A Systematic Approach to Teaching Social Skills to Children With Autism Spectrum Disorders: A Guide for Practitioners

Scott Bellini, Lauren Benner, and Jessica Peters-Myszak, Indiana Resource Center for Autism, Indiana University, Bloomington

Social skills training (SST) is a topic of great importance in the field of autism as social skill deficits are a prominent feature of autism spectrum disorders (ASD). Common social deficits include (a) difficulty with receptive and expressive use of nonverbal cues such as facial expressions, gestures, and body language; (b) difficulty establishing peer relationships and friendships; (c) lack of shared enjoyment and failure to consider the interests of others; and (d) lack of social and emotional reciprocity (American Psychiatric Association, 2000). Deficits in social cognition are also common, including difficulties taking another person's perspective, difficulties with social problem solving, and lack of self-awareness (Bellini, 2006). Thus, improving and/or facilitating the acquisition and performance of social skills across multiple settings should be the primary purpose of SST. Unfortunately, few children receive SST as an integral part of their treatment and educational programming (Hume, Bellini, & Pratt, 2005). To make matters worse, those youth who are receiving SST may not be benefitting from the programming.

Although SST can be viewed as an essential component of any treatment or educational plan for children with ASD, the results of numerous meta-analytical studies have questioned the effectiveness of this modality. In general, these studies have demonstrated that traditional SST programs are only minimally effective in teaching social skills to youth with learning disabilities, emotional and behavioral disorders, and ASD (Bellini, Peters, Benner, & Hopf, 2007; Forness & Kavale, 1996; Gresham, Sugai, & Horner, 2001; Mathur, Kavale, Quinn, Forness, & Rutherford, 1998; Quinn, Kavale, Mathur, Rutherford, & Forness, 1999). Results of these studies indicate that traditional SST is particularly ineffective in promoting the transfer of skills across settings and persons. In addition, when compared with 12 other intervention modalities, SST training ranked as the ninth most effective strategy, well behind behavioral, language, academic, and psychopharmacological interventions (Forness & Kavale, 1996).

Bellini et al. (2007) conducted the only meta-analysis of SST for youth with ASD. The meta-analysis included 55 published research studies investigating school-based SST for youth with ASD. Nearly half of the reviewed studies produced low treatment effects, and a majority of the studies produced low generalization effects across persons, settings, and play stimuli. Although the collective outcomes of school-based SST for youth with ASD were disappointing, the results do help to elucidate factors that lead to more beneficial social outcomes for youth with ASD. A synthesis of the Bellini et al. (2007) meta-analysis with other meta-analytical reviews reveals the following eight recommendations for effective social skills programming (Bellini, 2009): (a) Increase the dosage of social skill interventions, (b) provide instruction within the child's natural setting, (c) match the intervention strategy with the type of skill deficit, (d) conduct a reliable and valid social skill assessment, (e) develop clear and measureable treatment objectives, (f) facilitate the generalization of skills across settings and persons, (g) ensure intervention fidelity, and (h) implement systematic social skills programming.

The final recommendation (i.e., implement systematic social skills programming) is critical as it incorporates many of the other recommendations for programming. That is, SST cannot be systematically delivered without the inclusion of reliable and valid social skills assessment.

The present article will focus on the eighth and final recommendation by outlining a program to systematically deliver social skills instruction to children with ASD. The article will discuss the structure, format, procedures, and methods used at the Social Skills Research Center (SSRC) to teach social skills and measure the social outcomes of youth with ASD. The primary purpose of the article is to provide a model for practitioners seeking to deliver systematic social skills programming to children with ASD. The collective outcomes of children participating in the SSRC program over the course of a 15-month period will be presented. The purpose of presenting these data is to provide an example of how to use data to evaluate overall program effectiveness and to make programming modifications. The article will conclude with a discussion of clinical observations gleaned from the analysis of these data.

What Is Systematic Programming?

Merriam-Webster dictionary defines *systematic* as ''methodical in plan and procedure, and marked by thoroughness and regularity; presented or formulated as a coherent

body of ideas or principles''. Applying this definition, we can say that much of the programming in schools is often delivered systematically. When dealing with problem behaviors, schools often follow a process that uses a functional behavior assessment (FBA). First, they determine the function of a behavior by identifying salient antecedent and consequent events. Next, educators develop a hypothesis as to why the behavior is occurring and then develop an individual behavior plan that addresses the data collected in the FBA. In addition to behavioral programming, schools routinely address academic functioning systematically. For academic skills, many schools are implementing a response-to-intervention (RtI) approach to programming that emphasizes the collection of systematic data. In this approach, teachers collect preassessment data to ascertain the child's current level of functioning. They then provide instruction that is suited to the child's individual level of performance. Performance is then assessed on a continual basis throughout the school year. The use of FBA and RtI approaches in the schools is driven by federal special education laws that mandate their use.

Without the support of explicit federal mandates, experience tells us that systematic programming of SST is not taking place in schools. Usually schools have no organized plan for teaching social skills. Although social objectives are commonly developed for students with ASD, they are rarely based on a reliable and valid assessment of social functioning. Furthermore, seldom does SST proceed in a methodical or systematic fashion. Commonly, SST is relegated to inferior status and implemented only when teachers and other school practitioners have the extra time to address it. Another common occurrence is for educators to deliver a single intervention strategy under the guise of social skills programming. For instance, a member of the school team might go to a workshop on the topic of Social Stories, become enthusiastic about writing stories, and then proceed to implement this strategy for numerous students on her caseload. The problem with this method is that implementing a single strategy without conducting an assessment or determining how the strategy fits into the child's overall social skills program is not systematic programming. Perhaps a student on the educator's caseload is having difficulties maintaining personal space during interactions with peers, so the educator writes a Social Story to address this. However, an intervention addressing this single social behavior would probably miss the fact that the student's difficulty with personal space is a result of his or her inability to read nonverbal cues of others or his lack of self-awareness. Instead of a single Social Story, the student would likely benefit more from the Social Story intervention in addition to instruction on reading nonverbal cues, a self-monitoring intervention, and behavior rehearsal to practice the skills covered in the Social Story. In the example above, the educator's mistake was not the use of a Social Story; it was the use of the Social Story in isolation, without first collecting data on the nature of the child's social skill deficits. Her intervention, though well intended, was short-sighted, disjointed, and too narrowly focused. Systematic programming follows a methodical and orderly process that is thorough and comprehensive.

