Children with Autism Spectrum Disorders: Three Case Studies

Speech-language pathologists play a critical role in screening, assessing, diagnosing, and treating the language and social communication disorders of individuals with autism spectrum disorders (ASD). People with ASD use a variety of communication modes including speech, facial expressions, conventional gestures (e.g., pointing), unconventional signals (e.g., hand-flapping), vocalizations, picture symbols, and assistive technology (e.g., speech-generating devices). SLPs have an opportunity to use their clients' strengths to help determine the most effective communication modes. Because a wide range of communication approaches is used—often in combination—clinical decisions about unaided and aided augmentative and alternative communication (AAC) techniques should be made on an individual basis using the principles of evidence-based practice (i.e., the quality and relevance of available evidence, clinical expertise, and the perspective of the client and the client's family). Given the variability of symptoms and deficits in ASD and an individual's changing needs related to communication, it is important for clinicians to explore many AAC options. ASHA's Guidelines for Speech-Language Pathologists in Diagnosis, Assessment, and Treatment of Autism Spectrum Disorders Across the Life Span provides information related to assessment and intervention including a focus on AAC. The guidelines recognize that AAC choices must be based upon an individual's needs, including learning strengths and weaknesses, level of social communication skills, and motor abilities. These guidelines and other ASHA policy documents are now a part of a continuing education program (see sidebar below). These policy documents can help clinicians navigate the case studies presented below and assist with their own decisions about assessment and intervention tools and strategies. The following case studies present three different children with ASD and describe the SLP's strategies to enhance communication and quality of life. The three case studies demonstrate various options in AAC intervention that can be used by children of different ages.

—Ann-Mari Pierotti, MS, CCC-SLP

Anderson: Excitement and Joy Through Pictures and Speech
by Sylvia Diehl

Anderson is a 3-year-old boy with ASD who was referred to a university speech and hearing center by a local school district. He attended a morning preschool at the university center for one year in addition to his school placement.

History
Birth and Development
Anderson was a full-term baby delivered with no complications. Anderson's mother reported that as a baby and toddler, he was healthy and his motor development was within normal limits for the major milestones of sitting, standing, and walking. At age 3 he was described as low tone with awkward motor skills and inconsistent imitation skills. His communication development was delayed; he began using vocalizations at 3 months of age but had developed no words by 3 years.

Communication Profile at Baseline
Anderson communicated through nonverbal means and used communication solely for behavioral regulation. He communicated requests primarily by reaching for the communication partner's hand and placing it on the desired object. When cued, he used an approximation of the "more" sign when grabbing the hand along with a verbal production of /m/.
He knew about 10 approximate signs when asked to label, but these were not used in a communicative fashion. Protests were demonstrated most often through pushing hands. Anderson played functionally with
toys when seated and used eye gaze appropriately during cause-and-effect play, but otherwise eye gaze was absent. He often appeared to be non-engaged and responded inconsistently to his name.

**Assessment**

The Communication Symbolic and Behavior Scales Developmental Profile (CSBS DP; Wetherby & Prizant, 1993) was used to determine communicative competence. This norm-referenced instrument for children 6–24 months old is characterized by outstanding psychometric data (i.e., sensitivity=89.4%–94.4%; specificity=89.4%). Although Anderson was 36 months old, this tool was chosen because it provides salient information about social communication development for children from 6 months to 6 years old.

**Intervention**

Anderson's team and family members developed communication goals that included spontaneously using a consistent communication system for a variety of communicative functions and initiating and responding to bids for joint attention. Research suggests that joint attention is essential to the development of social, cognitive, and verbal abilities (Mundy & Neal, 2001).

Because Anderson could not meet his needs through verbal communication, AAC was considered. He had been taught some signs but did not use them communicatively. More importantly, his motor imitation skills were so poor that it was difficult to differentiate his signs. His communication partners would need to learn not only standard signs, but Anderson's idiosyncratic signs. Therefore, the Picture Exchange Communication System (PECS; Bondy & Frost, 1994) was chosen to provide him with a consistent communication system. Additionally, a visual schedule was used at home and school to aid in transitions and to increase his symbolization.

