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Coordinator’s Column

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The 2011 ASHA Schools Conference was a tremendous success! Our affiliates meeting was well attended. Reports from Coordinating Committee members included Gini Kelly on our SIG’s communications, Judy Rudebusch on our response to the Public Policy Agenda, Ruth Callahan on the Literacy Committee, and Laura Young-Campbell on Special Projects.

Again this year, we had a table with give-a-ways, information brochures, and a raffle. Thank you to Fran Block, our Membership Chair, who coordinated the table for our SIG. Fran has reported that the following SIG 16 affiliates won a $25 Gift Certificate to the ASHA Store: Nancy Albertson, Susan Allioux, Janice Brown, Janet Cates, Robin Chapman, Marilyn Chute, Maureen Clifford, Ann Marie J. DuBoi, Ellen Estomin, Cecilia Foley, Nancy Gage, Twhanna J. Green, Toni Johnson, Hedy Teitelbaum, and Mimi Trisdale. The following SIG 16 affiliates won SIG 16 Membership or Renewal: Cornelia Cave, Randi Chud, Kim Gardner-Pumah, Meghan Greenberg, LaCarra Hargrove, Marie Ireland, Lisa Keane, Ellen Kriegel, Mollie Moll, Rita Planey, Jennie Robertson, Elizabeth Sherman, Marilyn Spencer, Carol White, and Wendy Wingard-Gay.

The ASHA Convention is right around the corner. If you are attending, I highly recommend our sponsored Short Course. Thank you to our Special Projects Chair, Laura Young-Campbell for developing the Short Course and our seminar.

- Short Course: SC16 Crack the Code: Medicaid Funding in Schools
  Presentation Time: Friday, November 18, 1:30–4:30 p.m.
  Authors: Marie Ireland, Virginia Department of Education; Janet Deppe, ASHA
  Location: San Diego Convention Center, 28A

- Sponsored Seminar: Ethical Decisions: A Foundation for Appropriate Problem-Solving
  Presentation Time: Friday, November 18, 10:30–12:30 p.m.
  Authors: Ellen Estomin, Shelly Chabon, Theresa Rodgers, Charlette Green
  Location: San Diego Convention Center

ASHA’s new and improved Personal Scheduler for Convention allows you to browse, search, and sort Convention sessions to create your personalized daily schedule. Access the tool from the website at http://www.asha.org/Events/convention/Personal-Scheduler.

Please plan to attend these special Convention events:

- The SIG 20th Anniversary Celebration on Thursday, November 17, 5:30-7:00 p.m. at the SIG Lounge. You may bring a guest. The SIG Lounge is located in the Sails Pavilion area of the San Diego Convention Center. You may also visit the SIG Lounge to talk with other affiliates at any time during the Convention hours.
Our SIG affiliates meeting at Convention. Come learn about SIG 16 activities and meet other affiliates. You may bring a guest. The schedule for SIG affiliates meetings will be available at the SIG information kiosk in the ASHA Member Services Center.

The ASHA ACE award recognizes ASHA members and/or certificate holders who show their commitment to professional continuing education by earning 7.0 ASHA CEUs in 36 months. The Coordinating Committee congratulates our SIG affiliates who recently received the ACE (http://www.asha.org/sig/16/SIG-16-Affiliates-Who-Earned-an-ACE-in-2011/).

See you in San Diego!
Understanding the National Standards Project: Evidence-Based Interventions To Support the Language and Social Communication of Children With ASD

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Abstract

School-based clinicians are seeing a growing population of children with autism spectrum disorder (ASD) on their caseloads. Speech-language pathologists (SLPs) have a responsibility to understand the available interventions, consider the profiles of children most likely to benefit from particular interventions, and recognize those skills or behaviors most likely to be positively affected by evidence-based treatments. The National Standards Project through the National Autism Center (2009; www.nationautismcenter.org) recently identified treatments that have evidence for supporting receptive and expressive language, facilitating the social and cognitive aspects of communication, and incorporating a variety of communication modalities. Those treatments are reported here.

Understanding Intervention Approaches

Traditional behavioral approaches are often the first choice for intervention in the autism literature, yet speech-language pathologists (SLPs) recognize the value of a more pragmatic developmental approach to support the language and social communication of children with autism spectrum disorder (ASD). The value of a traditional behavioral approach is the prescribed teaching structure, the predetermined skills identified as crucial to early learning, and a specified approach to data collection. Discrete trial training, which involves teaching children to respond to a discriminative stimulus followed by reinforcement, is a common example of a behavioral approach that has been used across settings to support early learning, communication, and adaptive behavior skills (Ghezzi, 2007). A more pragmatic developmental approach to intervention emphasizes following the child’s lead, often in the context of play within the natural environment, to ensure opportunities for initiation and spontaneity. FloortimeTM is an example of a more developmental approach in that caregivers or interventionists support and extend reciprocal communicative exchanges by joining a child’s play and using playful obstruction to foster complex circles of communication (Greenspan & Wieder, 1998).

Intervention decision-making for children with ASD, however, should not be limited by our preference or comfort with one approach over another. Our treatment decisions must consider the child’s goals, the family’s priorities and values, and the available evidence as it relates to the unique language and communication profiles of children with ASD. Further,
Prizant and Wetherby (1998) suggested several years ago that both behavioral and developmental approaches to intervention for children with ASD make important contributions. They also described a middle ground or contemporary behavioral approach to intervention (e.g., pivotal response training; Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Openden, Matos-Fredeen, & Koegel, 2006) that draws on the strengths of both approaches so that children are given choices, share control of their teaching opportunities, and use activities and materials they prefer.

The National Standards Project

Recently, the National Autism Center (2009; www.nationalautismcenter.org) completed the National Standards Project (NSP) to address how we effectively intervene for children with ASD under 22 years of age. The project examined the available scientific evidence for those behavioral and educational interventions that target the core deficits for children and youth with ASD. After a comprehensive review of 775 research studies over the previous 50 years, a classification system was developed categorizing treatments as established, emerging, unestablished, and ineffective/harmful determined by a five dimension scientific rating scale including the rigor of the experimental design, the quality of the independent variable, evidence of treatment fidelity, selection of participants, and available generalization data (National Autism Center, 2009). For each category, skills targeted for improvement or behaviors targeted for reduction, the age range for which the treatment had demonstrated evidence, and the diagnostic classification (i.e., autistic disorder, Asperger’s disorder, pervasive developmental disorder) for children most likely to benefit were identified. Treatments were included if they could be implemented in schools, at home, or in the community. There were 11 established treatments (e.g., joint attention intervention, modeling, naturalistic teaching strategies, story-based intervention, peer training); 22 emerging treatments (e.g., AAC, sign language, relationship-based, language training, PECS); five unestablished treatments (e.g., auditory integration, facilitated language communication, sensory integration); and no treatments that met the criteria for ineffective or harmful. Not surprising, the NSP analysis revealed that behavioral treatments had the strongest research evidence, although the contribution of non-behavioral approaches was highlighted with a notation that additional research with high quality studies is needed to advance these treatments.

The focus of this discussion is a description of those established treatments that have evidence for increasing communication (involving verbal or nonverbal modes to share emotions, experiences, or information); play (independent, non-academic activities); social interaction (with one or more individuals); or higher cognitive functions (complex problem solving) in school-age children with ASD, from preschool through high school. Emerging treatments with implications for language and communication will also be discussed.

Established Treatments

Interventions with sufficient evidence of favorable outcomes for children with ASD were categorized as established treatments by the NSP (National Autism Center, 2009). Eight of the 11 established treatments support increasing communication, 10 support increasing social interaction, and 7 facilitate play for children 3-9 years of age. Somewhat fewer interventions have documented evidence for children 10-21 years of age and for increasing higher cognitive function.

Table 1 summarizes those interventions fostering positive change in communication, social interaction, play, and higher cognitive function for children with ASD in the preschool through high school range. These interventions are described in the paragraphs that follow with examples of use for school-based SLPs.
Table 1

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Examples</th>
<th>Age (years)</th>
<th>Communication</th>
<th>Play</th>
<th>Social Interaction</th>
<th>Higher Cognitive Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antecedent</td>
<td>Priming; choice; time delay; cues; prompts; use of special interests</td>
<td>3-18</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Behavioral</td>
<td>Functional communication training; contingency mapping; mand training; discreet trial; shaping</td>
<td>3-21</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>CBTYC1</td>
<td>ABA² programs; early intensive behavioral intervention</td>
<td>3-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Joint attention</td>
<td>Pointing; showing; following eye gaze</td>
<td>3-5</td>
<td>X</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Modeling</td>
<td>Live; video</td>
<td>3-18</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Naturalistic teaching strategies</td>
<td>Focused stimulation; incidental teaching; milieu teaching</td>
<td>3-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Peer Training</td>
<td>Circle of friends; buddy skills; peer mediation; Integrated Play Groups™</td>
<td>3-14</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Pivotal response treatment</td>
<td>Pivotal targets-motivation, initiation, self-management, responsivity to multiple cues</td>
<td>3-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Self-management</td>
<td>Checklists; visual prompts; tokens</td>
<td>3-18</td>
<td>NA</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
</tr>
<tr>
<td>Story-based</td>
<td>Social stories™</td>
<td>6-14</td>
<td>NA</td>
<td>NA</td>
<td>X</td>
<td>NA</td>
</tr>
</tbody>
</table>

¹Comprehensive Behavioral Treatment of Young Children
²Applied Behavior Analysis

Antecedent strategies are designed to modify an event prior to the occurrence of a desired behavior. School-based clinicians might use an array of antecedent strategies, for example, to prepare a child for a play activity through priming, to cue a response to a question,
to give choices to facilitate initiation, or to delay the time before providing a prompt to facilitate spontaneous communication.

Behavioral strategies are most often used to decrease an undesirable behavior and to teach an alternative, functional replacement (Durand, 1990, 1999). For example, SLPs might use functional communication training to teach a child how to request a desired object using a vocalization paired with a picture representing the object or a speech generating device in place of the child scratching a communicative partner to get what he wants.

Comprehensive behavioral treatment of young children (CBTYC), more commonly known as an ABA (applied behavior analysis) program, involves procedures like discrete trial that are delivered one-on-one across settings (Sundberg, & Partington, 1999; Wilczynski, Menousek, Hunter, & Mudgal, 2007). CBTYC specifically targets the core deficits in autism, has structured manuals clinicians can follow, offers intensive support, and measures outcomes using carefully defined protocols for data collection. Skills frequently supported using CBTYC or an ABA program that have implications for school-based clinicians include matching, naming, concept development, and imitation.

Joint attention intervention is key to early learning success and should be a strategy frequently employed by school-based clinicians working with preschool children who lack the capacity to point to or show objects or follow another’s eye gaze to share a mutual interest. Joint attention is a foundational skill that ensures children have the capacity to respond to the social bids of a variety of communicative partners, as well as to initiate a shared interest with a communicative partner around an object, action, or activity (Kasari, Freeman, & Paparella, 2006; Kasari, Paparella, Freeman, & Jahromi, 2008; Whalen & Schreibman, 2003).