Teaching Social Skills From a Systematic Framework

The SSRC is a university-based clinic specializing in delivering and measuring the outcomes of social skill interventions for children with ASD. The SSRC was established in the spring of 2008 and is a collaborative effort between the Indiana Resource Center for Autism and the Indiana University School Psychology Program. Services are delivered by school psychology graduate students under the supervision of the first author. The social skills program at the SSRC follows the Building Social Relationships model (Bellini, 2006), which incorporates the following five steps:

1. Assess social functioning
2. Distinguish between skill acquisition and performance deficits
3. Select intervention strategies
4. Implement intervention
5. Evaluate and monitor progress

A conceptual underpinning of the Building Social Relationships model is that social interactions involve three integrated components: social cognitive processes (e.g., perspective taking, attention, self-awareness, declarative/procedural knowledge), emotional regulation (e.g., reducing anxious symptomatology), and the performance of discrete social behaviors (e.g., joining in, responding to initiations, asking questions). As such, social skills programming must address each of these integrated components. (See Bellini [2006] for a thorough description of the conceptual foundation of the model.) The present article will focus on the implementation of the Building Social Relationships model at the SSRC.

Children receiving services at the SSRC range in age from 5 to 12 years and have been diagnosed with autism, Asperger syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS) as reported by parents at intake. At least one child in the program does not have a diagnosis of an autism spectrum disorder. His parents reported that he has been diagnosed with attention-deficit hyperactivity disorder–combined type and has experienced significant difficulties with peer relationships. Specific diagnoses are not determined via assessment as they have no impact on the procedures used in the SSRC social skills program. The cognitive functioning of the children in the program ranges from mild cognitive

impairment to above average intelligence. Some children have limited expressive language skills and use only two- to three-word phrases, whereas others exhibit age-appropriate expressive language. Although the program was designed specifically for children with ASD, we admit children irrespective of diagnosis, cognitive functioning, and language ability. The SSRC social skills program targets skill deficits that are identified during the assessment process. From a practitioner's standpoint, confirming the child's diagnosis is not nearly as useful as determining the nature of the child's social skill difficulties and selecting strategies that directly target these difficulties.

Assess Social Functioning

Evaluation of social skills and social competence is a critical element of SST (Bellini, 2006) and is the first step of the Building Social Relationships model. The first step of the model consists of conducting a thorough assessment of the individual's current level of social skills functioning. The purpose of the social skills assessment is to identify skill deficits that will be the direct target of the intervention and to establish a baseline for current social functioning. The SSRC social assessment involves the direct assessment of social skills (via systematic observation) and the evaluation of social competence (via interview and rating scales).

Gresham (2002) divided social skills assessment methods into three categories that measure different levels of social functioning and social validity. Type I measures include rating scales and interviews designed to measure social competence or perceptions of social performance. An advantage of Type I measures is that treatment objectives developed from these measures are likely to be accepted and viewed as socially acceptable by the key stakeholders who provided the behavior ratings. Another major advantage of Type I measures is their ability to efficiently obtain information regarding social behavior from a variety of sources and across a variety of settings. Type II measures involve the direct assessment of the child's social skills or social behaviors. As such, these measures are valuable to progress monitoring and are used extensively in applied research studies involving single-subject methodology. Type II measures are sensitive to small changes in behavior because they are linked directly to the skills being taught. For instance, if the clinician identifies ''joining-in activities with peers'' as a skill to teach, she would then observe the child to measure whether joining-in behavior has increased over the course of the intervention. Determination of treatment effectiveness would be based on changes in the target behavior. Type III measures are the least valid assessment measures but still have clinical utility. Type III measures involve conducting role-play scenarios or asking questions related to social cognition (e.g., social problem solving or perspective taking scenarios). For instance, if the clinician is teaching a child to effectively respond to bullying, she could set up a role-play scenario that requires the child to deal effectively with a bully. Or, if she is teaching perspective taking to a child, she could set up a role-play that requires the child to infer the thoughts or feelings of another person. Although these are important areas to address via intervention and should be measured via assessment, research has demonstrated that these measures are not related to measures of social competence (Type I measures) or measures of social skills (Type II measures). At this point in time, the SSRC does not use Type III measures as outcome measures, but we do use them to periodically probe improvements in perspective taking and other social cognitive components.

The SSRC uses two measures of social competence (or Type I measures): the Social Skills Rating System (SSRS; Gresham & Elliot, 1990) and the Autism Social Skill Profile (ASSP; Bellini & Hopf, 2007). The SSRS is a widely used measure of social competence. This questionnaire provides information on the social competence of youth aged 3 to 18 years. The SSRS has been used in studies examining the social skills of individuals with ASD (Bellini, 2004, 2006; Koning & Magill-Evans, 2001; Ozonoff & Miller, 1995). The ASSP (Bellini & Hopf, 2007) is an assessment tool that provides a comprehensive measure of social competence for youth with ASD. The items on the ASSP represent a broad range of social behaviors typically exhibited by individuals with ASD, including initiation skills, social reciprocity, perspective taking, and nonverbal communication skills. The ASSP was designed for use with youth with ASD between the ages of 6 and 17 years. A preliminary analysis of the psychometric properties of the ASSP with 340 youth with ASD indicated that the instrument has strong validity and reliability for this age group (Bellini & Hopf, 2007). The items on the ASSP represent specific social behaviors that are commonly associated with ASD. These items represent the behaviors that become the direct target of the subsequent intervention. We refer to these targeted skills as *component skills*.

