already common in many children with autism and may have significant impacts on their future development and life.

Inadequate social skills characteristic in children with autism hinder development by:

1. increasing behavior problems that result from not having the appropriate skills for social interactions,
2. increasing the likelihood for maladaptive behavior later in life, and
3. decreasing the positive developmental support and learning opportunities found in successful peer relationships.

Further, children with social skill delays are unpopular, not accepted by their peers, and are frequently subject to negative stereotypes. However, research has shown that social interest and social skills development are among the most crucial variables determining long-term adjustment and prognosis for individuals with autism (Matson & Swiezy, 1994). Children with autism who learn to seek out and enjoy social interactions with others and understand appropriate social "rules" have much better prognoses and chances for living and functioning independently. Therefore, there is a need to develop interventions that focus on teaching social skills to children so that they will become more successful in initiating and navigating social interactions. However, social skills interventions available for children with autism vary tremendously in their methodology and approach. One reason for this problem is the difficulty of defining social skills and the lack of a consistent definition across researchers and practitioners.

Defining "Social Skills"

The lack of a clear and consistent definition of social skills is seen in literature on neurotypical populations as well as populations with developmental disabilities such as autism. This absence of a clear definition has resulted in the prolonged development of assessment tools, confusion about what is being measured, and the use of vague terminology. It is often challenging to define social skills due to the wide variety of populations that have been studied (Matson & Swiezy, 1994). When discussed with regards to the general child population, the term "social skills" often focuses on sophisticated interpersonal skills, including relating, perspective taking, and empathy, whereas in populations with intellectual disabilities or other developmental delays, the same term encompasses a wider range of more rudimentary behaviors such as making eye contact and giving hugs.

While a variety of definitions of social skills have been proposed, common elements appear in the literature. Researchers often suggest that the concept of social skills includes perceptual, cognitive, and performance components (Bedell & Lennox, 1997. In studies with delayed populations, researchers often prefer a more limited definition of social skills, indicating that a

simpler definition is more appropriate for lower functioning individuals who have extreme difficulty with complex cognitive behaviors such as perspective taking and interpersonal problem-solving. According to this perspective, individuals demonstrating appropriate social skills have the ability to adapt to their environment by exhibiting appropriate motor skills (e.g., hand waving, pointing, or giving hugs). Still another definition commonly used suggests that social skills include both cognitive and motor abilities. In such definitions, appropriate social skills would include the application of relevant motor, cognitive, and affective skills or behaviors according to the context. This definition will be adapted for the remainder of this chapter.

In addition to the difficulty of clearly defining social skills, it is also a challenge to distinguish between social skills and language/communication skills. While social and communicative skills are often studied separately, there has been a growing acknowledgement of their interrelatedness. Given that language is considered a primary mediator of social interaction and an inherent aspect of social development (Goldstein, Kaczmarek, Pennington, & Shafer, 1992), it is often difficult to consider the two skills independently. The relationship between the two skills becomes more evident when looking at how and when the two develop. The development of communication begins soon after birth within the context of social interaction with caregivers and eventually leads to the development of language (Prizant & Wetherby, 1990). As children grow older, they continue to enhance their communication skills, and this occurs within the context of social interactions. At the same time, children's communicative abilities assist them in becoming more socially competent. Throughout development, children continue to use language and communication to enhance their social interactions and use their social skills to enhance their language and communication. Therefore, it is difficult to study one of these areas of development without recognizing the other and the relationship between the two.

Despite the difficulty in determining a clear and consistent definition of social skills and in distinguishing social skills from communicative skills, there continues to be a need to develop effective interventions for social skill development. This need is especially important for children with autism, who do not develop social skills or demonstrate delays in social functioning. The National Autism Plan for Children recommended that children and adolescents with ASD should have access to planned, additional, individual and small group social skills opportunities tailored to their needs (National Initiative for Autism: Screening and Assessment [NIASA], 2003). Such treatment programs should consist of evidence-based interventions. One program that offers this type of social skills intervention is the Claremont Autism Center (CAC), discussed below.

The Claremont Autism Center's Social Skills Group Approach

The CAC is a treatment and research center for children with autism and their families. The center focuses on research addressing speech and language, motivation, and social skills. Behavioral intervention is applied via direct therapy with the children as well as parent training sessions. Children who are higher functioning and no longer require one-on-one therapy graduate into the center's social skills group. The social skills group offers a group approach that incorporates structured activities as well as less structured environments (e.g., recess) similar to those experienced by typically developing peers. A variety of procedures and intervention techniques (see Table 1 and descriptions on the next page) are used to develop and increase the use of appropriate social skill behaviors (see Table 2, page 53). While the procedures and social skills discussed are representative of what is targeted at the CAC, it is not an exhaustive list. Only procedures that have been empirically validated are implemented at the center and all social skills training sessions are videotaped and data are then taken.

