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Social skills interventions for the autism spectrum: essential ingredients and a model curriculum

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Social difficulties are among the hallmark symptoms of autism spectrum disorders (ASD). Individuals with autism who do not exhibit significant cognitive or language delays, such as those diagnosed with Asperger syndrome or high functioning autism, often make substantial progress with intervention; their communication skills may significantly improve and their repetitive behaviors may lessen with age [1]. Yet their social difficulties often remain and may eventually hold them back from academic and vocational success in later life [2]. Despite average or higher intelligence, there can be a failure to appreciate the subtleties and unspoken messages that are conveyed during interactions. The person with ASD does not always know what is appropriate (and what is not) for a particular situation. The rules that underlie conversation, implicitly understood by everyone else, are not appreciated by children and adolescents with ASD. They may not understand how to take turns in a conversation, how to provide enough information to be clear without being verbose, and how to select information that is relevant. They may experience trouble choosing topics appropriate to the setting and the conversational partner, maintaining topics, and indicating a switch to a new topic. They may have difficulty adjusting communication to the needs of the person with whom they are speaking (eg, for their age or interests).

Despite the widespread recognition that social deficits are core features of ASD, few treatment programs for improving social adaptation have been

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developed. Until recently, no social skills curricula specific for individuals with autism spectrum disorders were commercially available. Clinicians had little choice but to use materials and curricula developed for children with behavior disorders [3,4] or other conditions. These programs often focused on conflict management and behavior regulation skills, without adequate (or perhaps any) coverage of the fundamentals needed by children with ASD, such as nonverbal communication or affect recognition. Lessons were not as concrete, hands-on, visual, or structured as needed for children with ASD. Several new publications describe curricula for improving social adaptation in children with ASD [5–8], most using a one-on-one teaching format. Curricula that permit practice of social skills in a group setting are also vital, but few are commercially available yet.

This article first reviews the existing literature on social skills intervention programs for ASD. The authors then outline several elements they believe to be important to successful group social skills intervention, based on this literature review and several years' experience conducting such groups at the University of Utah. Specific examples translating these principles into actual practice are provided. Some illustrations come from the PROGRESS Curriculum (*PROG*ram for *R*emediating and *E*xpanding *S*ocial *S*kills) [9], a 25-week intervention for school-aged children with ASD. Examples from an adolescent curriculum also are provided [10].

Previous studies: is social skills training helpful?

A variety of empiric studies have examined specific techniques for increasing social interaction skills in children with ASD, such as peer mediation, scripts, Social Stories, and Circle of Friends [11–14]. Although results for these types of interventions tend to be positive, most of them were carried out at the individual level or in pairs. Because the focus of this article is on group-based interventions, these studies are not reviewed further, but the interested reader is referred to Weiss and Harris [15], who provide a helpful review of such techniques.

Only a few studies have examined the effectiveness of group-based social interventions [16–20]. Table 1 summarizes these studies. Mesibov [18] was the first investigator to describe and evaluate the effectiveness of a social skills training group for verbal adolescents and adults with ASD. The primary goals of his intervention were to increase interpersonal skills, promote positive peer experiences, and enhance self-esteem. The group met weekly for 1 hour for two terms of 12 weeks. Techniques included modeling, coaching, and role-play. Qualitative measures (eg, participants', families', and staff members' impressions of change) suggested that the program was successful, but objective pre–post-testing was not conducted.

Williams [20] described a social skills program that lasted 4 years and included 10 participants. Given the length of the group, skills such as perspective taking, conversation, voice tone, flexibility, and listening were taught in some depth. Techniques included role-play exercises, modeling, recreational games,

Table 1
Characteristics of previous social skills outcome studies

	Mesibov, 1984	Williams, 1989	Marriage et al, 1995	Ozonoff and Miller, 1995	Howlin and Yates, 1999
Qualitative outcome measures	✓	✓	✓	✓	✓
Standardized pre-post testing		✓		✓	✓
Control group				✓	
Generalization outside clinic examined			✓	✓	✓
Long-term follow-up					
Adequate sample size and power					

and "brainstorming." Qualitative data suggested that little progress was made in some domains, such as perspective taking, whereas others, such as friendship skills, seemed to improve. On a structured measure of social behavior, statistically significant change from pre- to post-testing was demonstrated on several scales, including talking with peers, initiating conversations with staff, appropriate facial expressions, and fluency of speech, despite the small sample size.