The SSRC also uses Type II measures to determine progress on our program objectives. We routinely measure three common social objectives for every child in the program (social initiation, social responding, and social engagement). The percentage of social engagement with peers is used as the primary social skills outcome in the SSRC. Social engagement is defined as active participation in an activity or play sequence with a peer involving shared toys, objects, and play items. For instance, if the child was seated at a table with other children and played with play dough, the activity

would not be counted as social engagement unless there was a reciprocal exchange of play dough (sharing) or unless the two children played jointly with the play dough (e.g., making a shape together), were showing their creations to one another or others, or telling each other what they were doing. Negative behaviors such as taking an object from another child or pushing another child are not counted as social engagement. Examples of social engagement include pulling another or being pulled in a wagon, taking turns during a board game, and playing jointly with paint, play dough, building blocks, cars, dolls, and so forth. Instances of unprompted verbal and nonverbal social initiations and responses to peers are coded as social engagement (a complete description of behavioral codes is available from the first author on request). Both opportunities to respond (i.e., initiations made by others) and frequency of responses are recorded to calculate a response ratio (frequency of responses divided by opportunities to respond).

When examining the collective outcomes of the program, only social engagement data are analyzed due to the fact that we do not seek to increase initiations for every child and due to the variability of our response ratio data. For instance, some children initiate social interactions quite frequently (upwards of 10–15 times per 5-min observation), but their total percentage of social engagement is less than 10%. For these children, we attempt to decrease the number of initiations by increasing their total percentage of engagement. It is preferable to have a child initiate one time and stay engaged for 5 min rather to have him initiate 10 times with only 30 s of engagement. Similarly, response ratios vary from child to child and are highly influenced by the number of opportunities to respond. For instance, in some early sessions, the child might have only one opportunity to respond (or no opportunities to respond because the other children have infrequent initiations) during the free-play activity. If the child failed to respond during the data collection phase, his response ratio would be zero, which may or may not reflect his performance on this variable. In addition, some children achieve a near 100% response ratio at baseline because they respond to the one opportunity they have to respond. Again, these ratios skew the collective results of the program. We use these two variables to monitor individual student improvement and to make decisions regarding skills to teach and which strategies to use, rather than to evaluate the collective outcomes of the program. These other two variables are most useful when examined within the context of total social engagement. For instance, if a child has low levels of social engagement, we can examine social initiation and response ratios to determine where to focus the intervention. If both social engagement and frequency of initiations are low, then we must focus our efforts on increasing initiations. If initiations are high (but engagement is still low), then we must focus our efforts on teaching the child to maintain active engagement with peers. If the child's response ratio is low, then we must focus on improving her social responding in an effort to increase total engagement. However, if response ratios are high but the child has few opportunities to respond, then we know that we can increase engagement simply by providing more opportunities for the child to respond.

Although we use common social objectives across all children in the program, our assessment procedures also identify specific component skills to target for each child. Component skills are the skills necessary for the child to successfully achieve the stated social objectives of the program. For instance, to increase social engagement for Child A, we may need to teach the child to join in activities, read nonverbal cues, improve social problem solving, engage in reciprocal conversations, and take another person's perspective. Although the objectives become the focus of our assessment efforts, it is the component skills that become the primary target of our intervention and teaching efforts. When selecting skills to teach, we make a concentrated effort to select skills that are commonly used, are pivotal to the performance of other skills (e.g., joining in activities and reading nonverbal cues), and are within the child's zone of proximal development (i.e., skills that a child is capable of performing but only with support or guidance). Goals for the intervention are thus to teach children to perform the skills without the need for guidance or support. Parents are provided an intervention planning form toward the beginning of the 9-week session that outlines the intervention objectives, the component skills that will be taught, and the evaluation measures that will be used to monitor outcomes.

Distinguish Between Skill Acquisition and Performance Deficits

After the initial assessment is complete, the next step is to discern between skill acquisition deficits and performance deficits. The information collected during the assessment allows us to focus our intervention efforts on either skill development (skill acquisition deficit) or performance enhancement (performance deficit). A *performance deficit* refers to a skill or behavior that is present but not demonstrated or performed, whereas a *skill acquisition deficit* refers to the absence of a particular skill or behavior. Gresham et al. (2001) asserted that a key component of effective social skills programming is the ability of the interventionist to match the intervention strategy with the type of skill deficit. This position is

supported by Quinn et al. (1999), who concluded that the failure of many social skill interventions results from a mismatch between strategy and skill deficits. Of the 55 studies included in the Bellini et al. (2007) meta-analysis, only 1 identified the type of skill deficit exhibited by the participants. SSRC clinicians systematically match the intervention strategy to the type of skill deficits exhibited by the child. For instance, if the child lacks the skills necessary to join in an interaction with peers (skill acquisition strategy), a strategy is selected that promotes skill acquisition. In contrast, if the child has the skills to join in an activity but regularly fails to do so (performance deficit), a strategy should be selected that enhances performance of the existing skill.

To determine whether a deficit is the result of a skill acquisition or performance deficit, our clinicians answer the following questions: (a) Can the child perform the skill across multiple settings and with peers? (b) Can the child perform the skill without support or assistance? (c) Does the child perform the skill if reinforcement is provided? (d) Does the child perform the skill if environmental modifications are made? Answers of ''yes'' to any of these four questions would indicate the presence of a performance deficit. That is, the child has the skill in his or her repertoire but is not performing the skill on a consistent basis or at a level commensurate with peers. It is imperative to determine whether the child is performing the skills across settings and with peers as opposed to adults. The skills required to maintain an interaction with an adult differ from the skills required to maintain an interaction with peers. In the SSRC social skills program, we are primarily concerned with the latter. We also want to determine whether the child is performing the skill without support or guidance. Often, parents report that a skill is present, but the evaluation reveals that the child requires continual prompting to perform the skill. The third question allows us to determine whether motivational issues are precluding the performance of the social skills. If a child is able to turn a skill on when additional reinforcement is provided, then we could conclude that it is a performance deficit. Finally, the fourth question allows us to determine whether sensory sensitivities are precluding the child from performing skills already in her repertoire.

The answers to these questions also elucidate the factors precluding the performance of already learned skills. For instance, if the child joins in activities, but only in quiet environments, then we can conclude that the child has a performance deficit and the factor precluding performance is sound sensitivities. The implication for practice is that we would not need to teach this child how to join in as she already has the skill. Instead, we would have to address the factor precluding performance (sound sensitivity). Similarly, if the child is able to perform the skill when reinforcement is provided, then it is unnecessary to teach her the skill. Instead, performance enhancement strategies should be selected.