While many intervention programs for children with ASD offer individualized treatment packages, the social skills group at the CAC focuses on teaching social skills in small group settings. There are several reasons why it is beneficial to target social skills during small group interventions as opposed to one-to-one instruction. First, opportunities for social interaction in the child's natural environment will most often occur in group settings. Further, generalization is more likely to occur when skills are taught in environments that closely resemble the environment to which the child will return (Stokes & Baer, 1977). Additionally, in group settings, children are able to practice learned social skills with a variety of peers. By training and practicing newly acquired skills with a number of exemplars (other children), generalization is more likely to occur. In addition to these benefits of using small group interventions to target social skills, Reichow & Volkmar (2010) found social skills groups to have met the highest level of evidence-based practice based on the criteria of evidence-based practice proposed by Reichow, Volkmar, & Cicchetti (2008).

The remainder of the chapter will describe how the center selects social skills to target in intervention, how we assess social skills, and the interventions used to train and maintain social competence.

Table 1. Interventions Used to Teach Social Skills

Procedure	Brief Description	Example of Social Skill Taught	Reference
Naturalistic Teaching Strategies (NaTS)	Teaching strategies that incorporate motivation, functional relationships, and facilitators of generalization	Pretend play	LaBelle (2002) Stahmer & Schreibman (1992)
Peer Mediated Strategies	Train neurotypical peers to initiate, prompt, and reinforce social interactions with children with autism	Joint attention and play	Zercher et al. (2001)
Video Modeling	Technique that involves demonstration of desired behaviors through video representation of the behavior	Sharing and social greetings	Simpson et al. (2004)
Scripts	Implementation of written or audio recorded scripts that provide models of the appropriate language to be learned	Joint attention behaviors	MacDuff et al. (2007)
Self-Management	Improve the social behavior of children with autism by teaching them to keep a count of the number of times they engage in the desired behavior or outcome	Eye contact and appropriate conversation	Koegel & Frea (1993)
Parent Training	Training parents to implement behavioral procedures to increase their child's use of social behaviors in the home and community	Initiations	Ingersoll & Gergans (2007)

Table 2. Operational Definitions of Social Skills Targets at the Claremont Autism Center

Social Skill	Operational Definition of Social Skill
Greetings	Child comes into contact with a peer for the first time or upon arriving at a new location, and says "hello" within 5 seconds. If the child is nonverbal, he or she will say hello by gesturing with hand within 5 seconds.
Eye Contact	Child must look directly at an adult or other child's eyes or in the near vicinity of the eyes for approximately 3 seconds.
Play	
Parallel Play	Children play adjacent to and within 4 feet (1.2 meters) of one another, but in a solitary manner. They are not interacting but playing near one another.
Cooperative Play	Children are within 1 foot (.33 m) of each other. Children may be playing with the same materials (e.g., building a tower together) with or without speech; or children may be playing with different but similar materials (e.g., one child eating pizza and one child eating an apple) and talking to each other about the topic.
Symbolic Play	Symbolic play is demonstrated when a child is able to use one thing to stand for another (e.g., using a green block for a frog). This shows the child's ability to create mental images.
Socio-emotional Play	Child engages in an imitative activity in which he or she fantasizes and acts out various domestic and social roles and situations (e.g., rocking a doll, pretending to be a doctor or nurse, or teaching school).
Turn Taking	When a child offers, gives, or accepts a play material to/from another child. This behavior must continue for at least two exchanges so that each peer both gives or offers and receives the item.

Verbal Socializations	
Initiating	A verbalization directed to a peer that is not preceded by another verbalization from the same peer within the previous 3 seconds (e.g., "What did you have for snack?").
Responding	A verbalization directed to a peer that was preceded by a social verbalization from that same peer within the previous 5 seconds (e.g., "I had pretzels for snack!").
Topic Maintenance	The ability to provide a response to a previous statement from a peer that is of the same topic or category as the initial statement. This should occur for at least 3 exchanges.
Conversations	Conversational speech requires the use of multiple, complex language skills including initiation and expansion of a conversational topic, establishing an interactive "to and fro" pattern of a conversation, and maintaining a verbal exchange.
Out-of-Self Behaviors	
Compliment Giving	When a child orients to peer, gives a complimentary statement (e.g., "You are a good drawer"), praise statement (e.g., "Nice hit"), or expression of reassurance (e.g., "Maybe you will win next time"). These statements must occur in the appropriate context.
Theory of Mind	A child demonstrates having a theory of mind when he attributes mental states (beliefs, intents, desires, pretending, knowledge) to himself and others and understands that others have beliefs, desires, and intentions that are different from his own.
Assistance	One child helps his or her peer by helping in getting up from the floor, completing a task, getting on/off play equipment, or responding to requests for assistance.