School-based clinicians frequently use modeling, or demonstration of a target behavior, to facilitate a child's language understanding and production. Video modeling (e.g., videotaping a desired communication behavior performed by another for a child with ASD to watch)—including video self-modeling (e.g., videotaping a child with ASD performing a desired communication behavior)—is often employed to support the development of both simple and complex communication behaviors. In fact, video modeling and video self-modeling have been used to help children with ASD greet, take turns, play with toys, ask and answer questions, and initiate interactions (Bellini, & Akullian, 2007; Bellini, Akullian, & Hopf, 2007; Buggey, 2005; Charlop-Christy, Le, & Freeman, 2000; Charlop & Milstein, 1989).

School-based clinicians are engaged in a number of child-directed interactions to support functional language, communication, and social interaction skills in the natural environment. Such interactions are part of the naturalistic teaching strategies that the NSP (2009) identified as an established treatment. SLPs typically create a stimulating environment with favorite toys and activities, model how to play with the toys, offer language matched to the interaction, provide choices, and give natural reinforcers while reinforcing appropriate response attempts. Milieu communication training is a good example of using the above-mentioned techniques in a natural environment to support students who are at a prelinguistic or an early linguistic stage of development (Yoder & Stone, 2006).

Peer training is an intervention that involves teaching typically developing children how to respond to and initiate interaction, play, and communication with a child with ASD (Kamps et al., 1992). Peers may be siblings or classmates and may or may not be matched by age, gender, and language age. Peer training has particular value for the school-based SLP who is working in an inclusive program to develop the social responsiveness and engagement of children with ASD and their peers (Owen-DeSchryver, Carr, Cale, & Blakeley-Smith, 2008). Notably, children learn to be social beings by interacting with other social beings; therefore, it is critical for SLPs in the schools to have a model or plan for administering a peer mediation intervention program.
A contemporary behavioral intervention that integrates the strengths of both behavioral and developmental treatment approaches is pivotal response training (PRT). This approach to treatment focuses on key or “pivotal” areas of potential behavior change, including motivation, self-initiation, self-management, and responsivity to multiple cues (Koegel et al., 1999; Koegel et al., 2006; Koegel, Koegle, & McNerney, 2001). This intervention engages parents and is implemented in the natural environment, whether at home, in school, or in the community. As an expansion of the Natural Language Paradigm, PRT is designed to achieve widespread improvements in social communication. For example, school-based clinicians might set up a playground activity, which is focused on a child’s interest in roaming on the playground and reciting Disney movies, by developing a chase game with peers requiring the child with ASD to tag a peer wearing a shirt with a picture of a Disney character.

Self-management is a behavioral strategy that teaches children with ASD to self-regulate by recording when a desired or undesired behavior occurs and setting their own goals and reinforcement for a target behavior. School-based SLPs might use this strategy to increase a child’s initiation with a peer in the classroom to foster social interaction or to decrease a child’s interruption during cooperative groups to support social skill development.

The final treatment in the established category with documented evidence to support social interaction is story-based. Social StoriesTM is a common story-based treatment used by SLPs to highlight the expected behaviors in a social situation. School-based clinicians could write a story about a student’s expected behavior when having a conversation with a teacher or a friend and highlight the listener’s feelings when the conversation is one-sided or includes a discussion of only the student’s specific interests (Scattone, Tingstrom, & Wilczynski, 2006).

**Emerging Treatments**

Twenty-two treatments fell in the emerging category as defined by the NSP (National Autism Center, 2009), suggesting one or more studies reported positive outcomes for children with ASD. More research is needed to ensure the outcomes are consistent. At least 16 of these treatments have implications for supporting the communication, play, social interaction, or higher cognitive functions of school-age children with ASD. These interventions are described below with examples of use for school-based SLPs.

Ten of the emerging interventions support communication and play. They include augmentative alternative communication (AAC), Picture Exchange Communication System (PECS), sign language, scripting, music therapy, imitation training, structured teaching, language training (production), language training (production and understanding), and social communication intervention.

AAC includes high or low technology devices to support communication through pictures, photos, computers, and communication books. AAC provides children with autism and limited verbal skills the opportunity to produce simple or complex messages to communicate a request, make a comment, offer information, and converse about a shared interest or topic of conversation. School-based clinicians may use an AAC device to help nonverbal children with ASD take a turn during circle time using a pre-programmed message. As a specific example of AAC, the PECS was developed for children with ASD with little functional or socially acceptable speech. Children are taught to give a picture of an item they want to a communicative partner in exchange for the desired item (Frost & Bondy, 2002). SLPs often use PECS to facilitate requesting and to increase word use and spontaneous language (Ganz & Simpson, 2004; Kravitz, Kamps, Kemmerer, & Potucek, 2002).

Sign language is an alternative form of communication frequently used with children who exhibit a range of neurodevelopmental disabilities, including ASD. Sign language instruction requires direct teaching of the signs associated with particular objects, actions, or concepts. SLPs use sign language with children with ASD to support early communication.
requests particularly related to immediate functional needs, such as toileting, eating, and asking for help.

Scripting involves the use of an audiotaped or written word, phrase, or sentence to help children with ASD initiate or maintain a conversation (McClannahan & Krantz, 2005). SLPs might create movie scripts to facilitate conversation between a child with ASD and a peer or an arrival script to ensure the child with ASD is successful in greeting peers at school.

Although language and communication goals are not the primary focus of music therapy, this strategy has produced some reported success in teaching children how to count, name colors, say the alphabet, and take turns (National Autism Center, 2009). Typically, music is used to present a skill to be learned and then is gradually faded once the skill is learned. SLPs frequently use song, rhyme, and finger play to facilitate language production through rhythmic cuing.

In imitation training, adults imitate children’s actions with toys, gestures, body movements, and vocalizations during play (Ingersoll & Schreibman, 2006). The adult typically accompanies the imitation with simple language representing what is being done. Imitation can serve a learning function when it is used to teach a new skill (e.g., discrete trial training) or a social function when it is used to foster engagement in social and emotional exchanges (e.g., reciprocal imitation training in the context of play; Ingersoll, 2008). Because children with ASD exhibit deficits in vocal and gestural imitation compared to their typical peers and these skills correlate with receptive and expressive language, imitation training should be considered as an intervention option. School-based clinicians working with preschool children with ASD might use imitation to support play with objects (e.g., rolling a car back and forth and placing a character in the car) and to model the language associated with the reciprocal imitated play.

Structured teaching involves a combination of procedures emphasizing four key areas for learning success: (a) physical organization such that the environment is arranged to add meaning and context, (b) schedules that provide a visual cue that allows a student to predict what will happen next, (c) individual work systems so that tasks are organized for a student to increase independence and generalization in completing work tasks in a systematic way, and (d) a visual structure that gives the student a strategy for approaching tasks and using materials in a flexible manner (Mesibov, Browder, & Kirkland, 2002). Structured teaching is most often referred to as TEACCH (Treatment and Education of Autistic and related Communication-Handicapped Children). School-based clinicians can use the principles of structured teaching in collaborative consultation with teachers about the importance of environmental arrangement, schedules, and visual aids to support the learning and communication of children with ASD in the general education classroom.

Language training interventions involve facilitating speech production, including the production of words and discourse as well as the production and understanding of communication acts important to communicate intent. SLPs use a variety of strategies to individualize language remediation for children with ASD, including total communication training, object training, simultaneous communication, and structured discourse, to name a few. Language intervention that focuses on more pragmatic aspects of language is described as social communication intervention. Sometimes, it is difficult to separate out interventions that are designed to support speech production, language structure, or language use given that all are important to social communication.

Six emerging treatments support social interaction and/or higher cognitive functions. These include developmental relationship-based, initiation training, peer-mediated instructional arrangement, social skills package, theory of mind training, and cognitive behavioral interventions. Developmental relationship-based interventions emphasize the development of affective social connections at home, in school, and in the community. School-based clinicians might use relationship-based interventions (e.g., FloortimeTM, Greenspan &
Wieder, 1998; Relationship Development Intervention, Gutstein & Sheely, 2002) to establish early affective connections with young children with ASD who are struggling with joint attention and play.

Initiation training is designed to teach children with ASD initiate exchanges with typical peers. Peer-mediated interventions, as previously described under established interventions, have focused on the typically developing child initiating a bid for interaction. In contrast, school-based clinicians use initiation training to prompt a child with ASD to interact with a peer or respond to a peer’s bid for engagement. Similarly, peer-mediated instructional arrangement (peer tutoring) involves teaching academic skills using same aged peers (NSP, 2009). Clinicians might use peer tutoring in two ways. First, a typical peer might learn about autism and then be given a specific task to complete with a student with ASD having strategies for responding to unexpected behaviors. Second, a child with ASD and strengths in particular academic areas (e.g., reading, technology) might be assigned to read to a younger student to foster engagement or might be assigned to a peer struggling to navigate a computer program. To ensure opportunities for social engagement, however, interactive games or primed social conversation would be part of the tutoring plan.

There is also emerging evidence for the value of a social skills package that targets specific social skills (e.g., initiating an interaction, maintaining a conversation). Although there are commercially available social skills programs, SLPs might best support students with ASD by assessing social interaction needs and defining the specific social skills needed to advance interaction with typical peers.

Theory of mind training is designed to help students with ASD recognize the mental states of self and others so that they can understand another’s perspective. Perspective taking involves higher cognitive function and has important implications for positive social interactions. To support perspective taking and ultimately a child’s theory of mind, school-based SLPs might use thinking bubbles to represent thoughts individuals have when they are experiencing a problem or comic strip conversations to recreate (and problem-solve) a playground challenge with a peer (Fisher & Happe, 2005; Glaeser, Pierson, & Fritschmann, 2003). Like theory of mind intervention, cognitive behavioral interventions engage students in a discussion of thoughts and emotions. Specifically, the use of positive versus negative thought patterns is taught to influence emotions and daily function. School-based clinicians might use cognitive behavioral intervention in collaboration with the school psychologist to increase effective problem solving and emotional regulation in students struggling to make friends and manage the complexity of the social environment in adolescence.

**Summary**

It is generally agreed that children with ASD require early intervention, intensive instruction, planned teaching opportunities, and adult support (National Research Council, 2001). Planning for an individual child’s program requires the involvement of the family, establishment of goals for intervention, and use of interventions supported by empirical evidence (Prelock, 2006). Philosophical differences and a plethora of intervention approaches, however, have led to confusion and frustration for families and school-based practitioners in their intervention decision-making. The NSP (2009) provides us with some recent guidance on those interventions that have an established evidence base as well as those with emerging support. To effectively engage in intervention decisions, school-based SLPs need to evaluate claims of effectiveness and clearly explain the available intervention approaches, including the advantages and disadvantages. The interventions described in this article provide examples of those treatment strategies most likely to foster communication, social interaction, play, and higher cognitive function in school children with ASD. It is important, however, to ensure the intervention selected is matched to the individual needs of the child with ASD; addresses the values, beliefs,
and priorities of the child’s family; and considers the clinician’s expertise while weighing the strength of the scientific evidence.