Select Intervention Strategies

Based on this information, the selection and implementation of intervention strategies takes place. To successfully teach social skills, clinicians must have a large collection of intervention strategies at their disposal. We have yet to find a strategy that works for all children and all behaviors. In addition, clinicians are required to select a strategy based on logic, rationale, and/or empirical evidence as opposed to selecting a strategy simply because it resonates with their theoretical orientation. Admittedly, the SSRC program draws heavily on behavioral principles and techniques, but clinicians are continually encouraged to challenge their assumptions to find strategies that work for their clients. This emphasis on clinical judgment ensures that strategies are matched to the unique needs of the child and to the nature of the skill deficits. There are a number of strategy options to choose from when teaching social skills. As such, making prudent and logical selections is critical to program success. We use the following criteria when selecting strategies: (a) Does the selected strategy have a functional relationship with the targeted skills? (b) Does the strategy match the type of skill deficit (for each skill)? (c) Does the selected strategy match the developmental level of child (i.e., language and cognitive functioning)? (d) Is the strategy supported by research? If the strategy is not supported by research, what is the rationale/logic for using the strategy, and how will data be collected to substantiate its effectiveness? Furthermore, strategies must be selected that have a direct impact on the targeted skills. A recurring question asked of clinicians is, ''How will this strategy target the skill we want to teach?'' Will teaching kids to recognize emotional icons on picture cards teach them to recognize real human emotions? Or, will playing a board game about appropriate classroom behavior have a direct impact on the child's classroom behavior?

Selecting strategies that match the type of skill deficit is a critical component of successful programming. We separate available strategies into two categories: strategies to teach skills and strategies to enhance the performance of existing skills. A list of these strategies is presented in *Table 1*. Strategies should also be tailored to the specific developmental level of the child. Many of the social cognitive strategies that we use, such as social problem solving and conversational tasks, are not appropriate for the children in our program who have limited expressive communication skills or who have comorbid

Table 1 Skill Acquisition and Performance Enhancement Strategies

Strategies That Promote Skill Acquisition	Strategies That Enhance Social Performance
Strategies to teach nonverbal recognition and perspective taking	Reinforcement/contingency strategies
Reciprocal intervention strategies	Gaming skills/play skills
Conversation game	Environmental modifications
Behavioral rehearsal	Peer-mediated instruction
Social stories[a]	Increased social opportunities/live practice
Social problem solving and social rules	Peer training strategies
Self-monitoring[a]	Priming social behavior
Relaxation techniques/emotional regulation[a]	Prompting strategies[a]
Video modeling[a]	Relaxation techniques/emotional regulation[a]
Prompting strategies[a]	Self-monitoring[a]
	Video modeling[a]
	Social stories[a]

[a] These strategies may be used to promote skill acquisition and to enhance performance.

cognitive disabilities. Finally, although we favor strategies that are empirically based, such as video modeling, prompting, social narratives, and peer-mediated instruction, we do not use only research-based strategies. In these cases, our clinicians are required to present a logical rationale for why the strategy will be effective for that child and for that particular skill. The inclusion of untested and newly developed strategies is done to promote innovation and creativity on the part of our clinicians. We acknowledge the fact that today's evidence-based practices were yesterdays' untested ideas.

Implement Intervention

The SSRC social skills program consists of 9 weeks of social skills training in a group format. The duration of the program (i.e., 9 weeks) was chosen to match the length of a school quarter. Groups meet once per week with sessions lasting 45 min. The four groups consist of two to four children with ASD. Children are grouped based on age and gender. Some groups also include one peer mentor, although the use of peers is dependent on availability. We use numerous strategies in the SSRC social skills program, and a comprehensive review of each strategy is beyond the scope of this article (see Bellini, 2006, for a more extensive description of strategy options). This section (Step 4) will provide a brief description of the three most frequently used strategies of the SSRC social skills program: Social Story with behavioral rehearsal, video modeling, and prompting. These three strategies are implemented in nearly every social skills session. These strategies have also been identified as evidence-based practices by the recently released National Standards Report (National Autism Center, 2009).

Social Story with behavioral rehearsal. A Social Story™ (Gray, 2000) is a frequently used and empirically supported strategy to teach social skills to youth with ASD (Sansosti, Powell-Smith, & Kincaid, 2004). A Social Story presents social skills and rules to children in the form of a brief story. We use Social Stories to teach a number of component skills, such as initiating interactions, making transitions, playing a game, and speaking with appropriate volume and intonation. A Social Story may also include a picture of the child performing the task to provide the child with a visual cue. We have also incorporated a social story into a video modeling intervention. In these interventions, the video depicts a person reading the story and then an adult or child demonstrating the skill. When a Social Story is used, we pair it with behavioral rehearsal. We use the Social Story to introduce a skill or concept and then follow the story with behavioral rehearsal so that the child can practice the skills. We conceptualize the Social Story as addressing social thinking (i.e., declarative knowledge) and the behavioral rehearsal as addressing the social behavior.

Behavioral rehearsal is an effective approach to teaching social skills that allows for the positive practice of skills (Gresham, 2002). Rehearsal involves acting out situations or activities in a structured environment to practice newly acquired skills and strategies or previously learned skills that the child is having difficulties performing. We use behavioral rehearsal to teach a variety of interaction skills, particularly those involving initiating, responding, and terminating interactions. In fact, every newly introduced or learned skill is paired with behavioral rehearsal. In one scenario, the child is required to initiate a conversation with another person, who is engaged in a separate task. Consequently, he would have to ask to join in or ask the other person to join him in an activity. Rehearsal allows the child to execute the skill or behavior without the pressure and anxiety that sometimes are associated with real-life situations, and allows practice of the mechanics of a movement through multiple behavioral repetitions. Rehearsal activities can be performed with adults or with other children as participants. Repetition is a key aspect of rehearsal, as is ending with an errorless (or at least a positive) performance. We aim for 3 repetitions

Figure 1 Example of Session Structure Plan

Social Skills Group Session Plan March 25, 2009
Session Plan 3-7 Children's Names: Kelly and Hope
Clinician 1 will prompt Kelly
Clinician 2 will prompt Hope