Selecting Social Skills for Treatment

There are several issues to consider when determining which social skills should be targeted for intervention in children with autism. These include:

1. determining the child's developmental level,
2. considering contextual and environmental variables, and
3. selecting skills that are adaptive and functional for the child.

The Child's Developmental Level

First, the child's developmental level needs to be established and taken into account. This is important in establishing which skills are appropriate to target given a child's developmental level. For example, it is developmentally appropriate to teach a one-year-old child to make eye contact or engage in joint attention; however, it is not appropriate to teach that child to take another person's perspective or to initiate and sustain a conversation. Therefore, it is important to reference normative developmental information (the age when an average, typically developing child achieves a certain skill) when deciding which social skills are relevant for training at a given developmental level.

Researchers at the CAC developed a curriculum based on typical development. The curriculum lists skills in the order that they would naturally progress in typically developing children. Once one skill is met, the next skill is introduced. For example, before teaching a child to engage in a reciprocal conversation, researchers at the CAC teach them to make initiations and to respond to the initiations of others. Then these skills are paired to teach the child to engage in a reciprocal conversation.

Contextual and Environmental Variables

In addition to selecting developmentally appropriate skills, it is important to consider the contextual and environmental variables that will influence the development of a skill for a particular child. It is important to select skills that are congruent with and respectful of the family's culture and beliefs. Different cultures, families, and professionals have differing opinions regarding what behaviors are appropriate for children and it is therefore important to determine the norms of a child's social environment when selecting and designing social skills treatments.

By considering contextual variables, it is more likely that the intervention and skills being targeted will be acceptable, feasible, and sustainable for the family and other individuals in the child's life. At the CAC, parents meet

with staff weekly to ensure that they are an integral part of deciding which skills should be targeted in intervention.

Functional and Adaptive Value of Skills

Finally, it is important to select social skills that will be of functional and adaptive value to the child. Skills that are likely to be appreciated and reinforced by others and that will result in an individual's social and community adjustment are important to target in intervention. By selecting skills that are valued socially (noticed and reinforced by others), maintenance and generalization of those skills is more likely to occur. For example, if the child learns social behaviors (such as greeting others and taking turns) that will be reinforced after training has concluded, it is more likely that the behaviors will maintain across time and will generalize to other settings, behaviors, and people. The staff at the CAC ensures that socially relevant behaviors are being targeted by reading current literature and research and by continuously being educated and updated on developmental trends.

Assessment of Social Skills

It is important to assess social skills *prior to teaching* in order to identify specific deficits and *throughout intervention* in order to determine if improvements have been made. There are a variety of ways to assess social skills including through formal, norm referenced instruments, direct observation, and interviews or surveys with parents and other individuals in the child's life. Rather than relying on only one type of assessment, it is often beneficial to conduct several different types of assessments to fully understand an individual's needs.

Standardized Measures

One method of assessing social skills is through standardized measures. A variety of formal, norm-referenced instruments for measuring children's social competence are available. While some measures focus solely on social development, others are global developmental and adaptive behavior scales that also include a social domain.

The standardized assessment primarily used at the CAC is the Vineland Adaptive Behavior Scale (Sparrow, Balla, & Cicchetti, 1984). This instrument assesses development in four domains: 1) communication (receptive, expressive, written), 2) daily living skills (personal, domestic, community), 3) mo-

tor skills (gross, fine), and 4) socialization (interpersonal relationships, play and leisure time, coping skills). While each of the domains provides useful information regarding the developmental level of the child, the socialization domain is focused on assessing an individual's current level of social competence and areas that are in need of intervention. Information is obtained through a semi-structured interview with a parent or caretaker who is most familiar with the child.

An additional norm-referenced measure used to assess social skills is the Batelle Developmental Inventory (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984), which includes a direct assessment of the child via observations and tests. This instrument is useful in assessing interactions with adults, expression of feelings, self-concept, peer interaction, and coping in children from birth to age 8.

Standardized instruments such as the Vineland and Batelle Developmental Inventory are beneficial because they not only allow for an assessment of social skills, but also a comparison of children with autism to a larger comparison group—either typically developing children or the general population of children with autism (Charlop-Christy & Kelso, 1996).