Marriage et al [17] described a short-term social skills program for children aged 8–12 years with Asperger syndrome. Their program was conducted in two phases. During the first phase, participants met for 2-hour structured teaching sessions for a period of 8 weeks. Homework was assigned each week. Parents were provided with details of the curriculum so that they could reinforce and extend skills at home. They met informally in another room while their children attended the group, to discuss issues related to behavior management and to provide support to one another. The second phase consisted of six weekly reinforcement sessions lasting for 1.5 hours. These sessions were less structured than those conducted during the first phase and homework was not assigned. During both phases, a range of different exercises and media were used to broaden group members' experiences, including role-playing, video-taping of various exercises, prompting with cards, viewing of movies, and playing games. Settings and group leaders also were varied during both phases of treatment to promote generalization of skills. Parents completed a short questionnaire designed by the authors at the beginning and end of the first phase of treatment. Results showed negligible differences between pre- and post-treatment ratings and feedback from parents indicated poor generalization of skills to settings outside the clinic. Despite the lack of quantitative findings, qualitative changes in the children's behavior, both in self-confidence and in the acquisition of some concrete social skills, were noted by the parents and the group leaders.

Another study evaluating the effectiveness of a group social skills training program was conducted by Howlin and Yates [16]. These investigators designed a social skills program for men with high functioning autism or Asperger syndrome. Goals included increasing self-awareness, developing strategies to compensate for social deficits, improving conversational skills, and encouraging independent living skills. Techniques used included role-play, team activities, structured

games, and analysis of videotaped social behavior. Several types of outcome measures were used to determine the effectiveness of the program. The first type of assessment was qualitative (eg, participants' and families' impressions of change and satisfaction with program). Other types of assessment involved examining changes in job status, living accommodations, and conversational ability. In general, findings suggested positive outcomes. Parents and participants reported improvements in several areas. Statistically significant changes also were found when simulated conversation exercises were analyzed. Results suggested that group members were able to initiate and maintain conversations more effectively at the end of the group. Inappropriate utterances and repetitive statements decreased, and responses to questions became more direct and appropriate.

Ozonoff and Miller [19] are the only researchers to date who have included a comparison group to assess the effectiveness of a social skills intervention. Five adolescent boys participated in a 4.5-month training program consisting of modules on interactional, conversational, and perspective-taking skills. Following intervention, improvements on several perspective-taking tasks were noted in the treatment group, relative to the no-treatment control group, suggesting perspective-taking abilities could be improved with intervention and did not automatically do so without it. Post-treatment ratings completed by participants' parents and teachers, however, suggested that the improvements did not generalize to settings outside the clinic and to real-life measures of social competence. Therefore, teaching underlying problem-solving principles and cognitive mediational strategies did not seem to help participants function socially outside the treatment setting.

Although these results generally suggest positive outcomes of group social skills interventions, the studies have several methodologic weaknesses. Few used outcome measures that were objective or performance-based. Only one used a control group. Sample sizes were universally small and power to detect change was presumably low. Few examined generalization and none measured long-term maintenance of skills. Clearly, more empiric evaluation of the efficacy of social skills programs for individuals with ASD is needed. One potential reason for the paucity of empiric research in this area is the lack of readily available group-based social curricula specific to ASD. Although there has been a surge of interest in addressing social skills, literature and research regarding remediation of social skills has lagged behind that targeted at language and behavior deficits. This situation leaves parents, teachers, and professionals in a frustrating position, aware that social skills intervention is a dire need, but with few resources to implement such treatment. The remainder of this article intends to bridge that gap.