1. Reciprocal Conversations (6 minutes)
    a. Traditional Conversation Game (Clinician1 with Kelly, Clinician 2 with Hope) (1 minute)
    b. Switch to Topic Maintenance: summer (1 minute)
    c. Hope and Kelly by Themselves- make sure girls are in chairs facing each other (1 minute)
    d. Conversation game with ponies or Barbies:
        i. Clinician 1 and Clinician 2 will demonstrate having a conversation back and forth with Barbies (1 minute)
        ii. Clinician 1 will pair with Hope and Clinician 2 with Kelly, their Barbies/ponies will play the conversation game (1 minute)
        iii. Kelly and Hope will play the conversation game with their Barbie/ponies (1 minute)

2. **Featured Skill**: Joining-In During Pretend Play (8 minutes) – Video record girls doing the joining-in and inviting others to join to make the VSM for next week.
    a. Read Social Story about joining-in (2 minutes)
    b. Discuss how to join someone who is playing with ponies, Barbies, barn set (1 minute)
    c. Role-playing/behavioral rehearsal (5 minutes)
        i. Clinician 1 and Clinician 2 will model for Kelly and Hope
        ii. While Clinician 1 and Clinician 2 play, Hope will practice joining-in
        iii. Kelly will then be prompted to ask if she can join in
        iv. Practice again; the girls have to ask 2 times this time before letting them join & position bodies to block their entry before successfully asking.

Figure 1 *(Continued)*

3. **Featured Skill:** Asking others to Join-In Pretend Play (7 minutes)
    a. Read Social Story about asking others to join-in pretend play (2 min)
    b. Role-playing/behavioral rehearsal – (5 min)
        i. Clinician 1 and Clinician 2 will model for Kelly and Hope
        ii. Kelly will be asked by Clinician 1 to join Clinician 1 and Clinician 2 in their pretend play
        iii. Kelly will be prompted to ask Hope to join
        iv. Hope will be prompted to ask another clinician or peer to join
4. Video modeling (4 minutes)
    a. Show video of girls playing together with Barbies and ponies during the last session.
5. Structured play time w/prompting (15 min)
    a. Tell the girls it's time to play. Let them select play activities of their own choice. Clinician 1 will prompt Kelly and Clinician 2 will prompt Hope to get girls to engage in reciprocal play. Encourage girls to play with an activity that requires them to create a play scenario as opposed to a game like caribou.
6. Free play and data collection (5 min)

for newly learned skills in the clinic. When the child is able to perform the skill in the clinic, we then leave the clinic to allow the child to apply skills to real-life situations with people other than the clinicians. Prompting is provided to the child as necessary to perform the skill successfully.

Video modeling interventions. A video modeling intervention typically involves an individual watching a video demonstration of positive behavior and then imitating the behavior of the model. Video self-modeling (VSM) is a specific application of video modeling in which the individual learns by watching her own behavior. Results of a meta-analytical study suggest that video modeling and VSM are highly effective intervention strategies for addressing social-communication skills, behavioral functioning, and functional skills in youth with ASD (Bellini & Akullian, 2007). In the SSRC social skills program, every session is video recorded, and a VSM intervention is implemented in nearly every session to teach a variety of social skills. The SSRC program employs two types of VSM interventions: positive self-review (PSR) and video feedforward (Dowrick, 1999). PSR refers to individuals viewing themselves successfully engaging in a behavior or activity that is currently in their behavioral repertoire. PSR can be used with low-frequency behaviors. In PSR interventions, the individual is recorded while engaging in the low-frequency behavior (e.g., initiating an interaction with peer) and then shown a video of the behavior being performed. Video feedforward interventions are used when the individual possesses a component of the target skill in her behavioral repertoire or is performing the skill at a low level of mastery or autonomy. In feedforward interventions,

individuals observe themselves successfully, independently performing skills that they are currently incapable of performing on their own. This is accomplished via a hidden support technique. For instance, the child is prompted by a clinician to ask a playmate to join her in an activity, or the child might be prompted to respond to the initiations of another child. The clinician's prompt is then edited out (i.e., hidden) so that when the child views the video segment, she sees herself as independently and successfully performing the behavior. Hidden support interventions are the most common VSM intervention used at the SSRC. See Bellini and McConnell (in press) for more information on how to record and edit videos.

Prompting procedures. Prompts are supports and assistance provided to the child to help him or her acquire skills and successfully perform behaviors (McConnell, 2002; Rogers, 2000). Prompts can be used to teach new social skills (in the case of physical and modeling prompts) and to enhance performance of previously acquired skills. In the SSRC program, prompts are delivered by either adult clinicians or by the peer mentors. A limitation of prompting strategies is that the child with ASD may limit social interactions to only instances in which prompting is provided. As such, whenever prompting is used, a prompt-fading plan is implemented to systematically fade prompts.

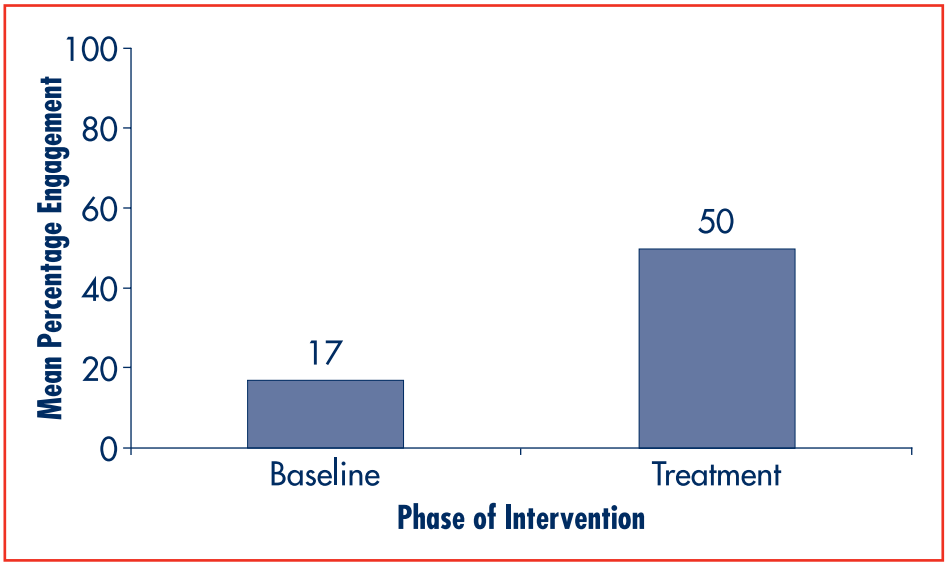
The SSRC uses five primary types of prompts to facilitate social behavior: physical, modeling, verbal, gestural, and natural (arranged from most to least supportive). The most supportive prompts require the greatest amount of adult support and the least amount of independence on the part of the child, whereas the least supportive prompts require more independence on the part of the child and less adult assistance. The goal is to use the prompt that provides just enough support—or the least supportive prompt necessary for the child to successfully complete a task. The order of prompts will have great importance for the eventual fading of prompts.