Observations

An idiographic or observational approach is another method used to assess and analyze a child's social behavior. This approach is particularly important when assessing children with autism. Given that individuals with autism are a heterogeneous population, standardized instruments are often insufficient in identifying and addressing individualized social deficits. Observations provide additional information about a child that may not be assessed using only a standardized test.

The CAC uses a system for structuring observations that was recommended by Lovaas, Koegel, Simmons, and Long (1973). Observations occur prior to intervention and throughout the intervention process. Children are observed over a 40-minute period, alone and with a parent, therapist, and stranger who attend to the child and invite the child to interact. During four 10-minute sessions, various aspects of the child are observed. These include appropriate verbal behavior, inappropriate verbalizations, social nonverbal behavior (e.g., eye contact, gestures), appropriate play (e.g., pretend, socio-dramatic), and noncompliance. Through these observations, the child's behavioral repertoire can be identified along with any variables eliciting or maintaining the behaviors. These data, along with results from a standardized measure, then allow accurate planning of a treatment plan and outcome goals.

Data from Family, Teachers, and Peers

An additional means of assessing social skills is by gathering information about the appropriateness and effectiveness of current social skills from family members, teachers, and peers. Collecting this type of data is an essential part of assessment and is beneficial for two reasons. First, it is an important source of information when direct observation is not possible because of a child's age, lack of access to environments critical to the child's development (e.g., home, school, community), or the fear that observer effects will alter the child's behavior. It is also useful in that it supplements direct observation data by providing a more comprehensive picture of a child's skills and by validating the direct observation results (Kaczmarek, 2002).

Teachers, parents, and peers all provide information that may be beneficial in assessing a child's social abilities. Teachers have been shown to be both reliable and valid reporters of children's positive and negative social behaviors. Although few measures have been developed for teacher ratings, one that provides information on overall social competence is the Social Skills Rating System (Gresham & Elliott, 1990). Parents also provide useful information in assessing social skills, as they have a unique perspective on the social and communicative skills of children. Many of the social skills rating tools include forms that have been developed specifically for parents and also measure overall social competence. Finally, peers have additional opportunities to observe other children's critical social skills. However, most peer rating tools are focused on peers' perceptions of children's behaviors and social status rather than on ratings of specific skills. Regardless, information obtained from peers is important in determining the presence or absence of socially appropriate behaviors.

The CAC attempts to obtain information from several important individuals in the child's life in addition to doing direct observations and standardized assessments, as discussed above. Once a complete assessment has been completed and target behaviors are identified, intervention begins. Assessments continue to be completed periodically throughout intervention. Researchers at the CAC try to assess the child every four months or more often if needed.

Social Skills Intervention Strategies Used at The CAC

A variety of procedures have been used to teach social skills to children with autism. A majority of these strategies employ principles of applied behavior analysis. Those that are empirically validated and currently used at the CAC are discussed below.

Naturalistic Teaching Strategies

The difficulty encountered in teaching highly abstract and symbolic concepts, including language, conversational speech, perspective taking, and pretend play, to children with autism in highly structured settings has led many researchers to suggest that training procedures need to have looser stimulus control and perhaps be incorporated into the child's daily routine (Hart & Risley, 1980). As a result, alternative methods to the more structured teaching format of discrete trial have emerged that facilitate generalization, use natural reinforcers, and are easy to use by those who occupy the child's natural environment (e.g., parents). These techniques are referred to as naturalistic teaching strategies (NaTS) and include several techniques, including time delay (Halle, Baer, & Spradlin, 1981), the natural language paradigm, and modified incidental teaching. Each of these techniques incorporates three components and strategies: 1) motivation, 2) functional relationships, and 3) facilitators of generalization (Charlop-Christy et al., 1999), which will be discussed in detail below.

Motivation: In NaTS, motivation is increased by allowing a child to choose activities, by conducting natural preference assessments, by varying the reinforcement and interspersing the difficulty of activities or tasks, and by including obsessions as reinforcers (Charlop, Kurtz, & Casey, 1990; Charlop-Christy & Haymes, 1996). Researchers at the CAC conduct routine preference assessments with the children to determine highly motivating activities and reinforcers. Each week, the available activities and reinforcers vary so as to maintain novelty of preferred items. In addition, children are able to choose which activities to engage in and they have to negotiate with their peers to choose an agreed-upon activity. This allows child choice as well as teaching negotiation and cooperation.