References


ASD and Middle School Challenges: A Case Example

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Abstract

Children on the autism spectrum experience increased challenges, both academically and socially, when they move from elementary school to middle school and beyond. In fact, it is not unusual for a child to make great gains during elementary school to the point where special education services are reduced and the child begins to flourish. However, middle school can change this and bring a child with autism to the forefront of teacher concerns once again. This article presents the story of a sixth grade student with autism and the collaborative approach his education team used to address the challenges he faced upon entering middle school.

Michael Profitt is a new sixth grader who has been attending Mastermark Middle School for 1 month. He was successful during his elementary school career, but has not acclimated to Mastermark Middle School. After hearing frequent teacher complaints and dealing with Michael’s numerous emotional breakdowns, the middle school guidance counselor decided to review his records, talk to his parents, and contact the elementary school to get more in-depth information.

History

When Michael was 3 years, 6 months of age, Mr. and Mrs. Profitt contacted their local children’s hospital at the urge of their pediatrician. In the initial complaint, the parents noted that he was only speaking in one- to two-word utterances, was a picky eater, and did not play with other children. A multidisciplinary evaluation was administered by a pediatric neurologist, psychologist, occupational therapist, and a speech-language pathologist (SLP). The evaluation team noted many things typical of children with an autism spectrum disorder. Michael did not always respond to his name. His social referencing was poor, unless the examiner paused while using toys that involved a strong cause-and-effect connection (i.e., waiting before blowing bubbles, holding the lever before letting cars go down a ramp). Motor sequencing and planning issues were noted on the playground. Michael’s attention was also hard to gain unless an activity had something to do with Thomas the Train toys. Once access to the Thomas the Train toys was gained, Michael preferred to play by himself. While playing, he repeated short phrases from Thomas the Train books, such as, “Diesel grumpy today” and “A for all aboard.” His communicative functions were primarily requests or protests. His communicative acts for requests were primarily through contact gestures (i.e., placing the examiner’s hand on the toy), although he did use “want ___” if the gesture did not work. Protest was expressed by either walking away or screaming and crying. Michael was not easily soothed; it took over 15 minutes for him to calm down enough to reengage. He easily labeled numerous pictures and the letters
in the alphabet in books when asked but did not use the vocabulary spontaneously during play. From the communicative acts observation, play assessments, and the use of the Autistic Diagnostic Observation Schedule (Lord, Ritter, Di Lavorre, & Risi, 1999), Michael was formally diagnosed with autistic disorder.

By age 4, Michael was attending a full-time classroom for preschool children with special needs that was located at his neighborhood school, Honeydale Elementary School. He blossomed at Honeydale and was in the general education classroom from kindergarten through 5th grade. He received the services of an SLP and an occupational therapist from preschool through his 5th grade year. By 5th grade, he was performing on grade level for math and science. He was performing above grade level for word recognition and spelling, but was challenged when reading comprehension required social perspective.

Michael struggled with writing from the beginning of his education and is still laboring in this area for several reasons. First, he does not like holding writing instruments and holds the pencil loosely. His pencil grip is only standard when he uses a tripod support. Second, he has difficulty with the motor planning needed to produce legible and appropriately spaced handwriting. Finally, he often needs assistance to brainstorm ideas to put in his essays and often inserts irrelevant statements related to his current strong interests.

Emotionally, Michael was on an even keel by 5th grade. He did not have any meltdowns that school year, but did require additional preparation and assistance for novel activities such as assemblies or class fieldtrips. He had several friends that he played with outside of school. Their play mainly centered around video games. Throughout his elementary school experience, he had one main teacher who knew him well and could oversee his day. When he was not with that teacher, other faculty members familiar with his needs were available to assist him in most situations. His elementary school general education teacher, special education specialist, occupational therapist, and speech-language pathologist met biweekly to address Michael’s learning issues. They reviewed his progress and formed action plans to address current or future issues. This allowed them to be proactive in his support when novel activities were anticipated.

Through the review of records, along with speaking with Michael’s previous educational team and his parents, the guidance counselor noted many differences between his elementary and middle school day that presented problems for Michael. Besides a different building, middle school involved many independent transitions throughout the day. In elementary school, transitions were overseen by a teacher. In middle school, he was expected to relate to seven new teachers and faculty who did not know him. He had to move from place to place on his own, use a locker, and remember which books to take. The new teachers expected him to get to class on time, have the right book, and take notes. Classwork often involved collaborative grouping, and oral and written instructional language for the content area was more complex.

**Forming a Plan**

The guidance counselor called a meeting of the general education teachers, special education teacher, occupational therapist, and speech-language pathologist to discuss the challenges that Michael was experiencing. After summarizing Michael’s history, the guidance counselor asked the team to spend 2 minutes writing down what they believed were Michael’s top three challenges. They shared these in round-robin fashion. The guidance counselor acted as recorder. Then, the team prioritized and condensed the issues into the following priority challenges:

- Difficult transitions were identified by all members as organizational and emotional problems for Michael. He is a little startled and upset when the bell rings. It takes him a long time to pack and unpack his backpack. He gets lost often and has difficulty opening his locker. Additionally, he does not seem to know how to
negotiate the halls and often bumps into peers. Because of these issues, he is routinely late for class. He has had several meltdowns in the hall, during which he cries and screams that he needed to go home. The team data showed that in one week, Michael’s rate for arriving on time for class was only 13%.

- Comprehension of material presented in class was identified as a challenge by the classroom teachers. They reported that Michael has trouble following directions given in a group and exhibits difficulty with the content area lectures. The team suggested that sometimes the problems appeared attention related, while other times he just did not understand the language. Data was taken on following directions within class in science, math, and social studies. He followed directions appropriately 56% of the time.

- The science and social studies teachers noted that Michael had difficulty participating in collaborative groups. Michael was described as withdrawing from these groups and instead performing unrelated activities on the computer. One week’s data was taken on Michael’s participation in collaborative groups. Michael did not participate in any collaborative groups.

- All team members reported that completion and quality of written work was challenging for Michael. He does not like to write and often did not even attempt writing assignments. Grades from one week of Michael’s written assignments showed an attempt rate of 17%.

**Support for Priority Challenges**

The team next brainstormed what supports could be put in place to assist Michael in the four priority challenge areas. The team’s source for most of the support ideas was established and emerging practices delineated by the National Standards Project (National Autism Center, 2009). Other support suggestions came from language learning disabilities literature and from the expertise of the educational team.

**Transitions**

To help with transitions, the team decided that the established strategy of using a visual schedule was vital (Dettmer, Simpson, Myles, & Ganz, 2000; Dooley, Wilczenski, & Torem, 2001). Visual schedules represent the activities of the day and are effective in smoothing transitions and calming anxiety. Michael used a visual schedule independently in elementary school, but was having difficulty using it independently in middle school. The team conjectured that it was because of the new organizational demands in the middle school setting. The team brainstormed ways to consolidate these demands. Because Michael had an iPod, the team considered applications that might prove helpful; they chose Pocket Schedule as a transitional support. This app allows for color-coding and provides a field to enter homework assignments and in-class schedules. The color-coding was coordinated with subjects to help Michael identify supplies needed for each class. For instance, green was the color associated with his science textbook and science folder. He liked using the iPod, because it was socially acceptable and motivated him to follow a visual schedule. The special education teacher helped Michael enter his schedule and modeled how to use it. Michael’s parents reviewed the schedule with him every evening.

Other issues related to transitions were negotiating the halls and opening his locker. For the former task, the team chose an established video modeling strategy (Alcantara, 1999; Bellini, Akullian, & Hopf, 2007; Bugghey, Toombs, Gardener, & Cervetti, 1999). Video modeling uses a video of adults or children modeling target behaviors. Even students who do not readily imitate live models will often reproduce actions and verbalizations from TV and video (Charlop-Christy, Le, & Freeman, 2000). With practice and rehearsal, the child begins to retain and
display the target behavior that was modeled. A video was made for each classroom transition that focused on staying to the right in the halls and moving around groups of students without bumping into them. The videos were loaded into his iPod to act as a reference during practice changing classes. The locker problem was solved by replacing his lock with an ADA compliant lock. Michael simply entered a number on the lock’s electronic keypad to open the locker.

With the combination of these strategies, Michael was soon able to transition between classes more efficiently. At the end of 8 weeks, he was on time for 87% of his classes. He was still working on being totally independent in recording homework assignments in his iPod.

**Comprehension of Directions and Discourse**

The team recognized that comprehension of classroom directions and discourse was a complex problem requiring ongoing support. They identified some initial actions. To help Michael follow classroom directions, teachers presented instructions orally, while using a laser pointer to call attention to the written instructions on the board. Additionally, an established strategy called a social story (Gray, 1994) was used to explain the process to him. Social stories are short stories written in a special style and format. The goal is to share accurate information. Here is an example of the social story that was used.

At middle school, I go to 6 different classes with 6 different teachers. My teachers talk to me in class to give me information and directions. This helps me learn new things, understand assignments, and get good grades. My teachers want me to learn so they will help me know when to pay special attention when they are talking. My teachers are going to write important things down on the whiteboard. This way I won’t miss any information or directions. My teachers will point to the important words on the whiteboard using a red laser pointer. This will show me where to focus my eyes and when to really listen with my ears. If I miss important information, I can go to my teachers and ask them to repeat it. My teachers don’t mind if I ask for help. They want me to learn and to follow directions. I will try and pay special attention when I see the laser pointer and will ask my teachers if I need more help.

The story was placed in his iPod through an application called Pictello which allows for PowerPoint type presentations to be used on the iPod. It was read to him once a day by his parents for 2 weeks. If he was having particular difficulty in a class, the social story was also reviewed within a class. After it was no longer formally taught, it remained on the iPod so that Michael could review it as needed.

Supporting comprehension of the content-based information was addressed through priming (Koegel, Koegel, Frea, & Green-Hopkins, 2003), semantic mapping, and use of the Livescribe pen. Priming is the previewing of information in a less structured way and is an established strategy within antecedent packages. It is not necessary to have the student with autism exhibit the behavior; a peer or even an adult model can be equally effective. Because Michael enjoyed dictionaries, the SLP suggested that she collaborate with him to make mini-dictionaries for the vocabulary in the upcoming content-area units. These dictionaries were entered into Pictello on the iPod. Priming the vocabulary before the learning unit supported content-area comprehension.