Essential ingredients in group social skills intervention

In this section, the authors articulate a set of general principles that have been used widely by clinicians and educators to teach many different skills to children with ASD. Table 2 demonstrates their application to the domain of group social skills training. These principles can be used to develop new

curricula, modify existing curricula to make them more accessible and relevant to people with autism, or evaluate programs to determine their potential usefulness for people with ASD. These essential ingredients are not mutually exclusive, nor are they an exhaustive list of all possible best practices in social skills training.

Make the abstract concrete

Relative to some academic skills, teaching social competence involves abstract skills and concepts. Because children with ASD tend to be concrete and literal,

Table 2
Essential ingredients of group social skills curricula and examples of how to implement them

Central principles	Implementation examples
Make the abstract concrete	Explicitly define skills/problems
	Use "if-then" rules
	Provide visual cues and prompts
Provide structure and predictability	Follow consistent weekly routine
	Use consistent opening and closing formats
	Provide schedules or lists of group activities
	Engage in concrete tasks that ease transitions
Provide scaffolded language support	Group children by language level
	Simplify language
	Use visual supports
	Provide language models and scripts
Provide multiple and varied learning opportunities	Offer multisensory opportunities
	Vary activities, materials, and teaching techniques within and across sessions
	Alternate size of work group
Include "other"-focused activities	Always work in pairs or groups
	Foster cooperation and partnership
	Teach perspective-taking skills
	Highlight peers' preferences and interests
Foster self-awareness and self-esteem	Create positive, nurturing environment
	Identify individual strengths and positive attributes
	Examine ASD strengths and positive attributes
	Provide constructive feedback
Select relevant goals	Prioritize skills that are most salient to ASD
	Utilize socially relevant activities
	Provide rationale for skill use
	Individualize goals and skill development
Program in a sequential and progressive manner	Simplify complex behaviors into specific skills
	Teach skills sequentially
	Integrate and practice mastered skills together
Provide opportunities for programmed generalization and ongoing practice	Use multiple and varied learning opportunities
	Provide generalization activities for home and school
	Practice with varied people and settings
	Offer social skills training in a school setting

the abstract nature of these interpersonal skills such as kindness, reciprocity, friendships, thoughts, and feelings makes them especially difficult to master. A first critical step is to define the abstract social skill or problem in clear and concrete terms. The behavior must be explicitly operationalized and the child taught to identify it and differentiate it from other behaviors (eg, Is this a friend or not a friend? Is this a quiet or a loud voice? Were you being teased or not? Are you following directions or not?). Children learning eye contact may respond better to the more concrete "point your eyes" than to "make eye contact" or even "look at me." Personal space can be defined concretely as "an arm away" or "a ruler away" instead of "too close." "If-then" rules can be taught when the social behaviors involved are predictable and consistent. For example, *"If* someone says 'thank you,' *then* you say 'you're welcome'." Short menus of behavior options can be presented for particular social situations for children to choose among (eg, three things you can do to deal with teasing).

Visually-based instruction is another example of a way to make the abstract concrete. Many children with ASD, even those who are high functioning and who have considerable verbal skill, demonstrate a visual preference or learn best with visually cued instruction [21]. Incorporating visual cues, prompts, and props to augment verbal instruction can make abstract social skills more tangible and easily understood. Pictures can be used to define concepts or clarify definitions. Examples of intermediate and finished products can be used to demonstrate steps in activities or projects. Written lists can be used to summarize discussion topics. Voice volume or affect intensity can be depicted visually, in a thermometer-like format. In the PROGRESS Curriculum [9], a large "Z" made of cardboard is used to depict the back-and-forth of a conversation. Similarly, children are taught to look at the eyes of others using a cardboard arrow. They are instructed to hold the arrow on the side of their face, next to their right eye, and point it at the eyes of the person to whom they are speaking. This aligns their face and eyes in the correct direction. Once this skill has been practiced using this concrete visual cue, use of the arrow is faded. When a child needs a reminder to look in someone's eyes, the arrow can be held up unobtrusively as a cue. Such visual prompts can then be faded and the skill can be practiced in more natural contexts.