Functional Relationships: A second aspect of NaTS that is implemented at the CAC is the idea that functional relationships will be more meaningful to children. Functional relationships are incorporated into teaching procedures as a way to teach a child to associate his or her actions with naturally occurring reinforcers (e.g., asking a peer for a car and gaining access to a car rather than receiving an arbitrary reinforcer such as candy).

Generalization: A final aspect of NaTS that is implemented at the CAC is incorporating strategies that facilitate generalization. These include using less structured settings, loosening stimulus control, and incorporating teaching into a child's daily routines (Stokes & Baer, 1977). The social skills group at the CAC takes place in a play setting (i.e., the playroom at the behavioral center or outside on a large lawn with a variety of toys and activities present) that closely resembles environments where children typically play. This natu-

ralistic environment facilitates generalization and promotes demonstration of the skills learned in other environments with other peers. NaTS have been used to teach a variety of specific social behaviors to children with autism such as joint attention, gestures, and pretend play (Stahmer & Schreibman, 1992). These strategies are incorporated into the social skills group at the CAC to teach several skills, including eye contact, social initiations, joint attention, and turn taking.

Peer-Mediated Strategies

Early approaches to teaching social skills to children with autism primarily employed adult direction. However, a limitation of adult-mediated approaches is that they ignore the natural environment of children's social interactions and that social skills acquired through work with adults do not easily generalize to their peers (Rogers, 2000). Therefore, an additional or preferred method of intervention in teaching social skills is the use of peer-mediated strategies. These are especially relevant for older learners, as the presence of adults is more stigmatizing for children at older ages.

Children with autism are significantly impaired in the number of social interactions they engage in with other children (Koegel, Koegel, Frea, & Fredeen, 2001) and simply placing typically developing peers in sheer proximity of a child with autism is not adequate to ensure social interactions (Weiss & Harris, 2001b). Therefore, incorporating typically developing peers into intervention and training them to initiate, prompt, and reinforce social interactions will result in a more natural social environment and in greater improvements in the social behaviors of children with autism. Peer-mediated approaches have been shown to improve social interaction between typical peers and children with disabilities, including autism, and are therefore a common approach for social skills training.

Strain & Odom, along with their colleagues, have been a major influence on the progress in peer-mediated techniques (e.g., Strain, 1977; Odom & Strain, 1984, 1986) and have developed a model that is implemented at the CAC. A standard training protocol is used to teach typically developing peers to deliver specific social offers (e.g., invitations to play specific games) to their peers with autism. Peers role-play with adults until they have learned the strategies successfully and are then prompted to interact with the target children around designated play materials and activities. The typically developing peers engage the children with autism in positive interactions including sharing, establishing mutual attention, providing assistance, showing affection, and giving compliments.

External reinforcements (such as points or tokens) are systematically faded as the typically developing peers acquire the necessary skills. The typically developing peers who attend the social skills group at the CAC are usually friends or siblings of the children with autism who attend the behavioral center.

Video Modeling

An additional technique used to teach social skills at the CAC is video modeling. Video modeling is a technique that involves demonstration of desired behaviors through video representation of the behavior (Bellini & Akullian, 2007). A video modeling intervention involves an individual watching a video demonstration of a particular skill and then imitating the behavior of the model in the video. The target behavior is broken down into component parts and modeled by actors in the video. Video modeling intervention can be used with peers, siblings, adults, or the child himself as a model. However, at the CAC, adults usually act as the model in the video given the lack of frequent access to typically developing peers and the additional time that it would take to train them to act as models.

Video modeling has been effective in teaching a wide range of social behaviors to children with autism (Charlop-Christy, Le, & Freeman, 2000), including cooperative play, reciprocal pretend play, conversational speech, and perspective taking. These behaviors taught via video modeling were learned rapidly and generalized to untrained stimuli, settings, and people. At the CAC, video modeling has been successfully used to teach a variety of skills including turn taking, social initiations and responding, and conversational speech.

Scripts

Using predetermined scripts and script fading is an additional approach that has been used successfully to teach social skills to children with autism at the CAC. This approach consists of teaching learners to use written scripts or audio recordings that provide models of appropriate language. As the learners begin to use the scripted language in their interactions with others, the scripted phrase or sentence is systematically faded from beginning to end. For example, the child is initially given a written script with "What did you do today?" written on it. Gradually, the written prompt fades to "What did you," then "What did," and eventually to a blank piece of paper. The blank piece of paper is also removed before the scripted phrase is considered learned.