During discussions, the teachers were asked to use semantic mapping to brainstorm content either on a white board or using a projector via software called Inspiration. Between the vocabulary priming and the semantic mapping, Michael could see the associative connections between the ideas being presented. Because Michael did not take notes well, a pen called Livescribe was used. The pen records what is being said. Michael writes key words as the teacher speaks. To review what was said, Michael points the pen to the key word and the lecture repeats from that point. The pen allows him to listen to the information presented as many times as desired. If needed, his parents then could also clear up misinformation by going through the recorded notes.
At the end of 8 weeks, Michael was following classroom directions appropriately 92% of the time. Although data were not collected to document content comprehension, his teachers reported that he was now passing unit content-area tests.

**Cooperative Grouping**

The third priority challenge was to support participation as a member of a cooperative group, given that groups are frequently used in the content-area classes. Conversations with Michael revealed that he did not understand the importance or purpose of groups. To help structure the expectations for Michael, two things were put into place. First, the teachers were asked to write down a specific purpose for the group work (i.e., help you know more about alternating current electricity or write a report for a grade). Next, roles within the group were defined (e.g., leader, recorder, time keeper, research specialist). Suggested language was given for each role. For example, the group leader might say, “Let’s review the rules.” In this manner, members of the cooperative group knew what was expected of them. Initially, Michael was given the role of researcher. Because he enjoyed being on the computer, it made being part of the group more natural for him. He then could practice summarization and conversational skills when reporting back to his group. His teachers plan on branching out to other group roles as the year continues.

Data taken in the 8th week showed that Michael joined and at least partially participated in 100% of the collaborative groupings. He still would sometimes disconnect from the group before it was completed; however, he was easily redirected back to the group by his peers.

**Writing**

Because there were multiple issues involved with writing, the challenges were attacked through multiple vehicles. The occupational therapist worked with Michael using a program called Handwriting without Tears (Carlson, McLaughlin, Derby, & Blecher, 2009). This program addressed letter formation and spacing problems. The team decided that Michael should handwrite answers on assignments that required short answers or that were multiple-choice. However, on assignments that required a paragraph or more of writing, he should use a laptop computer. Michael enjoyed using the computer and could type, though not efficiently. It was decided that he needed to learn to keyboard more effectively. His parents investigated multiple free keyboarding games online, including

- Funschool typing games—[http://funschool.kaboose.com/fun-blaster/games/game_type_me.html](http://funschool.kaboose.com/fun-blaster/games/game_type_me.html)

Michael could choose the keyboarding game. He was expected to practice 15 minutes a day.

To address the content focus of writing, the team suggested that the purpose for writing assignments be strongly delineated, given that Michael often didn’t infer the reason for the assignment. Delineating the purpose provides motivation to the students for writing. There are currently no evidence-based interventions for writing in children with ASD. However, one
intervention, self-regulated strategy development (SRSD; Graham & Harris, 2005), has a strong research background for children with language impairments and emerging evidence for children with ASD (Delano, 2007). SRSD takes students through the writing process from exposure to mastery to self-management of their own writing. The SRSD steps include planning, writing, revising, editing, and monitoring. It should be noted that the use of keyboarding for the lengthier writing processes made revising and editing much easier for Michael. Michael refused to re-write hand-written assignments for the purposes of revision, but had no problem revising the typed version.

At the end of 2 months, Michael was attempting 76% of the writing assignments. He still needs support for the planning phase, but he is writing and will revise in response to structured questions. He is becoming more efficient when keyboarding. He has benefitted from being paired with a peer for the revision process.

Summary

Michael’s educational team was pleased with the progress that he made as a result of their planning and support. They realize that including children with ASD in the regular education classroom requires a strong ongoing multidisciplinary team. The team discussed how important it was to identify important challenges through consensus. It allowed for validity in their planning rather than to individually try and help isolated issues. They were empowered by the teaming process and agreed to meet periodically to discuss ongoing challenges and problem solve together. The team openly recognized that each member’s specialized discipline supplied important elements in Michael’s success. They are continuing to educate themselves in evidence-based practices shown to be effective for children with ASD and to further investigate uses of technology that will help Michael continue to succeed in school. The team plans to use evidence-based strategies of peer supports (Chung et al., 2007; Dugan, Kamps, Leonard, & Watkins, 1998; Thiemann & Goldstein, 2004) and self-management techniques (Newman, Reinecke, & Meinberg, 2000) in future intervention planning for Michael.

References


Successfully Serving Students With ASD in the Schools: Let the Evidence Be Your Guide

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Abstract

The caseload of a speech-language pathologist in the school setting consists of students with an array of abilities. The number of students with a diagnosis of autism spectrum disorder (ASD) is on the rise according to the most recent statistics: 1/110 children have an ASD (Centers for Disease Control, 2009). The diagnoses that fall under the ASD umbrella include autism, Asperger’s syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS). Given these statistics, school clinicians will see an increase of students with ASD on their caseloads. Ways to effectively address the needs of children who fall under the ASD diagnostic umbrella will be discussed.

Autism spectrum disorder (ASD) is a neuro-developmental disorder characterized by impairment in three major areas: social interaction, communication, and restricted and repetitive interests and/or behaviors, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). In May 2013, the revised DSM-V will be released. The two significant changes in the upcoming version are (a) the combination of the social and communication domains into one and (b) condensing autistic disorder, Asperger’s disorder, and PDD-NOS into one diagnosis of autism spectrum disorder.

As the expert in communication, the speech-language pathologist (SLP) is an integral member of the educational team working with students with ASD. The SLP gathers information about how ASD affects each student’s communication and social abilities in order to facilitate the best possible learning environment for the student and teachers.

ASD and Learning Style

The communication characteristics of a person with an ASD diagnosis are specific to the individual and where his/her condition falls on the spectrum. Some students with ASD do not talk, some use augmentative and alternative communication (AAC), and some talk incessantly. Most students with ASD process language at a slower rate, interpret messages literally, and understand the message better if it is presented visually (Hodgdon, 1995; NAP, 2009; NRC, 2001). When selecting and implementing communication goals for a student with ASD, the school-based clinician needs to have a plan that addresses both the expressive and receptive communication needs of the student throughout the school day. Each student needs a way to express himself or herself and a way to access the curriculum in a way that makes sense to him/her (Beukelman & Mirenda, 1998; Mirenda & Erickson, 2000). The SLP plays a crucial role in helping the team create meaningful accommodations and adaptations to the
curriculum and environment that address the communication processing differences of students with ASD (ASHA, 2006).

The next piece of the autism puzzle involves the differences in social development and understanding. One of the earliest signs of ASD is the delay or lack of joint attention (Greenspan & Wieder, 1997; Mundy & Burnette, 2005; Osterling & Dawson, 1994; Zwaigenbaum, Bryson, Rogers, Roberts, Brian, & Szatmari, 2005). This essential developmental milestone typically appears around 9 months of age and solidifies the acquisition of social reciprocity between an infant and another person through the act of sharing attention to a particular event or object (Greenspan, Wieder, & Simmons, 1998).

Another key feature in successful social exchanges is the ability to read and understand the emotions of others. This ability to understand others’ thoughts, feelings, beliefs, and emotions is referred to as “theory of mind” (Baron-Cohen, 1989; Baron-Cohen, Leslie, & Frith, 1985; Frith, 1989). The ability to take the perspectives of others, read their emotions, and change your behavior to match the emotions of others is a documented area of weakness in people with ASD (Baron-Cohen, 1989; Baron-Cohen et al., 1985; Frith, 1989; Myles & Southwick, 1999).

Because they have difficulty in “perspective taking,” students with ASD fail to understand the “The Hidden Curriculum” (Myles, Trautman, & Schelvan, 2004), which comprises those social rules people just know, but are not taught. They are invisible; however, obeying these hidden rules is, in part, what makes a person socially successful. The combination of literal interpretation of language, need to process information visually, and difficulty discerning the emotions of others is a recipe for social disaster. Therefore, helping the team identify the most salient social or pragmatic language goals is another part of the SLPs responsibilities.

An intact theory of mind is needed for not only successful social interactions, but also reading comprehension and writing composition (Tager-Flusberg, 2000; Wilde Astington, & Baird, 2005). In order to answer inferential comprehension questions, the reader must be able to “read between the lines” or answer the questions based on the “context clues.” Literal and visual learners with ASD, who have difficulty recognizing emotions in others, including characters in a book or story, have difficulty responding to inferential questions. This inferential “weakness” carries over into writing composition (Tager-Flusberg, 2000; Wilde Astington, & Baird, 2005). Older students are expected to be able to create rich narratives that have characters with complex emotional lives—obviously, a difficult task for students with ASD. Understanding the pervasive nature of social processing differences and how they can affect peer relationships and academic performance is another way SLPs and other members of the education team can help students understand the “Hidden Curriculum” and learn to connect the invisible dots (Ehren, 2002; Diehl, 2003; Myles et al., 2004; Silliman, Butler, & Wallach, 2002; Tager-Flusberg, 2000; Wilde Astington, & Baird, 2005).

ASD is a complex disorder that affects social and communication development and is defined by restricted or repetitive behaviors or interests. The presence of restricted and/or repetitive behaviors or interests in children with ASD drives their need for routine and their desire for sameness. When these behavior differences coexist with communication problems, social difficulties, and what is labeled as “bizarre behavior” in children on the spectrum, their behavior is often automatically assumed to be negative, challenging behavior that may be oppositional or defiant. Understanding the overall profile of students with autism and how multiple elements of the learning environment affect behavior is the job of the educational team. The more knowledgeable the team is about the nature of autism and how it affects a student’s learning style, the more successful the student will be (Janzen & Zenko, in press). Adopting the principles of Positive Behavioral Support (PBS), which analyzes the antecedents, behaviors, consequences, functions of behaviors, and then focuses on teaching replacement

The SLP’s Role on the Educational Team

No one person can know everything there is to know about ASD. Even people with years of experience in the field of autism will tell you, “Once you’ve met one person with ASD, you’ve met one.” However, all members of the educational team need to understand best practices established by research and professionals in the area of ASD. In 2001, the National Research Council (NRC) published a manuscript, Educating Students with Autism, which was written by a panel of international experts who summarized existing ASD research and compiled recommendations for best practices. This manuscript is available as a free pdf from https://download.nap.edu/catalog.php?record_id=10017.