Prompts are used each session during the 15 min of structured play activities and during other instructional strategies such as behavioral rehearsal. The goal of the structured activities is to maintain active engagement between the children in the group. We do this by providing as much prompting as necessary to promote interaction and then systematically fading these supports while the level of engagement is maintained. SSRC clinicians are provided with a prompting cheat sheet as a training tool to promote consistency across therapists. We fade the prompts as quickly as feasible from most to least supportive, or via a time delay procedure. Prompts typically need to be faded gradually. If a child requires a modeling prompt, first fade to a less supportive modeling prompt (e.g., from modeling the whole behavior to modeling a part of the behavior). From there you will fade to a verbal prompt (which is less supportive than the modeling prompt). If you are fading verbal prompts, fade the prompt from specific to general (e.g., from ''Tommy, hand the ball to Addison'' to ''Tommy, play with Addison'' to ''Tommy, time to play,'' and so on). Prompt fading is accomplished by providing the less supportive prompt just before, or simultaneously with, the more supportive prompt; for instance, providing a verbal directive prior to modeling the behavior or providing a gestural prompt prior to providing a verbal directive. The more supportive prompt would then be withdrawn during subsequent performances of the skill or behavior. For instance, you would no longer use the verbal prompt after the delivery of the gestural prompt.

Session structure plans. Clinicians generate session structure plans for each of the 9 weekly sessions. The session structure plans detail every minute of the 45-min sessions by explicitly outlining what skills will be taught and the strategies used to teach the skill. These plans provide a description of the procedures that will be used with each child during the session and also indicate prompting responsibilities for the clinicians. The session structure plans are reviewed and approved by the first author prior to each session. All the session structure plans incorporate a 10- to 15-min structured play activity in which the primary instructional strategy involves prompting the children to maintain engagement. The plans also allow 5 min at the end of each session for data collection. An example of a session structure plan is provided in *Figure 1*.

Facilitate the generalization of skills. A critical aspect of all social skills programming is to develop a plan for generalization, or transfer of skills across settings, persons, situations, and time. Gresham et al. (2001) concluded that a persistent weakness in social skills training research is its failure to demonstrate adequate generalization effects. This is primarily a result of interventions that fail to plan for generalization. The ultimate goal of social skills training is to teach the child to interact successfully with multiple persons and in multiple natural environments. From a behavioral perspective, the inability to generalize a skill or behavior is a result of too much stimulus control. That is, the child performs the skill or behavior only in the presence of a specific stimulus (person, prompt, directives, etc.). Generalization is particularly important for children with ASD who often have pronounced difficulties transferring skills across persons and settings. The SSRC uses the following techniques to facilitate generalization: (a) Train with multiple persons and in multiple settings, (b) ensure the presence and delivery of natural reinforcers for the

Figure 2 Mean Percentage of Unprompted Social Engagement Within the Clinic for Baseline and Treatment (N = 8) Phases in Social Skills Groups, Spring Semester 2008



performance of social skills, (c) practice the skill in the natural environment, (d) fade prompts as quickly as feasible, (e) provide multiple exemplars for social rules and concepts, (f) train skills loosely (i.e., vary the instruction, directives, strategies, and prompts used during skill instruction), and (g) teach self-monitoring strategies.

Evaluate and Monitor Progress

The purpose of the evaluation at Step 5 is to monitor the outcomes of the social skills program for each child. The procedures used at this stage mirror the procedures used during Step 1. Social competence measures (i.e., rating forms) are administered at the beginning and end of the 9-week program. Observations of social skills are conducted each week during group sessions. Week 1 serves as a baseline period, and no instruction is delivered. Data are collected during the first and last 5 min of Session 1 and during the first 5 min of Session 2, giving us three baseline data points for each child. Data on social behaviors are then collected at the end of each group session throughout the 9 weeks of the program. To measure generalization of skills across settings, data on social engagement with peers is collected via observation at the children's school. School observations are conducted at the beginning and end of the 9-week program (note that the school observations are conducted only for students living within a 20-mile radius of our clinic).

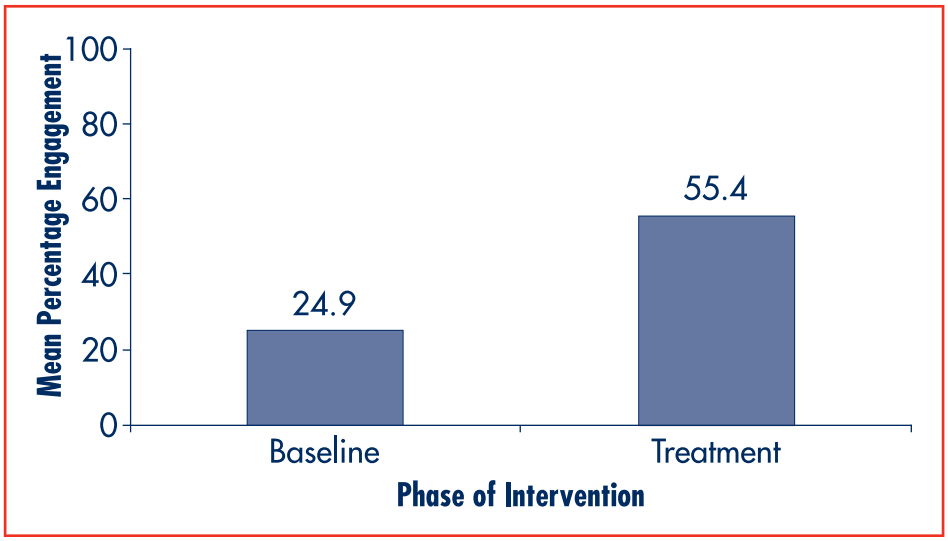
At the end of the program, parents are given a summary report that lists the social objectives, component skills, and a detailed description of the strategies used to teach the component skills. Parents are encouraged to share the report with the child's educational team to encourage consistency of instruction across settings. The summary report also provides a graphical presentation of the child's social outcomes, including social competence (parent and teacher SSRS reports and ASSP parent reports) and data on social engagement at the clinic and at school.