Scripts have been demonstrated to be effective in teaching several social skills, including social initiations (Krantz & McClannahan, 1993), bids for joint attention, conversational statements, and reciprocal conversations

(Charlop-Christy & Kelso, 2003). Each of these skills have also been targeted through the use of scripts and script fading at the CAC. This method of intervention has been easily implemented in the center as well as in the children's homes.

Self-Management/Prompting

Self-management strategies have also been used to teach a variety of skills to children with autism. Self-management strategies are focused on techniques that improve the social behavior of children with autism by having the individual keep a count of the number of times that he or she engages in the desired behavior or outcome. As long as the child achieves a predetermined number in a certain amount of time, he or she is given a reinforcer for engaging in the desired behavior.

Self-management strategies have been demonstrated to effectively teach children with autism a variety of social skills including eye contact and appropriate conversation, play, and responsiveness to verbal initiations. The CAC incorporates self-management procedures into each session by giving the child a card on which he or she places stickers for appropriate interactions and behaviors throughout the time at the center. At the end of the session, children are given individualized reinforcers for obtaining a predetermined number of stickers. This predetermined number varies depending on the child's current level of functioning and time in the group.

The self-management procedures used at the CAC provide children with fast and continuous reinforcement throughout their time in the group without interrupting the flow of the group or activities that may be taking place. Additionally, parents have reported that they have successfully been able to implement a similar system in the home.

Parent Training

Parent training is an important component of treatment at the CAC. Families are an integral aspect in the development and education of their children. Parent training with families of children with autism has been practiced for over forty years (e.g., Schopler & Reichler, 1971) and is now considered an essential component to treating these children (National Research Council, 2001). Research indicates that parents of children with autism can be effective interventionists for their child (e.g., Webster-Stratton & Herbert, 1993) and are able to manage problem behavior as well as teach several functional skills (e.g., Reagon & Higbee, 2009). Parent training has resulted in a variety of positive social skills outcomes, including increases in play-based

social initiations, as well as increases in children's verbal and nonverbal communication skills. Teaching parents to implement behavioral strategies has also led to increased generalization and maintenance of treatment gains.

Case Study

Nicholas is a 7 year, 8 month old boy who attends the CAC's social skills group. He has been attending the behavioral treatment center for two years and was placed in the social skills group in 2008 after his needs became primarily social in nature.

When Nicholas was first evaluated at the CAC, he had several behavioral and social delays that his parents were concerned about. His mother reported that he would often withdraw during social interactions and seemed to avoid social environments. Nicholas also had poor eye contact and would avoid establishing and maintaining eye contact while interacting with others. Nicholas also presented as overly active and was reported to be extremely impulsive. While he had language well above 100 words and would initiate interactions or brief conversations with others, he would quickly change topic or walk away and begin a new task. It is important to note that Nicholas did have several friends; however, he would often become extremely upset with his peers, as he often misinterpreted what they said.

While at the behavioral treatment center, Nicholas demonstrated extreme resistance to social interactions with other children at the clinic and preferred to be alone with a therapist. He also was extremely resistant to non-preferred or novel activities and would often tantrum when presented with such tasks.

Nicholas made much progress in his one-on-one therapy sessions at the CAC. After approximately six months in the one-on-one program, he was less resistant to trying novel tasks and would tolerate non-preferred tasks with intermittent reinforcement. In addition, he began participating in social activities with prompting (board games, Duck Duck Goose, guessing games) that took place while the children were on breaks from the one-on-one sessions. He continued to require verbal prompts to make initial eye contact and still avoided maintaining eye contact while talking to peers or therapists. His tantrums decreased to only two incidents per month at the CAC, but his mother reported a higher rate of occurrence at home.

After demonstrating such success in his one-on-one sessions, Nicholas was moved to the CAC's social skills group, given that the majority of his delays were social in nature. The group consisted of four children with autism and three typically developing peers. The structure of the group remained

the same each week but the activities varied. Nicholas's goals included increasing social interactions with peers, staying on topic during conversations with peers, increasing his understanding of peers' intentions, and making and maintaining eye contact with peers during social interactions.

After over a year in the group, Nicholas has made extremely good progress on each of these goals. He enjoys coming to the social skills group and has a best friend in the group with whom he frequently interacts. He is able to initiate and maintain a conversation for up to ten exchanges and will participate in conversations initiated by others. While he continues to make verbal protests when presented with non-preferred or novel activities, he will participate when asked. He still has difficulty maintaining eye contact for an entire conversation but will glance back and forth throughout with minimal prompting. His tantrums have also decreased and he has not had a single incidence in the past year while at the CAC. While his tantrums do still occur at home, his mother reports that they have significantly decreased and seem to be at levels more appropriate to his chronological age. Nicholas continues to attend the social skills group at the CAC and to make progress on each of the goals that have been developed for him.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

American Psychiatric Association, (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.