The authors state that effective interventions should

- Begin as soon as the individual is suspected of having ASD or related disabilities
- Actively engage the child in learning for a full school day, 5 days a week (MINIMUM)
- Be individualized
- Include ongoing assessment of the child’s progress
- Teach skills in context (for example, in the places and situations in which they are expected to be used)
- Have a plan for how to teach generalization of skills
- Have a plan for how to teach maintenance of skills
- Include interactions with typically developing children/adults
- Focus on functional, spontaneous communication (initiation)
- Include social instruction throughout the day
- Focus on play/leisure skills including peers and toys/games
- Include positive approaches to behavior, including functional assessment, functional communication training and reinforcement of alternative behaviors (NRC, 2001)

The authors also identify appropriate areas for educational service including

- Expressive verbal language and non-verbal communication skills (i.e., a way for the individual to tell others what he wants, thinks, sees, feels, etc.)
- Receptive language (i.e., a way for the person to understand us)
- Increased engagement with other people
- Social skills
- Flexibility
- Motor skills used for age-appropriate, functional activities
- Cognitive skills and academic skills
- Replacement of problem behaviors with more appropriate behaviors
• Independent organizational skills and other behaviors needed for success in regular education classrooms (NRC, 2001)

With these recommendations in mind, the school-based SLP needs to be a flexible team player who understands and uses multiple service delivery models to adhere to the best practice guidelines (ASHA, 2006; NAP, 2009; NRC, 2001). Three models of intervention are used by school-based SLP: pull-out, push-in/classroom-based, and consultation. In the pull-out model, the student is removed from the classroom and works on goals in a separate location, usually the SLPs office or classroom. When SLPs push in to deliver services, they bring their materials and work on the communication goals in the student’s classroom environment. SLP consultation involves sharing strategies and training the student’s teacher and other support personnel to implement those strategies. These indirect services do not include working with the student, but mean the SLP equips other professionals on the educational team to assume responsibility for implementing programs or strategies that foster communication skills development (ASHA, 2006; Diehl, 2003).

A one-on-one or small-group setting that facilitates direct instruction of new skills is recommended (NAC, 2009; NRC, 2001). In order to ensure generalization and maintenance of any new skills taught, the clinician must take the students with ASD into the contexts where the skills will be used (usually the classroom, playground, lunchroom, etc.) to provide coaching and modeling as the students try to apply the new skills (push-in or classroom-based model) (Cirrin & Penner, 1995). Finally, to help the student master and maintain skills over time, the SLP needs to inform, educate, and enlist the educators, paraprofessionals, peers, and caregivers who are with the student all week (NAP, 2009; NRC, 2001).

As stated earlier, the SLP may work on a specific goal in the small setting of the therapy room and/or bring the intervention into the classroom, enlisting the help of other team members for generalization. The educator may solicit help (consultation) from the SLP with communication skills related to an academic area. In response, the SLP may observe the student in the classroom to get a better understanding of where there are gaps in communication functioning and then use pull-out time to address communicative functioning in these academic areas. Collaborating with all team members to provide a comprehensive and effective support plan is the goal. Therefore, using all modes of communication and models of communication intervention is necessary to achieve student success and adhere to evidence-based practices (ASHA, 2006; Cirrin & Penner, 1995; Diehl, 2003; Ehren, 2002; NAP, 2009; NRC, 2001).

**Identifying and Overcoming the Obstacles**

In the current educational climate with its emphasis on teacher accountability, standardized test scores, and national educational mandates, it is difficult for professionals to find the time, energy, and collaborative spirit to follow all of the above recommendations. School-based clinicians often have caseloads well over 100 students and may divide their time between multiple schools. Finding a time when all members of the educational team are physically in one location without any other conflicting obligations is like finding a needle in a haystack. It is possible to create and implement a successful educational plan for students with ASD, as long as members of the team are positive, creative, collaborative, and focused on student success.

One way educational teams are making it work is taking advantage of electronic communication venues. E-mail, videoconferencing (with district-approved software), conference calls, web-based document sharing (e.g., Google Docs, DropBox), and even text messaging enable teams to consult and collaborate without being in the same location. Face-to-face collaboration is still necessary and recommended, but technology has added new options for communicating among team members.
Another successful strategy used by educational teams is creating a professional learning community (PLC). The idea of PLCs comes from the educational leadership and reform literature. A PLC is just what its name implies: a community of professionals who gather on a regular basis to learn about a topic in a collective, collaborative, supportive environment (Hord, 1997; Hord & Boyd, 1995; Lieberman, 1995; Martel, 1993; Matthews, Cooper, Davidson, & Hawkes, 1995; O’Neil, 1995; Quellmalz, Shields, & Knapp, 1995; Raywid, 1993). An SLP who serves students with ASD is expected to know what ASD is; how it affects learning styles; and how to help with communication and social and behavioral challenges; and serve all the other students on his or her caseload. For clinicians who have never had any formal education or training about ASD, being a part of a PLC focused on autism is one evidence-based way to gain knowledge and competence while building camaraderie among colleagues.

I had the opportunity to facilitate a PLC at an elementary school that had a substantial population of students with ASD. The principal, dedicated to learn more and find ways to better support all her students, including those with ASD, invited me to present an overview of ASD to the entire faculty. Our partnership was born of the need to address the increased numbers of students on the spectrum, the unique challenges they presented, and the feedback from teachers indicating that they were never taught about ASD. Two faculty members, an ESE teacher and the school guidance counselor, were identified as the school-based partners with the Center for Autism and Related Disabilities (CARD). Together, the three of us created a PLC for the school. Our model included pre-scheduled monthly visits when I observed various students in their educational settings, followed by a debriefing session with the students’ teachers during their planning period, and ending with a topic-specific workshop. Each workshop included brief didactic instruction, problem-solving sessions, and discussion among all participants about how the topic related to their individual students. The topics included an ASD overview, Social Stories™, reading comprehension, writing composition, and behavior. In addition to monthly meetings, we created an autism resource library for faculty. Finally, we formed a Google Docs group where we posted training materials and story examples and encouraged participants to share their creations with each other while building their own virtual resource hub.

The teachers reported several outcomes, including a decrease in the number of behavioral outbursts with students with autism; greater confidence handling students with ASD in the classroom; greater success in communicating and troubleshooting problems; and better collaboration among teachers working together to teach students on the spectrum.

The success of our PLC stemmed first and foremost from a supportive administrator who listened to her teachers’ requests for more information and time to learn about ASD. Second, a key factor was the partnership between an outside professional and two specifically selected school personnel who had the ability and time to help streamline the planning process, coordinate classroom observations, and provide on-site follow-up as needed. Finally, creating a supportive, judgment-free learning environment for the educational professionals and school-based clinicians allowed the group to learn from each other, brainstorm solutions, and celebrate successes.

**Conclusion**

Understanding autism spectrum disorder, how it affects the learning style, and how to best serve students with ASD is quite an undertaking for any clinician. The recommendations laid out by various evidence-based practice summaries (NAC, 2009; NRC, 2001) can serve as a guide on how to be successful. It is important to gather as much information as you can about ASD and about each student’s strengths and weaknesses. Remember, you are part of a team. Be flexible and creative. Listen and learn from your colleagues, and use all three service delivery models to maximize the learning opportunities of your students. Explore the technology options available to enhance the communication and learning of your students and
to provide efficient collaboration and consultation tools among professionals on your team. Finally, be creative and think outside the box. Do not be afraid to identify obstacles in order to brainstorm solutions with your team members.

**References**


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**Advancing Social-Communication and Play (ASAP): Development of a Supplemental Intervention for Public Preschools Serving Children With Autism**

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**Abstract**

Research indicates that targeting social-communication and play in young children with autism can lead to improved long-term language outcomes. Thus, there is a critical need for school-based interventions that target these pivotal skills. Speech-language pathologists (SLPs) have a unique opportunity to teach these skills and collaborate with other practitioners as they provide services to children with autism in classroom settings. Advancing Social-Communication and Play (ASAP) is a school-based intervention for preschool-aged children with autism. A description of the development and features of ASAP is presented, and implications for clinical practice are discussed.

**Introduction**

Speech-language pathologists (SLPs) play a vital role in autism intervention, particularly in the domains of social-communication and play (American Speech-Language-Hearing Association [ASHA], 2006, 2008). Social-communication is a struggle for individuals with autism and is related to difficulties with joint attention, theory of mind, enjoyment of social activities, back-and-forth interactions, playing with peers, and emotional regulation (ASHA, 2006). Play skills are also a challenge for this population. Children with autism tend to use fewer objects in play than do typically developing peers and demonstrate more restricted actions while playing with objects (Pierce & Courchesne, 2001; Wetherby et al., 2004). ASHA clinical services guidelines encourage SLPs to assess play skills and use play in intervention as an approach for improving communication (ASHA, 2008).

School-based SLPs are in a prime position to serve children with autism. In the school setting, SLPs collaborate with early childhood professionals, such as teachers and occupational therapists (OTs), and have opportunities to serve children in group and one-to-one contexts. Despite the benefits of treating children in school settings, only a handful of research studies
has explored school-based interventions addressing social-communication and play skills for children with autism, particularly interventions that can be used collaboratively by educational teams (e.g., Garfinkle & Schwartz, 2002; Kohler et al., 1995; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; Sherratt, 2002; Yang, Wolfberg, Wu, & Hwu, 2003). The majority of researchers has studied social-communication and play interventions in non-school settings, such as parent-implemented treatments at home (e.g., Drew et al., 2002; Mahoney & Perales, 2005); one-to-one settings with research staff (Hess, 2006; Kasari, Freeman, & Paparella, 2006; MacDonald, Clark, Garrigan, & Vangala, 2005); and settings other than the child’s classroom (Kok, Kong, & Bernard-Optiz, 2002; Thorp, Stahmer, & Schreibman, 1995; Whalen & Schreibman, 2003; Yoder & Stone, 2006; Zercher, Hunt, Schuler, & Webster, 2001).

Empirical data support the interventions in these studies; however, the extent to which such interventions may be feasible and successful in school settings is undetermined. The Institute of Education Sciences (IES) has acknowledged the need for school-based intervention research through its requests for applications (RFAs), which encourage investigators to develop, adapt, and evaluate interventions for children with autism in public school settings. These RFAs reflect an underlying need for translational research—or research that moves from the “clinical lab to [the] classroom” (Brabeck, 2008, p. 36), making scientific findings applicable to community settings. As part of translational research, interventions are studied in realistic conditions: in natural settings and with populations for whom the intervention was designed (Woolf, 2008), rather than in restricted, laboratory conditions. School-based research, therefore, is vital for ensuring the success of interventions designed for use in public schools.

**Case Example: Developing an Intervention for School Settings**

Advancing Social-Communication and Play (ASAP) is a program developed by research staff, teachers, SLPs, and other community members in response to the need for research-based intervention applicable to school settings; ASAP is designed to improve the social-communication and play skills of preschoolers with autism. Educational practitioners, including teachers, teaching assistants (TAs), SLPs, and occupational therapists (OTs), implement the ASAP intervention collaboratively. As noted above, several intervention approaches target the play and social-communication development of children with autism; however, the ASAP intervention is uniquely designed for school-settings—for educational teams to use in practical ways that embed treatment within classroom activities. The development of the ASAP and the results from pilot testing of this school-based intervention program, which targets play and social communication skills, are presented here.