Structure and predictability

In most group therapy, including social skills training, topics and session content change from week to week. One way to ease the anxiety that this may cause, while also facilitating transitions between activities and increasing comprehension, is to provide structure, predictability, and routines [22]. Specifically, maintaining a consistent opening, lesson, and closing format, regardless of session topic, can be helpful, as can predictable group rituals, such as weekly songs or joke time. For example, younger children might always begin with a singing routine that welcomes each participant by name. Older children and adolescents might start each session with a routine in which each member recounts a positive and a difficult event from the previous week. The greeting

might always be followed by an instructional activity. Although the content, focus, and technique would change from week to week, the sequence of this instruction always following the group greeting would provide some measure of predictability. Group instruction might always be followed by a snack, with accompanying conversation on an identified topic of interest or joke telling. A closing routine should always signal the end of the session. This routine could include a review of the session's topic, a song, a story, a quiz, or a goodbye to each participant. The essential ingredient is the predictability of the routine, not its specific content.

Visual cues, such as picture schedules and written lists, also can clarify the sequence of events during group and prepare members for upcoming transitions, new activities, or unexpected changes. The session schedule used in the PROGRESS Curriculum resembles a traffic light with picture-word icons depicting each activity. The icons in the upper-most green circle of the traffic light begin the session, those in the yellow circle occur during the middle of the session, and those in the bottom red circle close the group. As an activity is completed, the icon is removed from the traffic light.

Engaged transitions

Another way to ease the anxiety and behavior difficulties often associated with transitions is to focus participants' attention on a concrete task that naturally leads them from one activity to the next. For example, when transitioning from the structured group activity to the snack period, children might work in pairs to put away materials and prepare the room for the snack. This focuses them on a specific task, as opposed to the change of activity. The PROGRESS Curriculum transitions children from the opening group circle to the structured skill development activity in a novel way. The transition is facilitated by an activity called "Pick-and-Pass," which uses a large container decorated with question marks that contains objects, pictures, or words that are used in the subsequent activity. Each child removes an item from the can and passes it to the next child as the rest of the group chants "Pick and pass" while clapping. This is usually met with great excitement as the children select an item or wait for the can to be passed, easing the transition between activities.

Scaffolded language support

There is a complex interplay between social skills, cognitive function, and language. Children with ASD have not only social challenges, but also communication and cognitive challenges. It is therefore vitally important to consider the cognitive and language abilities of the children participating in social skills intervention and to adapt the intervention as needed. Social skills curricula can be designed to meet the needs of children with ASD at a variety of ages, developmental levels, and language abilities. One way to do this is to group children by general language ability, so that those who need extra structure,

support, and language scaffolding are treated together. Then activities can be adapted to the amount and level of language support and structure required by the participants. For children who do not have fluent language, directions and activities need to be visually clear, concrete, and hands-on. Language models or scripts can be provided so that group members need little or no spontaneous language to participate. Conversely, activities for children with fluent expressive language (eg, those with Asperger syndrome or high functioning autism) would require greater independence in generating spontaneous language. Fewer concrete supports would be needed and activities enabling them to practice social skills in more natural social interactions would be more appropriate.

The following example demonstrates how an activity from the PROGRESS Curriculum has been modified for children at two different language ability levels. In the friendship unit, one session is devoted to learning more about other people. One activity uses a board game format, in which the cards that advance players around the board require them to ask other group members personal questions. For children with more fluent language, a card might read "Find out three things (name) likes to do." For children with greater language difficulties, a comparable card would use words and picture icons to read "(Name), what is your favorite color?" If the peer cannot respond verbally, pictures of different colors are available so he or she can point. Thus, fewer expressive language skills are required. Questions are more specific, address concrete attributes, and avoid abstract concepts. Responses are more circumscribed and less open-ended in this format. Yet the goal of finding out about others is fulfilled, just as for children with more verbal fluency.