Collective Outcomes of the Program

To date, the SSRC has conducted three 9-week sessions of socials skills programming. Groups were run in the spring and fall of 2008 and the spring of 2009. This section will summarize and discuss the collective outcomes of the 8 children participating in all three of these sessions. The process of collecting and analyzing data over the course of 15 months has been extremely useful in evaluating the collective outcomes of our program and has revealed a number of patterns and phenomena that would not have been revealed had we not aggregated the data or had we examined the outcomes of each 9-week session only in isolation.

Mean social engagement with peers increased during each 9-week session (see *Fig 2 Fig 3 Fig 4*). Although baseline levels of mean social engagement increased from session to session, the average percentage of engagement reached during the treatment phases was rather consistent (50%, 55.4%, and 55.9%). All 8 children showed increases in the mean percentage of social engagement in the clinic during the spring 2008 and fall 2008 sessions, whereas only 1 child showed declines (28% to 24%) during the spring 2009 session. Data on social engagement at school were collected and analyzed

Figure 3 Mean Percentage of Unprompted Social Engagement Within the Clinic for Baseline and Treatment (N = 8) Phases in Social Skills Groups, Fall Semester 2008



for one school semester (spring 2008) and over the course of 1 school year (fall 2008 and spring 2009). Because all of the children changed grades and some of the students changed schools between the spring 2008 session and fall 2009 session, we did not make comparisons between these two sessions because variables within the school settings were not consistent (different students, different teachers, different settings, etc.). We did, however, compare peer engagement across the fall 2008 and spring 2009 sessions because all children remained in the same school and classroom throughout the school year. School data were collected for the 5 children who lived within a 20-mile radius of our clinic. The children's social engagement with peers at school improved substantially after the first 9 weeks of social skills training (see *Fig 5*). A comparison of the spring 2008 treatment phase and fall 2009 baseline phase indicates that engagement was maintained over the summer (between the spring and fall sessions). During this school year, all 5 children demonstrated increases in peer engagement at school. Moderate improvements were also observed during the 2008–2009 school year (see *Fig 6*), although 2 of the 5 children showed decreases in percentage of engagement with peers. Mean scores on the teacher version of the SSRS improved from 85 (SD = 7.7) to 91.1 (SD = 8.8), whereas mean scores on the parent version of the SSRS increased from 83.9 (SD = 11.6) to

Figure 4 Mean Percentage of Unprompted Social Engagement Within the Clinic for Baseline and Treatment (N = 8) Phases in Social Skills Groups, Spring Semester 2009

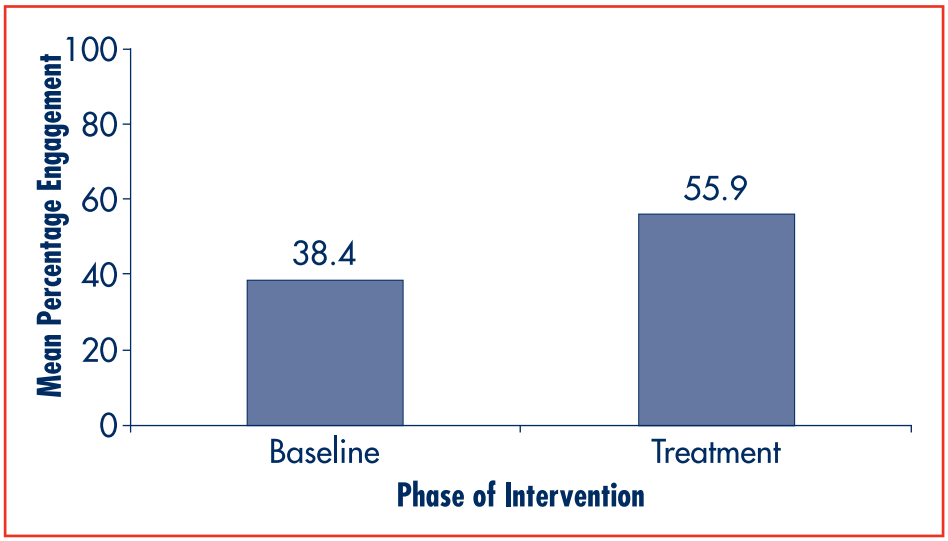
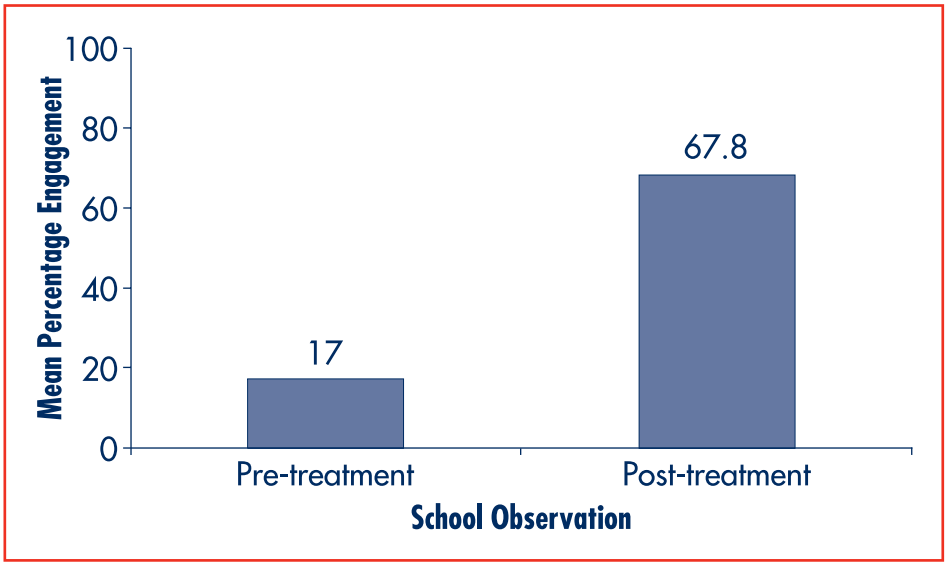