**Targeting Social-Communication and Play**

ASAP targets two areas: social-communication and play skills of preschoolers with autism. Children with autism experience difficulties with social interaction and communication and display behaviors that are repetitive and restricted in focus (American Psychiatric Association, 2000). Theoretically, joint attention and pretend play constitute “pivotal skills” for children with autism, creating a foundation for later social-communication skills (Laakso, Poikkeus, Eklund, & Lyytinen, 1999; Mundy & Crowson, 1997).

Interventions targeting joint attention skills in preschoolers with autism have resulted in improved communication skills, such as increased receptive and expressive language (Drew et al., 2002; Kasari, Paparella, Freeman, & Jahromi, 2008). Pretend play interventions for children with autism have also resulted in improved language, joint attention, pretend play, and more appropriate use of social routines, social behavior, and social language use (Hess, 2006; Kasari et al., 2008; Thorp et al., 1995; Zercher et al., 2001). Collectively, this body of literature illustrates the importance of addressing social-communication and play in preschoolers with autism, especially when the SLP is targeting language and communication development.
Description of the ASAP Intervention

Founded on this previous research, the ASAP intervention is designed to address social-communication and play behaviors within two school contexts: one-to-one and group activities. Members of the child’s educational team (e.g., teacher, TAs, SLP, OT) collaborate to implement the intervention in these contexts. For example, the team implements the treatment in the classroom during regularly scheduled group activities, as well as individually, such as during the child’s speech-language treatment session (either in or out of the classroom). Before beginning the ASAP intervention, the educational team administers assessments to determine which social-communication and play skills goals are appropriate starting points for each child.

ASAP social-communication goals are subdivided into skill sets: social interaction, requesting, and joint attention abilities. Joint attention skills are the eventual goal, but children performing at lower levels may benefit from starting with goals targeting social interaction and requesting, because they involve prerequisite skills for joint attention. For example, social interaction helps develop motivation to participate in communicative interactions, a skill required for joint attention. Social interaction involves face-to-face activities in which each communication partner demonstrates enjoyment in the interaction, such as peek-a-boo. During requesting activities, children learn to coordinate attention between a person and an object, an important skill for joint attention. For example, the child could point to an out-of-reach toy and look at the adult. Finally, joint attention requires that the child coordinate his/her attention between an object or event and another person for the sake of sharing interest in that object or event. For example, to share interest in a picture, a child could point to dinosaur in a book, make eye contact with her teacher, and look at the dinosaur again.

ASAP play goals include these categories: exploratory, relational, functional, and symbolic play. Exploratory play consists of early investigation of objects, such as mouthing and banging toys. Relational play involves taking apart and putting together objects, such as stacking blocks. Children perform functional play when they use objects in simple pretend ways, such as pretending to brush hair with a comb. Symbolic play consists of more complex pretend actions, such as completing multi-step pretend play actions, making object substitutions, using imaginary objects, and role-playing.

Throughout the intervention, the educational team collects data to track children’s progress in the social-communication and play goals. Once a child has mastered a goal (i.e., three spontaneous instances of target behavior in a school day), the educational team determines which play and/or social-communication goal to target next, thus advancing the child through the established set of ASAP goals.

In order to implement the ASAP intervention, a child’s educational team is trained in the assessment and intervention process and receives support from the research team throughout the school year. First, the educational team attends a training session, where they are instructed in ASAP assessment and intervention, as well as a manual and instructional DVD. In addition to the training, coaches assist with ASAP implementation by visiting the teams in their respective classrooms on a bi-monthly basis, observing intervention sessions, offering feedback and suggestions, and answering questions. Coaches also support the classrooms through phone and e-mail contact, as needed.

Research staff, teachers, SLPs, and other community members collaborated to design ASAP specifically for schools, refining the intervention through multiple research trials. These trials, described below, detail the development, initial findings, and resulting features of the fully developed ASAP intervention.
Project Overview

The research team developed the ASAP intervention through multiple phases of implementation and feedback. The initial phase involved obtaining feedback from focus groups of school personnel experienced with children with autism. The team listened as the staff shared perspectives on the importance of social-communication and play goals for young students with autism, discussed features that made interventions more feasible and successful in school-based settings and shared challenges they had encountered (Flippin, Watson, Boyd, Duncombe, & Williams, 2008). This input shaped the first draft of the ASAP manual. The research team then embarked on a series of small trials of the ASAP intervention, including the collection of child outcome data, assessment of the interventionists' fidelity of implementation, and gathering the interventionists' feedback on ASAP.

In the first trial (Watson et al., 2009), the research team evaluated the feasibility and effectiveness of the one-to-one component of ASAP. During this small quasi-experimental study, SLP graduate students implemented ASAP with preschoolers in public school classrooms, providing 40-60 minutes of one-to-one intervention per week for about 12 weeks. For the second trial (Dykstra, Boyd, Watson, Crais, & Baranek, in press), the research team used a single-case design to study the impact of the ASAP intervention as implemented by trained educational practitioners in three public preschool classrooms serving children with autism. This study assessed the effect of the group component on students' social-communication and play, as well as the additive impact of the one-to-one component of ASAP. During this study, SLPs played an integral role, providing the one-to-one intervention to the three participants. For the third trial, the research team employed a quasi-experimental group comparison design to examine the effects of the full implementation of ASAP (i.e., group and one-to-one components, full team collaboration) and to assess the practicality, feasibility, and impact of ASAP on a larger scale. Six public preschool educational teams serving children with autism implemented the ASAP intervention and four additional educational teams served as a comparison group. These trials provided quantitative and qualitative data, which shaped ASAP as an intervention designed for public school settings, supported the feasibility of ASAP, and demonstrated effectiveness of ASAP for improving child play and social-communicative outcomes.

Feedback from participating educational teams transformed the ASAP into an intervention suited for collaborative implementation in school settings. This feedback not only shaped the ASAP goal sequences, but also prompted the research staff to make goals clear and accessible to all educational team members. Furthermore, feedback produced the ASAP model that encouraged team collaboration during implementation of assessments (i.e., allowed for compilation of observations across multiple team members) and intervention (i.e., allowed team members to focus on one-to-one and/or group intervention). Quantitative data on the fidelity of ASAP implementation spurred the research team to revise the manual, training, and coaching and create a training DVD and a wall chart of goal hierarchies to further support high fidelity implementation by educational teams. Finally, educational team feedback prompted the ASAP research staff to include parent-friendly resources and worksheets in the manual.

The feasibility of the ASAP intervention was supported by qualitative feedback, as well as overall high fidelity of implementation by educational teams (i.e., how closely the team adhered to the intervention protocol). Specifically, in the third trial, the research staff noted a high level of fidelity for implementation in five out of six ASAP classrooms (mean=3.75/4), as compared to the comparison classrooms (mean=2.7/4). Interestingly, educational teams that achieved active and consistent participation (i.e., in implementation and team meetings) by an SLP had higher fidelity of implementation (active SLP=3.76/4, inactive SLP=3.36/4). Finally, the promise of ASAP for improving child outcomes was reflected throughout the implementation trials, with some evidence that children exposed to ASAP made gains in targeted skills. Importantly, social validity data collected during the second trial suggested that
naïve or unfamiliar observers were able to detect these improvements (Dykstra et al., in press). Additional key findings included the positive impact of the one-to-one component on students’ skills after only 12 weeks (Watson et al., 2009) and the subsequent finding that the one-to-one component of ASAP was integral to student gains when combined with the group-based intervention (Dykstra et al., in press).

**Fully Developed ASAP Intervention Plan**

The studies described above contributed to the development of the ASAP intervention approaches, manual, and support structure. During this development process, the research focused on elements to facilitate its use in public schools, but maintain the effectiveness of the intervention for young children with autism. Thus, the ASAP implementation procedures (e.g., assessments, dosage), resources (e.g., manual, forms), and professional development (i.e., training, coaching) were specifically designed for feasibility and utility in preschool classrooms. Some key features of the resulting, fully developed ASAP intervention, along with rationale and clinical implications, are outlined below.

**Implementation Procedures**

The ASAP intervention includes several key aspects intended to promote optimal implementation in school settings: content areas with goal sequences, assessments and progress monitoring, and contexts and dosage for intervention. These components were derived from evidence-based research, but also respond to current gaps in school practice and policy.

- **Content areas and goal sequences.** As noted above, ASAP focuses on two content areas: play and social-communication. With changing expectations of standard courses of study in preschools, ASAP helps educational practitioners and administrators advocate for embedding play and social communication within daily instruction, two areas of key importance for young children with autism (NRC, 2001; Sigman & Ruskin, 1999). Each of these content areas provides a detailed hierarchy of skills. For example, they go beyond the goal of achieving joint attention to include specific objectives, such as showing another person an object or pointing to a nearby object to share interest. Educational practitioners reported that the detailed goal sequences were especially helpful in producing small steps of progress and planning for intervention.

- **Assessments and progress monitoring.** The ASAP research team emphasizes assessment and progress monitoring as key components of the intervention, based on the merit of data-driven decision-making in working with children with autism and feedback from educational practitioners in the focus groups. ASAP assessments use structured and unstructured observations and procedures to determine students’ initial play and social-communication goals. The assessments were developed for classroom-based administration using a collaborative team approach and are the first step in an ongoing cycle of assessment and implementation. Educational teams are also provided with guidelines and forms on progress monitoring to help them collect data on students, track progress, and make informed decisions about moving students through the goal hierarchies. Teams have adapted the ASAP data collection forms to suit the needs of their specific classrooms and to provide more structure and accountability.

- **Contexts and dosage.** As previously mentioned, there are two contexts for ASAP: one-to-one sessions and group sessions. The National Research Council (NRC, 2001) acknowledged the importance of one-to-one intervention in teaching new skills to young children with autism. Through focus groups of educational practitioners, the research team found that one-to-one interventions may be under-utilized in preschool settings, perhaps due to budgeting and staffing issues.
However, preliminary studies have demonstrated that even relatively brief exposures to a one-to-one ASAP session can affect student behaviors (Watson et al., 2009) and that one-to-one intervention appears to have an additive impact above group-only implementation on student behaviors (Dykstra et al., in press). ASAP recommends at least 40 minutes per week of one-to-one instruction to provide dense opportunities to learn and practice targeted play and social-communication skills. SLPs can provide this one-to-one instruction in their regularly scheduled intervention sessions, given that many of the ASAP goals are related to communication and play. Researchers have also highlighted the value of group intervention for targeting generalization and maintenance (NRC, 2001). Thus, ASAP recommends embedding intervention into existing classroom activities to target play and social communication. To support the group component, SLPs may co-teach group sessions, target ASAP skills with small groups during center rotations, or consult with classroom staff about embedding social communication or play opportunities into classroom routines. ASAP can be incorporated into a variety of classroom structures and styles, which is essential for school-based interventions. Indeed, many participating educational practitioners reported that they did not have to change their classroom, but rather their mindset within instruction.