Another example of language scaffolding from the PROGRESS Curriculum comes from the conversation skills unit, in an activity that teaches contingent commenting. Children with fluent language sit in a circle, spin a topic spinner that visually depicts several categories (eg, food, animals, movies), and comment on the topic indicated. This same activity is redesigned for children with limited language skills to provide significantly more language modeling, visual prompts, and concrete directions. Children are given a card with a carrier phrase written on it, such as "I have a ___." The group leader reads the words for the children, if necessary. A tray of interesting objects is then placed in the middle of the circle. Each child selects an object and uses the carrier phrase to comment, "I have a (item from tray)."

The length and complexity of the opening and closing songs also can be adapted to the language abilities of the participants. For example, in the PROGRESS Curriculum, the opening song for children with limited language use is (to the tune of *Goodnight Ladies*): "Hello (name), hello (name), hello (name), I'm glad you came to group." This song is elaborated for children who are functioning at a higher language level by including an extra verse tailored to preview the session's topic. For example, during a lesson on teasing, the opening song is (to the tune of *Frere Jacques*): "Hello (name), hello (name). How are you? How are you? Sometimes people tease me, I don't like it, how about you? How about you?"

Multiple and varied learning opportunities

Although many children with autism demonstrate strengths in visual processing, there is still diversity in their interests, preferences, and learning styles. Some children learn best while moving their bodies, others need to sit and focus to learn. Some children learn well through reading, others are not yet literate. Some children find music calming and facilitating, whereas others find it a distraction or even an irritant. Just as children with typical development demonstrate multiple "intelligences" [23], so too do children with ASD. Varying the learning opportunities, techniques, and approaches within and across sessions maximizes the likelihood that the particular learning styles or preferences of participants will be tapped. Different learning modalities include construction tasks, games, role plays, craft or cooking projects, gross motor activities, reading or writing tasks, drawing or art activities, and countless others. At different times, children can practice working in dyads, small groups, and large groups.

As an example, the PROGRESS Curriculum's session focused on sharing starts by reading a story about sharing. The children then transition into pairs by selecting objects from the Pick and Pass can that are part of a pair of toys (eg, miniature baseball and miniature bat) and matching up with their partner. In these pairs, they then share a toy that encourages turn-taking. At snack, the children pair up with the peer beside them and are given a single, large piece of cake. They must agree on how to decorate the cake together. Once completed, they share the piece of cake by cutting it in half. The group then plays a group game, "Musical Shares" (an analog of Musical Chairs). The children walk around on mats while music is playing. Each time the music stops, they must find a mat to share with a new friend. In this way, sharing is practiced in a variety of different ways and through a variety of different activities.

"Other"-focused activities

In positive social group environments, the members typically have a sense of community and friendship that develops over time, through repeated interactions. For children with ASD, a feeling of "group belonging" is rarely achieved. The desire to attend to the interests of others, get to know others, and do things for others is often impaired. One way to facilitate the development of these skills is to ensure that all or most activities in the curriculum are "other"-focused. Nothing that can be done in a pair or group is ever done alone. Children help others, rather than help themselves. For example, in art activities, children can make something for a peer, rather than for themselves. They may be required to find out information about a peer, and then use that peer's favorite colors and preferences to develop a picture for him or her. During snack, children can serve each other, rather than themselves. If they need more food, they must request it from another child rather than get it on their own. Through repeated, required social opportunities and practice, cooperation and partnership become the culture of the

group, over time creating an environment of group camaraderie. Through this process, it is hoped that the participants come to recognize that social interaction can be rewarding and enjoyable.