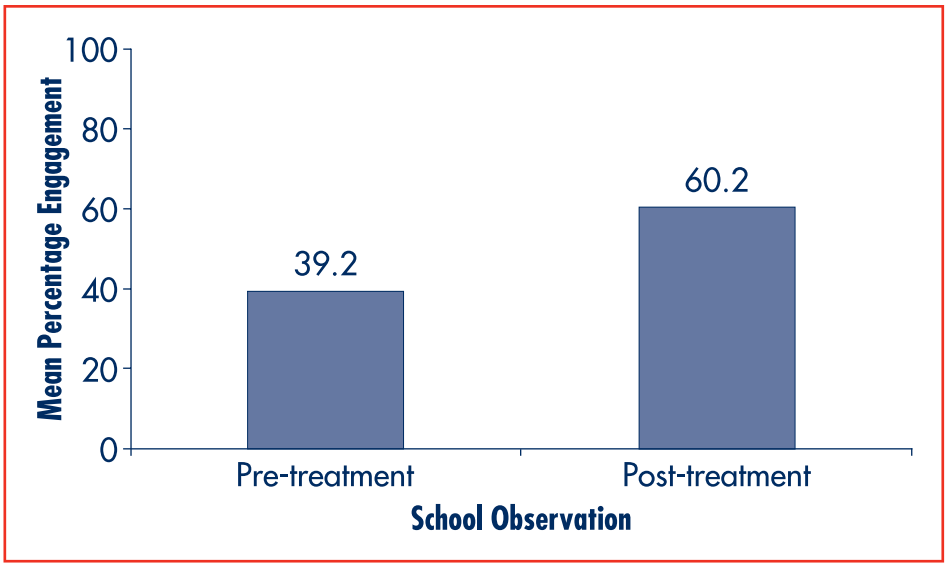
Figure 5 Mean Percentage of Unprompted Social Engagement With Peers During School Observations Pretreatment and Posttreatment for School Year 1 (n = 5)



91.4 (SD = 9.4). Mean scores on the ASSP increased from 110.6 (SD = 11.7) to 121(SD = 10.3). Increases were observed for 6 of the 8 children on all three measures of social competence.

There are a number of benefits to examining the collective outcomes of three 9-week sessions rather than just one session. It allowed us to determine whether skills were maintained from one 9-week session to the next. Collectively, baseline or pretest scores increased from one session to the next on all measures. For returning children, we no longer view the baseline measures as a pretest for the current session but rather as a maintenance measure for the prior session. The collection of data across 15 months also revealed various patterns with regard to the scores of our various assessment measures. For instance, we have found that the SSRS is sometimes not sensitive to change, at least during the first 9 weeks of the program. Often, scores on the SSRS are the last of our outcome metrics to change. It is not uncommon for us to see improvements on the ASSP and in the social engagement data during the first 9-week session but not on the SSRS. A child with ASD might be making steady improvements in social behavior, but her standard

Figure 6 Mean Percentage of Unprompted Social Engagement With Peers During School Observations Pretreatment and Posttreatment for School Year 2 (n = 5)



score on the SSRS may remain unchanged after 9 weeks of programming. On many occasions, scores on the SSRS improved during the second 9-week session. The lack of change on the SSRS measure may be due to the fact that the SSRS was not intended to detect changes in such a short period of time. Or, it may be due to the fact that the items on the SSRS do not precisely match the social characteristics of children with ASD. Thus, the skills typically targeted by our social skill program are not directly measured by the SSRS. Instead, the SSRS may be measuring a more global representation of social functioning.

We have also noted a plateau effect for our children on the SSRS measures. Scores would routinely rise from the below-average range to the average range (i.e., scores would increase from 80 to 99), but rarely did they continue to rise past the mean of 100. This would indicate that these particular children are functioning within the average range of social competence when compared with the general population of children. Perhaps it is unrealistic to expect children with ASD to exceed the average social competence level of other children. Indeed, if scores far exceeded the mean on the SSRS, it would call into question the validity of the parent and teacher rating forms. The implication of this phenomenon is that educators and practitioners may not detect changes on the SSRS measure when working with some children with ASD, especially those already scoring within the average range of social competence at the onset of the program. It would also be imprudent to discontinue social skills programming for a child with ASD who scores within the average range of social functioning. Children with ASD will likely need programming to maintain a level commensurate with peers. Thus, success of the social skills program in these cases should be judged by whether the child stays at this average level of functioning.

In addition, occasionally scores did not improve during one of the 9-week sessions. This was due to a number of variables from medical or behavior issues or due to the fact that our program was ineffectual during that particular 9-week session. The collection of data across three sessions allowed us to view the child's short-term progress (or lack thereof) within the context of longer term change. We were able to determine if the current session was an anomaly or whether dramatic changes needed to be made in the child's programming. Beyond individual child progress, which sometimes varied, the examination of collective outcomes allowed us to determine whether we were on the right track as a program. As practitioners, we sometimes get caught up in our single success story or dramatic failure, but by looking at collective outcomes of the children we serve, we are better able to make decisions regarding our programmatic effectiveness. Success or failure of individual cases is best understood within the context of these collective outcomes.

Summary

The purpose of this article was not to demonstrate the relative effectiveness of the SSRC social skills program compared with other available programs. Instead, our goal was to provide an example to practitioners wishing to design and implement systematic social skills instruction. Teaching social skills systematically allows practitioners to practice with purpose in the delivery of social skills programming. Evaluating outcomes and selecting strategies based on a combination of logic and data does not ensure program success but certainly increases the probability of success. We were not always successful in improving the social skills and social competence of the children with whom we worked, but because we engaged in systematic programming, we knew precisely when and why those failures occurred. It also allowed us to assess our own methods and become better practitioners and thus deliver more effective social skills programming to children with ASD.

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