Resources

Moving beyond intervention procedures, the ASAP manual contains many resources for practitioners serving in public school programs. In creating the manual, the research team’s goals were to (a) offer resources that support implementation, but allow practitioners to incorporate their respective styles and preferences and (b) provide information to promote understanding of and advocacy for the incorporation of play and social-communication intervention in the classroom.

• Activities. For each goal, the ASAP manual provides suggestions for more than 300 one-to-one and group activities. Activities are repeated across goals to demonstrate how they can be adapted for students at different skill levels. The multidisciplinary ASAP research team, with backgrounds in special education, occupational therapy, and speech-language pathology, developed these activities. In manual revisions, the research team added activities that were created by educational practitioners involved in the ASAP studies. Practitioners used the ASAP activities as launching points to spur their own creativity in intervention planning.

• Center quick glance forms. The ASAP manual provides forms that offer ideas for the broader categories of play (i.e., exploratory, relational, functional, and symbolic) and social-communication (i.e., social interaction, requesting, and joint attention), which can be posted in specific classroom centers. This section was developed based on feedback from educational practitioners implementing ASAP who wanted quick suggestions for how to embed ASAP goals into their everyday classroom activities. With so many practitioners requesting specific ideas and “roadmaps” for intervention activities, these quick glance forms provide guidance during the teachable moments when it is most needed.

• Picture dictionary. The research team created a picture dictionary of the goals, due to the complex nature of the ASAP goal hierarchies and the variability of language used to describe social communication and play. In this dictionary, each skill is pictured in a color photograph alongside a list of written examples, illustrating various ways a child could exhibit that skill. This resource has proven invaluable to practitioners, as they sought to confirm their understanding of the ASAP goals or explain the intervention to others (e.g., parents, administrators).
• Parent handouts. The ASAP research team and educational practitioners both identified the importance of including parents in the intervention, and the challenges of sharing information with families on a regular basis. As a result, the ASAP manual includes a section devoted to communication with parents. Handouts describe the categories of play and social-communication, and highlight the role of each skill in development. Individual pages for each goal offer suggestions for targeting the skills at home, and space to write individualized suggestions for students. Educational practitioners reported using the parent handbook for “homework” over summer break or adapting the information to provide parent trainings.

• Research and educator information. Inspired by the age of evidence-based practice and accountability, the ASAP research team included a research section in the manual, describing the research support for the ASAP content areas, contexts, strategies, and tools. In addition, focus groups suggested providing specific information for educators, including teachers, TAs, related service providers (i.e., SLPs and OTs), and school administrators. These research resources provide important background information related to the ASAP intervention, but also present compelling evidence that can support SLPs as they advocate for services for young children with autism.

Professional Development

In school settings, professionals are often offered one-time training for new skills and techniques to serve their students. However, this form of training is rarely effective in changing professional practice (Cornett & Knight, 2008). Over the phases of this project, the ASAP research team has recognized the importance of having a professional development model that promotes changing practice and increased independence among educational practitioners as they learn to implement ASAP. Currently, the research team provides a 3- to 4-hour initial training, a 1-hour booster training 4-6 weeks later, and ongoing coaching that includes bi-monthly classroom observations and monthly team meetings. The educational teams reported that the coaching was helpful in improving ASAP implementation in the classroom and fostering a sense of accountability that does not happen in one-time training. In addition, preliminary evidence suggests that coaching improves fidelity of ASAP implementation beyond training alone (Wilson, Dykstra, Watson, Boyd, & Crais, submitted). Once the ASAP intervention is disseminated more widely, SLPs are in an ideal position to serve as coaches because of their expertise in social communication and play and the fact that they often work with multiple classrooms, schools, and educational teams.

Conclusions

Through 4 years of development and study, ASAP has evolved into a feasible, socially valid (i.e., accepted as useful and practical by classroom team members and/or producing visible gains to professionals unfamiliar with the study), and promising intervention for preschool classrooms serving children with autism. Currently, the research team is beginning a large, multi-site study of ASAP’s effectiveness in four different states with a variety of classroom types (e.g., inclusive, self-contained autism). In this new study, related service professionals will be included on each educational team and will actively participate in implementation, team meetings, and problem solving.

Although the ASAP research team will continue to hone and assess the ASAP intervention, important points can be gleaned from the completed studies outlined here. The literature and the ASAP preliminary results demonstrate that play and social communication are pivotal skills to target with children with autism and even small amounts of intervention focused in these areas can affect treatment outcomes. Because children benefit from the one-
to-one component, and because some children require one-to-one intervention in addition to
group intervention in order to progress well, the ASAP team argues that focused, individual
intervention on these pivotal skills should be incorporated into education plans for young
children with autism. SLPs are in a unique position to provide such focused intervention in
play and social communication. Because these areas are highly related to language and
communication, they are often easily incorporated into the SLP’s existing target areas and
strategies. Educational practitioners in the ASAP studies reported initial concerns about
support from parents and administrators, or even their own comfort level with play, but found
that ASAP provided the rationale and guidance for incorporating more play-based approaches
into school activities.

In addition, combined research from the ASAP studies suggests that greater team
 collaboration leads to increased opportunities for problem solving and idea sharing among
team members and increased learning opportunities for students. Collaboration among
professionals serving students with autism is important, because of the great variation in skills
and needs profiles and demonstrated benefit of consistent and focused intervention efforts.
School-based SLPs have the advantage of working with multiple educational teams and related
service professionals; however, opportunities for collaboration are often limited by time
constraints. With this research, the ASAP research team hopes to emphasize the importance of
structured educational team collaboration, given its effect on consistency and focus of the
intervention for young students with autism. The ASAP intervention provided structure for
teams to collaborate through weekly check-ins and monthly meetings. We believe this structure
allowed teams to enhance the quality of services they provided to each student.

In summary, the ASAP program is a promising intervention, as embodied in a manual
and developed specifically for public-school settings. SLPs serving young children with autism
in school settings may work within their scope of practice to provide focused individual and
group services in the areas of play and social communication. SLPs may also assist and
collaborate with classroom teams, educating them on the importance of these target areas,
modeling strategies, and advocating for time and resources to focus on these pivotal skills.

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Use of Comic Strip Conversations: Therapeutic Interventions Producing Positive Outcomes for Partially Included Children Who Have Autism Spectrum Disorders

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Abstract

This article presents unpublished data collected by a licensed and credentialed speech-language pathologist in an effort to support additional research regarding the use of comic strip conversations with children on the autism spectrum. Comic Strip Conversations is a booklet developed by Carol Gray in 1994 to illustrate interactions of conversational skills. The data for the study conducted here was collected for a period of 4 weeks with two 8-9-year-old boys who had “autistic like behaviors” as a primary educational disability. Results demonstrated an increase of one student’s eye contact and verbal initiation at recess and a decrease of targeted behaviors (e.g. “disruptive behavior”) with the other student while participating in a small-group language activity.

Introduction

Social dysfunction may be the most evident feature of autism (Rogers, 2000). Students with autism often lack social skills to develop relationships with peers and maintain simple conversations with acquaintances. The American Speech-Language-Hearing Association (ASHA) has provided clinicians, researchers, clients, and caregivers with tools and guidance to engage in evidence-based decision making. The ASHA website has evidence-based maps to assist with diagnostic, treatment, and service delivery options for children on the autism spectrum. These maps highlight the importance of the three components of evidence-based practice (EBP): clinical expertise/expert opinion, external scientific evidence, and client/patient/caregiver perspectives (ASHA, 1995). It is essential for clinicians to provide high quality clinical care to all patients or clients. Using evidence-based therapy techniques, in addition to clinical expertise, is one of the essential components for providing quality care.

There are many evidence-based resources for the assessment of autism spectrum disorders (ASD; ASHA, 2006; Dodd, 2010; Ozonoff, Goodlin-Jones, & Solomon, 2005). However, few resources provide research evidence to support popular techniques that emphasize visualization, such as “Social Stories” or “Comic Strip Conversations.” For example, although there is evidentiary support in the ASHA Evidence-Based Systematic Review (ASHA, 2005) for these interventions (e.g., Reynhout & Carter, 2006 & Sansosti, Powell-Smith, & Kincaid, 2004), the reviewers stress that there is a need for more scientific data collection and these interventions are not yet considered “evidenced based.”
Social language skills are among the many areas of concern verbalized by parents who have children with autism who may be fully or partially mainstreamed. Children with autism benefit from using visual strategies in play groups (Ganz & Flores, 2008)—in addition to priming (“preparing,” “prepping”—and in educational settings (Koegel, Koegel, Frea, & Green-Hopkins, 2003). Visual cues have been found to support social communication requests by children with ASD to join in play with typical peers (Johnston, Nelson, Evans, & Palazolo, 2003). One aspect of engaging in social dialogue or discourse with a peer is the ability to take the other’s cognitive perspective, otherwise known as “theory of mind” or ToM. Children with autism have a demonstrated impairment or delay with acquisition of ToM (Colle, Baron-Cohen, & Hill, 2007; Baron-Cohen, Leslie, & Frith, 1985). They may talk endlessly about a particular topic without realizing the conversation bores, or perhaps annoys, the listener. Visual strategies may be an effective tool to address ToM as well.

Children with ASD have been found to be responsive to various treatment modalities for verbal and non-verbal social interventions (Attwood, 2000; Greenway, 2000). Gray (1995a, 1995b) designed Social Stories and Comic Strip Conversations for children with ASD (Gray, 1994). The former are short stories that describe social situations targeted by the speech-language pathologist or other team members to address communication goals. A social story typically includes a script the student uses to rehearse a targeted or expected behavior (Gray, 1994). Social stories have been shown to reduce the incidence targeted behaviors, such as emotional outbursts and inappropriate sound making (Kuoch & Mirenda, 2003).

Comic strip conversations differ from social stories in that they represent dialogue between two or more children in a social situation and include thought bubbles as a visual strategy to promote perspective awareness. Students are able to illustrate their comic strips for various structured activities (e.g., listening to his/her general education teacher, working in a small group, etc.) and for unstructured settings (e.g., following a conversation during four square, handball, recess activities, P.E., etc.). Previous research (Pierson & Glaeser, 2007) has shown that, in addition to serving as a positive behavioral support strategy, Comic Strip Conversation increase social satisfaction and decrease loneliness in students with ASD (Glaeser, Pierson, & Fritschman, 2003). Teaching students with ASD to use thought bubbles as a part of their comic strip conversation opens the opportunity for them to understand or apply inferencing skills and to make predictions. Kerr and Durkin (2004) found that both children with ASD and typically developing children were able to understand that (a) thought bubbles help us infer unknown information, (b) thought bubbles can be different from person to person, and (c) thoughts can be false or incorrect.