Perspective taking and sharing the interests of others is also encouraged in the PROGRESS Curriculum through a weekly routine called "Special Spotlight." During this part of the session, one child shares a topic of special interest with the group. Another child in the group is designated as the "spotlight partner." His or her role is to learn about the "spotlight" child's interest and bring something to share or discuss related to that topic. This exercise serves to expand the partner's own repertoire of interests and knowledge, while also improving the ability to take another person's perspective. The other children in the group are encouraged to make comments or ask questions about the spotlight topic. Assignments for the "special spotlight" and "spotlight partner" are made in advance so that the children can prepare by bringing relevant items, developing a list or script, and so forth. Topics chosen by the children have ranged from pets, dinosaurs, and video games to bus schedule collections, lectures on the solar system, and theme park brochures. Although the primary goal of the "spotlight" activity is to promote interest in others, it also serves as a way to focus or channel the circumscribed interests of group members into a specific part of the session, so that they do not distract from the rest of the group's activities.

Fostering self-awareness and self-esteem

Most children with ASD experience frequent social failure and rejection by peers. Because social encounters are seldom reinforcing, children with ASD often avoid social interaction. Over time, they may develop negative attitudes about themselves and others. The poor self-esteem that may result makes it difficult to further attempt social interaction and thus, the cycle continues. Therefore, another essential ingredient of social skills interventions is fostering self-awareness, self-appreciation, and self-acceptance [24]. It is only within a positive and nurturing environment that a straightforward examination of strengths and weaknesses can be achieved and the process of self-value initiated. Opportunities for self-awareness and self-acceptance can be incorporated throughout the curriculum. Positive attributes and strengths should be the focus whenever possible. Many children with autism are more used to a focus on their deficits and express surprise that ASD also involves many strengths (eg, memory, visualization, reading, rule-following, passion and conviction). To foster self-acceptance, group leaders can regularly comment on members' strengths. Children can be taught the concept of complimenting and can be regularly required to compliment peers. In the University of Utah's adolescent group [10], participants give positive and constructive feedback to each other at the end of each session.

The adolescent group also includes a specific unit devoted to self-awareness. In one session, the game Bingo is adapted to focus on aspects of the ASD style and help individuals become more aware and accepting of their "quirks" or behaviors. The Bingo card lists strengths and weaknesses associated with the

autism spectrum (eg, "hard to point my eyes," "like to flap my hands," "know a lot about computers," "good memory"). The group leader then reads these characteristics aloud one by one, with participants placing a marker on any trait they notice in themselves. Occasionally, several participants achieve "Bingo" (five characteristics in a row, column, or diagonal) at once. The teens are usually surprised and fascinated to find that they share behaviors with others. This activity can be especially helpful in the development of self-acceptance, as many comment that they have never met anyone else like themselves.

Select relevant goals

Difficulty with social skills is not isolated to children with ASD. Many children exhibit difficulties with a variety of social skills for a variety of different reasons. As described at the beginning of this article, however, curricula developed to address general social impairments do not adequately tackle the social skills deficits specific to ASD. Thus, when selecting social goals for intervention, it is critical to prioritize and address the skill deficits that are most relevant and salient to autism. For example, eye contact is probably a greater priority than manners or negotiation skills, given its centrality to social interaction (eg, to monitor other people's reactions, to indicate interest or engagement). Related to this, it is important that all activities have an underlying social purpose. In our experience, it is a great deal easier to design fun activities than it is to design fun activities that target specific and relevant goals.

The PROGRESS Curriculum addresses five broad topic units that the authors believe are particularly relevant to ASD: basic interactional skills, conversational skills, play and friendship skills, emotion-processing skills, and social problem-solving skills. The Interaction Basics unit teaches the nonverbal behaviors that are important to social interaction, such as appropriate eye contact, social distance, voice volume, and facial expression. The second unit, Conversation Skills, covers basic elements of how to start, maintain, and end a conversation. The more subtle aspects of conversations, like taking turns in conversation, joining a conversation already underway, making comments, asking questions of others, using nonverbal indicators to express interest, and choosing appropriate topics, are included. The third unit teaches basic friendship and relationship skills. The concept of friendship and the important qualities of being a good friend are discussed, listed, and practiced. This unit also includes greeting others and responding to greetings, joining groups, sharing and taking turns, compromising, and following group rules. Next comes a unit on understanding thoughts and feelings of self and other people. The curriculum begins by increasing emotion recognition and vocabulary skills, as many children with ASD are not familiar with emotional terms beyond the basics. Perspective taking and empathy training are included in this unit, requiring the children to act out situations in which different people think different things or have different underlying motives. The final unit addresses social problem solving, such as what to do when a child is teased, feels left out, or is told "No." The focus is on the

development of practical solutions, coping mechanisms, and self-control for these difficult interpersonal situations.