Bedell, J. R., & Lennox, S. S. (1997). *Handbook for communication and problem solving skills training: A cognitive-behavioral approach.* Oxford, England: John Wiley & Sons.

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.

Charlop, M. H., & Haymes, L. K. (1994). Speech and language acquisition and intervention: Behavioral approaches. In J. L. Matson (Ed.), *Autism in children and adults: Etiology, assessment, and intervention* (pp. 213-240). Pacific Grove, CA: Brooks/Cole.

Charlop, M. H., Kurtz, P. F., & Casey, F. G. (1990). Using aberrant behaviors as reinforcers for autistic children. *Journal of Applied Behavior Analysis, 23*, 163-181.

Charlop, M. H., & Milstein, J. P. (1989). Teaching autistic children conversational speech using video modeling. *Journal of Applied Behavior Analysis, 22*, 275-285.

Charlop-Christy, M. H., & Haymes, L. (1996). Decreasing autistic children's inappropriate behaviors using obsessions as reinforcers with mild reductive procedures. *Journal of Autism and Developmental Disorders, 26*, 527-546.

Charlop-Christy, M. H., & Kelso, S. E. (1996). *How to treat the child with autism.* Los Angeles, CA: Claremont Autism Center.

Charlop-Christy, M. H., & Kelso, S .E. (2003). Teaching children with autism conversational speech using a cue card/written script program. *Education and Treatment of Children, 26*, 108-127.

Charlop-Christy, M. H., Le, L., & Freeman, K. (2000). A comparison of video modeling with in vivo modeling for teaching children with autism. *Journal of Autism and Developmental Disorders, 30*, 537-552.

Charlop-Christy, M. H., LeBlanc, L., & Carpenter, M. (1999). Naturalistic teaching strategies (NaTS) to teach speech to children with autism: Historical perspectives, development and current practice. *California School Psychologist, 4*, 30-46.

Charlop-Christy, M. H., Schreibman, L., Pierce, K., & Kurtz, P. F. Childhood autism. In R.J. Morris and T.R. Kratochwill (Eds.), *The practice of child therapy* (3rd ed.). Needham Heights, MA: Allyn & Bacon.

Goldstein, H., & Cisar, C.L. (1992). Promoting interaction during sociodramatic play: Teaching scripts to typical preschoolers and classmates with disabilities. *Journal of Applied Behavior Analysis, 25*, 265-280.

Goldstein, H., Kaczamarek, L., Pennington, R., & Shafer, K. (1992). Peer mediated intervention: Attending to, commenting on, and acknowledging the behavior of preschoolers with autism. *Journal of Applied Behavior Analysis, 25*, 289-305.

Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system*. Circle Pines, MN: American Guidance Service.

Halle, J. W., Baer, D. M., & Spradlin, J. E. (1981). Teachers' use of generalized use of delay as a stimulus control procedure to increase language use in handicapped children. *Journal of Applied Behavior Analysis, 14*, 389-409.

Hart, B., & Risley, T. R. (1980). In vivo language intervention: Unanticipated general effects. *Journal of Applied Behavior Analysis, 13*, 407-432.

Kaczmarek, L.A. (2002). Assessment of social-communicative competence. In H. Goldstein, L. A. Kaczmarek, & K. M. English (Eds.), *Promoting social communication: Children with developmental disabilities from birth to adolescence* (pp. 55-115). Baltimore, MD: Paul H. Brookes.

Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child, 2,* 217-250.

Koegel, R. L., & Frea, W. D. (1993). Treatment of social behavior in autism through the modification of pivotal skills. *Journal of Applied Behavior Analysis, 26*, **369-377.**

Koegel, L. K., Koegel, R. L., Frea, W. D., & Fredeen, R. M. (2001). Identifying early intervention targets for 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., Schreibman, L., Britten, K. R., Burke, J. C., & O'Neill, R. E. (1982). A comparison of parent training to direct child treatment. In R. L. Koegel, A. Rincover, & A. L. Egel (Eds.), *Education and understanding autistic children* (pp. 260-279). San Diego, CA: College Hill Press.

Krantz, P. J., & McClannahan, L. E. (1993). Teaching children with autism to initiate to peers: Effects of a script-fading procedure. *Journal of Applied Behavior Analysis, 26,* 121-132.