Incidental teaching methods including choices and incomplete activities were embedded in home and preschool routines. In addition, a variety of joint activity routines (e.g., singing and moving to "Ring Around the Rosie" or "Row Your Boat" while holding hands) that were socially pleasing to Anderson were identified. These were infused throughout his day in various settings and with various people. Picture representations of these play routines also were represented in his PECS book.

**Research**

Several evidence-based strategies were chosen to support intervention, including PECS (Carr & Felce, 2007; Ganz & Simpson, 2004; Temple, 2007), visual supports (Bryan & Gast 2000; Krantz, MacDuff, & McClannahan, 1993), and incidental teaching (Cowan & Allen, 2007; Miranda-Linne & Melin, 1992).

**Outcomes**

By the end of the year, a video taken at preschool showed that Anderson was spontaneously using PECS for requests and protests. He was using speech along with his PECS requests in the "I want" format. He also used speech alone for one-word requests and for automatic routines such as counting or "ready, set, go." He shared excitement and joy in several joint activity routines with various people and referred to their facial expressions for approval and reassurance.

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**Tait: Communicating Emotions**

*by Jane Wegner*

Tait is a 12-year-old boy who was diagnosed with ASD at age 2. Tait is generally healthy although he has recently been diagnosed with rheumatoid arthritis and is sensitive to pain. He has difficulty with small spaces and "bottlenecks" where many people are congregated. Tait participates in special education at a local elementary school. His strengths include being curious, social, and visually astute. His challenges include communication, impulsivity, and behavior that may include tantrums, aggression, and property destruction. These challenges have made it difficult for Tait to participate in activities with peers.

**Communication Profile**

Tait has a positive-behavior support team and receives speech-language intervention at the Schiefelbusch Speech-Language-Hearing Clinic. He is a multimodal communicator whose verbal communication is not
understood by most people. He uses a Palm 3 (Dynavox Technologies), pictures, idiosyncratic signs, gestures, and some words to communicate.

Assessment
Tait's communication was assessed with the SCERTS® Assessment Process (SAP; Prizant, Wetherby, Rubin, Laurent, & Rydell, 2006) in spring 2007. As a criterion-referenced, curriculum-based tool, the SAP determines a child's profile of strengths and needs based on his or her developmental stage in the domains of social communication and emotional regulation. Tait was in the Language Partner stage of communication. We collected data in three contexts: school, home, and an intervention session in the Schiefelbusch clinic.

Social Communication
Tait's strengths in the area of social communication included engaging in reciprocal interactions, sharing attention to regulate the behavior of others, and using several modes of communication. His needs in social communication included sharing a range of emotions with symbols and sharing intentions for joint attention by commenting on objects, actions, events, or requesting information across partners and contexts.

Emotional Regulation
Tait's emotional regulation strengths included responding to assistance from a familiar partner that he trusted, recovering from extreme dysregulation with support from a familiar partner, and using a behavior strategy (holding a block of wood) to remain focused and calm in some familiar environments. His needs in the area of emotional regulation were seeking assistance with emotional regulation from others, responding to assistance across contexts, and responding to the use of language strategies across environments.

Transactional Support
Transactional support was strong in some areas. For example, all of Tait's partners wanted him to learn and communicate more conventionally and he had consistent, responsive communication partners at home. Tait needed the same responsive style across all partners and the consistent use of visual and organizational supports as well as his AAC system to enhance learning and comprehension of language and behavior.

Intervention
Goals included:
- Increased use of emotion words on the AAC device.
- Commenting on objects, actions, or events.
- Choosing what he needs to calm himself from choices offered (from an adaptation of the 5-point scale by Buron and Curtis, 2003).

Transactional goals included:
- Using augmented input (Romski & Sevcik, 2003) with redirection, expansion, and modeling by Tait's partners.
- Providing a binder with a schedule and social stories (Gray, 1995) for preparation for activities.
- Making an AAC device always available and using an interactive diary developed by his mother.

These supports were implemented in activities of interest to Tait such as holidays, his life in photo albums, tools, and events at home.

Outcomes
In the past two years, Tait has made many communication gains. His AAC device has more than 200 pages of icons, which he accesses independently to express feelings. He has told us when he is angry, happy, sad, frustrated, and sick, and he engages in reciprocal exchanges, commenting on the shared object or event of interest. He has started to mark tense when he comments by using the "later" and "past" icons on his device to clarify his message. He is able to indicate to his partner what he needs to calm himself when choices are offered. In addition, he has more communication partners who are responsive and able to provide him with the learning supports he needs.