It is important to make clear to the participants how and why the goals selected are relevant for them. For most people, whether they have ASD or not, learning is facilitated when the necessity of the learning or its application is made clear. Teaching the relevance of the social skill is believed to facilitate improved skill awareness and use in natural, daily settings for children with ASD [25]. One way to do this is to use Social Stories [26] to introduce new social skills. Social Stories are written, sometimes illustrated, vignettes that present social information. Although they provide some specific guidance about what to do or say in a social situation, they also highlight social cues, peoples' motives or expectations, and other information that the person with ASD may not have appreciated. Thus, Social Stories can provide a rationale for why the child or children should do or say what we tell them they should do or say. In addition, regular reminders regarding the importance of the skill being practiced should be regularly infused within group activities. For example, if a child is not making eye contact when requesting an item from a peer, he or she might be reminded, "Point your eyes and body so your friend knows you are talking to him."

In addition to choosing group goals that are relevant to ASD, individualized goals can be identified for each group member. Each child should be aware of his or her personal target goal and should be reinforced for meeting it throughout the session. Individual goals may be consistent across weeks, or vary from session to session, depending on the needs of the child. A variety of different systems can be used, including reinforcement charts posted on the wall, individual goal or point cards, or cups in which the goal is affixed and tokens are placed. Reinforcement schedules can be individualized as needed to best promote skill acquisition and maintenance. For new or emerging skills, children might be reinforced the moment the skill is displayed spontaneously. Once the skill is established, maintenance can be promoted by reinforcing after longer time periods or at the end of an activity or session.

Sequential and progressive programming

Skills taught in isolation or without adequate practice and repetition most likely result in poor skill mastery and limited generalization and use. It is essential that the skills and behaviors addressed across the curriculum have relevance to each other and build on each other. As more complex, higher-order skills are learned, basic skills learned early on must continually be practiced. This not only promotes skill maintenance, but also integrates the individual skills into a larger, more fluid, social competence. Complex behaviors must be broken down into specific skills that are taught sequentially and then integrated.

This goal is achieved in the PROGRESS Curriculum in the following manner. Each topic unit consists of five sessions. In the first week of the curriculum, the new unit topic and set of skills are introduced, defined, or described (Introduction Phase). In the second and third weeks (Skill Development Phase), specific

individual skills or situations are addressed and practiced. In the fourth week (Integration Phase), skills practiced individually in the previous 3 weeks are integrated and practiced. In the last week (Generalization Phase), the group meets out in the community to practice specific skills, socialize, and participate in natural age-appropriate activities with invited peers and friends. For example, the first session of the conversation unit describes the importance of conversation and outlines the three distinct skills that follow: starting, maintaining, and ending a conversation. Then one skill, such as greeting, is introduced. The following week, another skill is taught (eg, making a comment) while the first skill (greeting) continues to be practiced and reinforced. In the next week, yet another skill is added (eg, asking a question), as the previous two skills continue to be practiced and reinforced. In the fourth week, all three of the previously isolated skills are integrated (eg, greet a peer: ''Hi, Mike!'', make a comment: ''I like your picture'', then ask a question: ''How did you do it?''). In the final week, the skills are practiced in less structured and more typical environments during a community outing; for example, the group gathers at a local restaurant and practices conversation skills while eating pizza.