**Method**

**Setting**

The researcher was a licensed speech-language pathologist employed by a large suburban school district in Southern California. The SLP has more than 15 years of experience working with a wide age-range of individuals. The public school campus consisted of regular “general education” classrooms for Grades 3-6 and a special education support staff of an SLP, psychologist, and a resource specialist.

**Participants**

The 2 third-grader boys chosen for this study were receiving special education services including speech-language therapy, resource specialist support, and occupational therapy support. They had active IEPs. The students spent approximately 49% of the school day in a special education setting. Academics were provided primarily in the general education setting. Goals were identified to support their targeted areas of individual need. The students had various behavior goals addressed by different team members, based on their respective roles. Data were continually collected and goals were modified, as needed, based on progress. Based
on a full assessment of the children by a multidisciplinary team of the school district, the boys were determined to have primary disabilities identified as “autistic like behaviors.” Both students also had received a medical diagnosis of autism from their respective physicians. The students had similar long-term goals for improving their functional communication needs in the area of social language. However, short-term goals were quite different based upon each individual’s needs as determined by the SLP. The students’ parents signed consent letters authorizing the boys’ participation in this research.

Student 1 presented with extreme difficulty initiating verbally to peers that he would like to play with them at recess. He frequently walked around the playground and appeared to attempt “parallel play”; however, after a few seconds, he would continue to wander to another group and conduct the same behavior. Student 1 also engaged in verbal stereotypy, which created the illusion he was verbally engaging with others; however, his stereotypy primarily consisted of cartoon or video/computer game prompts. Upon being prompted verbally by his IEP team member, Student 1 would attempt engaging in group activities (e.g. “four square,” catching a soft Frisbee, or ball catching/tossing); however, he rarely verbally initiated to others his intent/wish to play. Student 1 also required verbal cues to use his eyes while initiating language in both a small- and large-group settings. If asked verbally, with no visual reference to support the question, how he thought other students perceived his lack of verbal initiation to play, he typically replied, “I don’t know."

Student 2 presented with targeted behaviors that could be described as “tantrums” in both the general education classroom and in all special educational settings. Student 2 was able to engage in communication in a reciprocal manner and was eager to please fellow students. However, he frequently viewed all activities as a “win or lose” situation, whether it was a spelling test, math assignment, or language activity in the speech-language therapy classroom. Student 2 had extreme difficulty with self-regulation and perception of others based upon his verbal or non-verbal behaviors. Student 2 also performed self-stimulatory behaviors with his hands/fingers in addition to verbal stereotypy with noises. If asked what others thought about his explosive behavior without any visual reference, he often replied, “I don’t care.”

Materials

In the speech language pathology classroom, a pre-made comic strip was introduced to each participant in an individual setting. The paper was 8½” by 11” computer paper. Both students had previously used paints on canvas to promote their perception of themselves; thus, they both felt comfortable with the introduction of the comic strip process. The students used number 2 pencils for drawing their comic strips.

Procedure

While it’s important for students to take the lead during comic strip creations, the SLP provides ideas for them to expand upon in their area of greatest need. To address each student’s goals, specific symbols were chosen from the Comic Strip Symbols Dictionary (Gray, 1994). For verbal initiation for Student 1, the “Talk,” “Listen,” and “Thought” symbols were used primarily. Student 2 used Talk, Listen, “Interrupt,” “Loud Words,” and “Thoughts.” Student 2 also benefited from using Conversation Colors (Gray, 1994). Student 2 self-initiated the use of red for anger and black for violence.

Both students were encouraged to draw comic strips that reflected their verbal communication intentions. Then, they were both encouraged to draw thought bubbles over their peers’ heads to indicate what they thought the listener was thinking. Student 1 focused on his verbal initiations during recess, while Student 2 focused his need to verbally ask for a break if he felt overwhelmed. The comic strip conversations were typically drawn and reviewed in an individual therapy session at the beginning of the week. This strategy was used to ensure
privacy from peer scrutiny. Both students were able to script and dialogue with ease in a quiet setting within a 30-minute time period.

Midweek, the students were observed in the setting in which their respective targeted goals were set, to see if they were able to use the comic strip. At the end of the week, the comic strip was again reviewed by both the student and the SLP, privately, to determine if anything should be changed to promote a desired outcome for the upcoming week.

**Results**

Qualitative data were taken throughout the 4-week period of this study. Using Comic Strip Conversations, both students showed improvement with a targeted social skill goal outlined in their Individualized Educational Programs.

**Student 1, 8-year-old White Male**

One of Student 1’s targeted goals before verbally initiating a request to play with a friend at recess was to gain joint attention via eye contact. This goal has been a focus for this particular student for many years. To better illustrate body positioning and eye-to-eye contact with age and grade equivalent peers, his Comic Strip Conversations were drawn in a lateral view. Student 1 was able to indicate the stick figures in his initial Comic Strip could not give “good eye contact because they were standing next to each other.” This particular feedback showed this child’s perception of his spatial awareness of his body standing next to a peer. While Student 1 was able to provide immediate eye contact upon approaching a peer, his eye contact was sustained. The Comic Strip Conversation was an excellent way for Student 1 to recall this as the first step in a series of his initiating a conversation/making a request.

Student 1 continued to write the same script for his Comic Strip in his speech bubble/symbol: “Do you want to play with me?” and a typical peer response of “Sure.”

Over the course of the 4-week trial, he was encouraged to use alternative verbal requests with a longer mean length of utterance such as, “Do you want to hang out?,” “Do you want to play four square with me?,” and “Do you want to play tag with me?”. This also helped him appear age appropriate for semantics (e.g., “hang out” vs. “play”) and less robotic with his prosody due to memorizing the script verbatim.

Student 1 also needed individual time for scripting speech bubbles as a “listener.” This is one area where significant social skill improvement was demonstrated. He became focused on the second box of a Comic Strip series to show “big ears” listening to his peer. He frequently had a delayed response time to a question; however, he was usually successful in providing a verbal response within 5-8 seconds. Student 1’s typical peer became aware of this response lag time and became a “patient waiter.”

By the 4th week, Student 1 was more consistent in gaining eye contact and asking a typical peer to play with him at recess. Both goals were met with 80% accuracy per data collection. However, due to his inattentiveness, he continues to need reinforcement (e.g., review of the comic strip daily, weekly, or as needed) to promote continued use of his social goals for long-term consistency and carryover to alternative settings. When asked what his friend may be thinking about while Student 1 was asking to play four squares, Student 1’s response changed from his usual “I don’t know” to a thought bubble indicating, “He is a nice friend.” Based on this use of thought bubbles on a regular basis during comic strip sessions, one can infer that Student 1 was attentive to the fact his peer/friend had thoughts about him.

**Student 2, 9-year-old Hispanic Male**

Student 2 had many disruptive behaviors associated with his autism, which created turmoil among peers in all settings during the day, in addition to his home life. There was an extreme need for “sameness” and “routine.” Like many others on the spectrum, he desired
everything to be “fair” and “just” in the world, especially when it came to tasks or activities where there was a potential for winning. In most language therapy tasks, regardless of the goals, an activity/game is frequently played just like in everyday activities at home or in recreational interests/hobbies. If he felt there was a chance of his losing or he was unable to handle the anxiety produced by a classroom activity, he might react with anger and/or rage. At the time, Student 2 was coping with his parents’ recent divorce and an adjustment to medication prescribed by his pediatrician.

Student 2 flourished with the Comic Strip Conversations. He was able to show dialogue with others and used the color red to show his level of frustration and anger. On two occasions, he used the color black to indicate he was so angry he wanted to throw an object or hit a fellow classmate. Student 2 also demonstrated perspective awareness with how others viewed him and his emotional outbursts with the use of thought bubbles in addition to comment bubbles. He genuinely wanted others to like him and be his friends; however, self-regulation, in particular, and perception awareness presented challenges. During the 4-week experimental process, he tried his best to use the Comic Strip Conversations he scripted to stay on task during group therapy sessions. Comic Strip Conversations included other students’ thoughts and comments about why Student 2 reacted in a dramatic manner. These included, “He is crazy,” “He is a sore loser,” and “He didn’t get a turn.” As Student 2 continued to draw his comic strip conversations, he could verbalize his feelings of injustice and unfairness in the classroom (both special education and general education). It took 8 sessions for him to begin writing the words indicating he was “okay with losing a turn” and “we’re here to have fun with friends.”

Over the 4-week period of this experiment, Student 2 demonstrated tremendous growth, as he was able to “carry over” his conversation skill set from individual sessions to small groups for 30-minute intervals. Typical third grade peers (no more than 4 including student 2) were able to join the language activities with Student 2 in the speech pathology classroom. He was able to successfully apply his comic strip conversations during game activities. He felt proud of behavior as he sketched himself as a part of a team. While there was an immediate significant decrease of target behaviors in this small group, there was limited carry over to larger settings such as the general education classroom and recess. Student 2 quickly became over stimulated and very anxious in larger settings with resultant violent behavior. A few weeks after this study was completed, Student 2 was moved to an alternative classroom, which had fewer students and he also received additional support for his emotional and behavioral needs.

Overview of Results

The speech-language pathologist was able to analyze the student’s goals for use of Comic Strip Conversations during the four-week trial period. Both students were able to utilize this visual strategy to promote progress and achievement of their respective goals. This strategy was able to promote communication intent with conversational turns in addition to promoting alternative scripts when one became overused. In a small group setting, both students showed promising results with being engaged with peers. The comic strips allowed a visual representation of thought bubbles to promote the concept of inference for perspective taking.

Discussion

Comic Strip Conversations were shown to be an effective tool/strategy for both these students on the autism spectrum. Both third grade boys used visual cues to their advantage for social communication, in addition to understanding spatial body awareness (e.g. eye contact, body positioning, etc.), and thoughts of others. The two students were able to draw thought bubbles which helped them understand what “others may be thinking”. The strong desire to have friends proved to reinforce the second student’s ComicStrip Conversations.
during game activities in a small group setting. There was a significant change with target behaviors in addition to his flexibility with losing a game and the overall concept of “fairness”. The primary limitation to this research was the quantity of students in the study. As mentioned earlier, there is limited evidence-based research for Comic Strip Conversations. With promising results from prior studies, including this one, it is hopeful that future research with Comic Strip Conversations will continue. Comic Strip Conversations have been a useful tool for children with autism spectrum disorders. They promote visual awareness of conversations, settings, emotions, and thoughts. These are essential for ASD children, especially in the area of perception awareness. As theory of mind skills develop in children with autism, specialists can see changes of behavior from “unexpected” toward “peer approved behavior”. As a part of providing quality care to our community, further research of comic strip conversations with other special education students who demonstrate weakness with perception awareness would be beneficial. Additional research containing scientific data collection of comic strip conversations in a large group setting (containing both students with autism and typical developing students) will eventually support this visual strategy as evidence-based.

References