Lovaas, O. I., Koegel, R. L., Simmons, J. Q., & Long, J. S. (1973). Some generalization and follow up measures on autistic children in behavior therapy. *Journal of Applied Behavior Analysis, 6*, 131-166.

MacDuff, J. L., Ledo, R., McClannahan, L. E., & Krantz, P. J. (2007). Using scripts and script fading procedures to promote bids for joint attention by young children with autism. *Research in Autism Spectrum Disorders, 1*, 281-290.

Matson, J. L., & Swiezy, N. (1994). Social skills training with autistic children. In J. L. Matson (Ed.), *Autism in children and adults: Etiology, assessment, and intervention* (pp. 241-260). Pacific Grove, CA: Brooks/Cole.

National Initiative for Autism: Screening and Assessment. (2003). *National autism plan for children: Plan for the identification, assessment, diagnosis, and access to early interventions for pre-school and primary school aged children with autism spectrum disorders (ASD).* (Published by the National Autistic Society for NIASA, in collaboration with the Royal College of Psychiatrists, the Royal College of Pediatrics and Child Health and the All-Party Parliamentary Group on Autism.) London: Newnorth Print.

National Research Council. (2001). *Educating children with autism.* Washington, DC: National Academy Press.

Newborg, J., Stock, J. R., Wnek, L., Guidubaldi, J., & Svinicki, J. (1984). *Batelle developmental inventory.* Allen, TX: DLM Teaching Resources.

Odom, S. L., & Strain, P. S. (1984). Classroom-based social skills instruction for severely handicapped preschool children. *Topics in Early Childhood Special Education, 4*, 97, 116.

Odom, S. L., & Strain, P. S. (1986). A comparison of peer initiation and teacher-antecedent interventions for prompting reciprocal social interaction of autistic preschoolers. *Journal of Applied Behavior Analysis, 19*, 59-71.

Prizant, B. M., & Wetherby, A. M. (1990). Toward an integrated view of early language and communication development and socioemotional development. *Topics in Language Disorders, 10*, 1-16.

Reagon, K. A., & Higbee, T. S. (2009). Parent-implemented script fading to promote play-based verbal initiations in children with autism. *Journal of Applied Behavior Analysis, 42*, 659-664.

Reichow, B. R., & Volkmar, F. R. (2010). Social skills interventions for individuals with autism: Evaluation for evidence-based practices within a best evidence synthesis framework. *Journal of Autism and Developmental Disorders, 40*, 149-166.

Reichow, B. R., Volkmar, F. R., & Cicchetti, D. V. (2008). Development of an evaluative method for determining the strength of research evidence in autism. *Journal of Autism and Developmental Disorders, 38*, 1311-1318.

Rimland, B. (1964). *Infantile autism.* New York: Appleton-Century-Crofts.

Rogers, S. J. (2000). Interventions that facilitate socialization in children with autism. *Journal of Autism and Developmental Disorders, 30*, 399-409.

Rutter, M. (1978). Diagnosis and definition of childhood autism. *Journal of Autism and Childhood Schizophrenia, 8*, 139-161.

Schopler, E., & Mesibov, G. B. (Eds.). (1986). *Social behavior in autism.* New York, NY: Plenum Press.

Schopler, E., & Reichler, R. J. (1971). Parents as cotherapists in the treatment of psychotic children. *Journal of Autism and Childhood Schizophrenia, 1*, 87-102.

Schreibman, L. (1988). *Autism.* Newbury Park, CA: Sage Publications.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). *Vineland Adaptive Behavior Scales.* Circle Pines, MN: American Guidance Services.

Stahmer, A., & 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.

Stokes, T. F., & Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10*, 349-368.

Strain, P. S. (1977). An experimental analysis of peer social initiations on the behavior of withdrawn preschool children: Some training and generalization effects. *Journal of Abnormal Child Psychology, 5*, 445-455.

Strain, P. S., & Odom, S. L. (1986). Peer social initiations: Effective intervention for social skills development of exceptional children. *Exceptional Children, 52*, 543-551.

Vismara, L. A., Colombi, C., & Rogers, S. J. (2009). Can one hour per week of therapy lead to lasting changes in young children with autism? *Autism, 13*, 93-115.

Webster-Stratton, C., & Herbert, M. (1993). What really happens in parent education? *Behavior Modification, 17,* 407-456.

Weiss, M. J., & Harris, S. L. (2001a). *Reaching out, joining in: Teaching social skills to young children with autism.* Bethesda, MD: Woodbine House.

Weiss, M. J., & Harris, S. L. (2001b). Teaching social skills to people with autism. *Behavior Modification, 25*, 785-802.