A similar sequential and progressive plan should exist across the curriculum units. Skills learned in the first unit should be relevant to and practiced in the subsequent units. For example, eye contact is first introduced as an isolated skill in Unit One, Basic Interactional Skills. In Unit Two, Conversation Skills, group members are regularly reminded to point their eyes at their peers as they learn to greet, make comments, and ask questions. In Unit Three, Play and Friendship, the children, as needed, are encouraged to make eye contact and use appropriate greetings as they learn to share and take turns with others, and so forth.

Programmed generalization and ongoing practice

Skill mastery and generalization require significant practice and repetition in a variety of settings. As described earlier, providing multiple and varied learning opportunities promotes generalization, as does practice of skills in more naturalistic settings through community outings. Another way to promote generalization is to practice skills with a variety of different people. Unfamiliar adults or peers can be invited to group parties or to snack so that children have the opportunity to practice their new skills with others.

When group social skill intervention is provided in a clinic setting, transfer of skills to the home or school also can be enhanced through ''generalization activities'' (akin to homework). A written handout can be provided to parents, teachers, or others, briefly describing the week's target skill and describing a specific activity that practices this skill outside of the group. For example, to generalize conversation skills, parents might be prompted to ask their child to tell them three things that happened at school each day, using visual prompts (eg, photographs or relevant objects) or multiple-choice lists as necessary. Or children might call another group member on the phone to practice back-and-forth conversation, using a list of prearranged topics or a script as necessary.

Generalization may be further enhanced through a concurrent parent training group that apprises parents of the skills their children are learning and provides ideas on how to practice the skills or implement specific techniques at home or in the neighborhood.

Generalization of behaviors learned in a social skills group to the "real world" may be greater when the group is offered in a natural social setting, such as a school. At the least, the same training model and format described in this article can be implemented in a school, rather than a clinic. Additional methods will likely be necessary to generalize such training to more natural school settings, however, if the training is conducted in a segregated setting (eg, a separate room, with special education personnel). Written handouts describing the child's target skills and individual goals can be provided to the classroom teacher or other school staff. The handout might identify natural opportunities throughout the school day when staff can prompt students to use their skills with peers (eg, during a small group classroom activity, at lunch). A description of how to best prompt the child can be included. It is ideal if classroom teachers or other relevant school staff have the opportunity to observe the social skills group to learn and use the same prompting techniques and teaching strategies. Generalization also might be enhanced by including the social skills group leader in the Individualized Education Plan meeting so that social skills goals can be included in the child's overall educational goals and objectives. The benefits of offering social skills intervention and generalization within the school setting include teaching skills in the environment in which they will be used, creating positive social communities with peers who interact daily, and having regular contact among staff members who can promote skill use in natural settings.

Summary

This article outlines the ingredients the authors feel are critical to making social skills interventions successful for children with autism spectrum disorders. The authors described basic principles for teaching social skills that capitalize on the strengths of such children, while specifically addressing their deficits. The authors applied these widely used principles to group social skills intervention. In particular, social skills groups for children with ASD need to break down complex social behaviors into concrete steps and rules that can be memorized and practiced in a variety of settings. Abstract concepts must be made concrete through a variety of visual, tangible, "hands-on" activities that make socialization fun. Visual structure and predictable routines are essential. Also critical to the success of social skills intervention are instruction and activities that provide necessary support for the language abilities of the participants. A variety of learning opportunities must be used to teach the goals and skills most relevant to children with ASD. These skills must be integrated as intervention progresses. Furthermore, interactions that require the children to focus on peers create a positive social group culture. Within this culture and environment, self-aware-

ness and positive self-esteem can be fostered. A behavior plan that specifies individual goals for group members and a specific system for delivering rewards should be included. Other important ingredients include generalization, which is encouraged through community outings, skill practice in more naturalistic settings, and collaboration with parents and teachers to work on skills outside the group intervention. Weekly therapy does little to change basic deficits of ASD unless there is daily practice and reinforcement of the skills being learned in more natural situations.

The authors hope that outlining these principles and specific techniques will encourage more clinicians to offer social skills groups and thus increase their availability around the nation and world. Continued research and treatment for social skills is necessary to provide much needed empiric evidence to determine effectiveness of such interventions.

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