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Sam: From Gestures to Symbols
by Emily Rubin

Sam is a 16-year-old young man with ASD and significant cognitive delays. As part of professional development training for his educational team, this speech-language pathology consultant followed him for 12 months. Sam now attends a public school special day class that offers frequent instruction in varied settings to foster independence in the community.

History
Birth and Development
Sam was born six weeks premature following his mother's hospitalization for pre-term labor. His birth history was significant for low birth weight (2 lbs., 10 oz), respiratory distress, intraventricular hemorrhage, and a neonatal hospital stay of six weeks. He began receiving intervention services at 12 months of age to address speech, language, social-emotional, and cognitive delays. To date, evaluations yield developmental age equivalents up to the 24-month level. Since birth, Sam's history is unremarkable for significant medical concerns and he is in good health. He has passed hearing screenings and wears corrective glasses.

Communication Profile at Baseline
At 14 years, 8 months of age, Sam spontaneously shared his intentions through nonverbal means, which included facial expressions (e.g., looking toward staff to request a snack), physical gestures (e.g., pulling his teacher's hands to his head to request a head massage), and more conventional gestures (e.g., pointing to request and a head shake to reject). He also used unconventional nonverbal signals that included biting his hand to share positive and negative emotions and pinching to protest. Sam occasionally used a few verbal word approximations (e.g., "no," "yes," "more," and "balloon"), the sign for "help," and picture symbols on a voice output device. However, he typically used these symbols passively, most often in response to a direct verbal prompt from his social partner (e.g., "Do you want more?").

Assessment
At baseline, the SAP was administered to gather information about functional abilities in daily activities through observation and a comprehensive caregiver questionnaire. Given his baseline presentation, the SAP placed him at the Social Partner Stage, a stage that is relevant for individuals using pre-symbolic communication. With this profile, functional educational goals based upon parent priorities and evidence-based supports were determined.

Research
The SAP was derived from longitudinal descriptive group research. It enables providers to select educational objectives that are predictive of gains in language acquisition and social adaptive functioning (Prizant et al., 2005). Sam's educational team selected objectives shown to predict an individual's symbolic growth, such as increasing his rate of spontaneous communication and his range of communicative functions. The team worked to move him beyond requesting objects to requesting specific people and actions. The SAP also facilitated the selection of evidence-based supports such as AAC when developing educational accommodations to address these objectives.

Intervention
Sam's Individualized Education Program objectives shifted from those for passive responses (e.g., responding to questions such as "Where did you go?") to initiating communication using AAC (e.g., requesting help or other actions, expressing emotions, and making choices of coping strategies). Throughout the day, Sam accessed an emotion necklace of laminated cards. On the front of each card was a graphic symbol representing an emotional state (e.g., happy, angry, and sad). On the back were symbols representing words Sam could use to request actions from others (e.g., "high five" for happy). This support fostered symbolic requests for communicative functions that Sam already exhibited spontaneously using nonverbal means at baseline (e.g., expressing emotion by biting his hand and looking toward staff).

During language art centers, Sam engaged in activities designed to elicit more sophisticated requests for preferred actions. Rather than identifying pictures, he could choose a preferred sensory activity, such as a head massage, a back rub, or tickling. Color-coded symbols paired with sentence templates allowed Sam to create his own sentences for functions already exhibited spontaneously using nonverbal means at baseline (e.g., requesting comfort by pulling his teacher's hands toward his head).
Outcomes
Sam's first quarterly review occurred around his 15th birthday. Observations and videos revealed a higher rate of spontaneous bids for communication and the emergence of symbols to express emotion (e.g., "happy" and "mad"), request coping strategies (e.g., "head squeezes" and "high fives"), and form simple sentence structures (e.g., "Jim squeeze head" and "Karen rub back"). By six months post-intervention, Sam began to take turns, requesting interaction using subject + verb sentences and then responding to interaction. His teacher might request that "Sam rub back" and Sam would oblige. At 12 months post-intervention, Sam continues to expand his symbolic language skills and recently began to generalize his sentences to include names of his peers.

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