This discussion highlights strategies for addressing some of the common challenges that educators may experience when working with young students with autism spectrum disorders (ASD) in general education and inclusion classes. These strategies have particular applicability to the early elementary school grades (K-2). The practices were culled from the evidence-based literature, as well as from the diverse clinical experiences of the authors, all of whom have worked with young children with autism spectrum disorders. Most of the described strategies are currently used in the ASD Nest Program, an inclusion program serving children with autism spectrum disorders starting at the kindergarten level. The Nest Program is currently in operation in 15 elementary schools within the New York City public school system. The first three authors provide Nest training and technical assistance; the fourth author has extensive international experience with young children with autism.

In December 2009, the U.S. Centers for Disease Control and Prevention (CDC) indicated that the latest data supported a prevalence rate of approximately 1% (1 in 110) for children with autism spectrum disorders, reflecting a substantial increase from the rate of 1 in 150 reported just a few years earlier (CDC, December 18, 2009). This rise is just the latest in a series of reported increases in prevalence rates; the upsurge has direct implications for teachers and other school-based service providers.

It would be difficult today to find a classroom within a public school system that did not include children with special education needs, reflecting a long period of federal and other sources of support for inclusion of children with disabilities. In some of those classes, such students may be children diagnosed with an autism spectrum disorder, sometimes with an individualized education program (IEP) and sometimes without one. Many children with ASD, particularly those who are in inclusion programs, do not meet the stereotype of individuals with autism spectrum disorders, who are often depicted as having limited verbal communication and cognitive development, along with extremely unusual behavior. The autism spectrum includes a very diverse population of children, some of whom are gifted academically, and others who may display special talents in selected areas.

The diverse nature of this population and the core characteristics of autism spectrum disorders often pose unique challenges to general education teachers who have students with ASD in their classrooms, and so many teachers feel unprepared and unable to meet the needs of these students. There are, however, evidence-based strategies used in special education and inclusion programs serving such students that can be quite useful for general education teachers in mainstream or inclusion classrooms. Implementation of such strategies makes the school experience more successful for everyone.

Varying definitions of “evidence-based” practice exist in education and related intervention literature, and a consensus has not yet been achieved on how best to define this concept. The literature represents positions ranging from recognizing only a very narrow slice of systematic research to combining research data with clinical practice and family values (Buysse, Wesley, Snyder, & Winton, 2006; continued on page 2...
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Dollaghan, 2007; Dunst, 2009; Reichow, Volkmar, & Cicchetti, 2008; Twachtman-Cullen, 2009). For this discussion, the definition used reflects the view that evidence-based practice is founded on the best research about intervention currently available, and is informed or supplemented by clinical expertise.

**Some Common Challenges in Teaching Young Children with Autism Spectrum Disorders**

The challenges discussed below are not characteristic of all children with ASD. While the diagnostic features of autism—marked impairment in social interaction and communication skills, and restricted, repetitive, and stereotyped patterns of behavior, interests, and activities (American Psychiatric Association, 2000)—have received much attention in recent years, some of the associated features have not.

The challenges to be described are characteristics commonly associated with autism spectrum disorders; these characteristics often strongly impact the functioning of students with ASD in inclusion settings and include:

- Fear of new situations and change: “I don’t want to do that.”
- Inflexibility: “That’s not the way you’re supposed to do it.”
- Slow processing and responding: “I’m not finished.”
- Sensory overload: “It hurts my ears.”
- Limited understanding of social expectations: (Teacher) “You’re sitting too close to John; it’s making him unhappy. Give him more space.”

These behaviors are common examples of what teachers may see and hear when they work with students with autism spectrum disorders. What teachers often do not recognize, however, is the underlying confusion and anxiety that may be experienced by these young children. This feeling of fear even affects those children who speak in a facile manner, masking their perception of the environment as an ever-changing world of inexplicable events, people, and expectations. This is particularly true of children in the early school years, when they move from in-home programs or small preschool classes to the much larger world of elementary schools and to classrooms with many more children and rules.

**Addressing the Challenges**

The described strategies have been used in ASD Nest classes in early elementary school grades in 15 schools within the New York City public school system. The ASD Nest is an inclusion program designed to serve students with ASD who, with supports and modifications aligned with their special needs, can meet district grade standards. Preliminary Nest Program data provide evidence of effectiveness in addressing parental concerns with successful social, behavioral, and academic outcomes (Koenig, Bleiweiss, Brennan, Cohen, & Siegel, 2009).

**Fear of New Situations and Changes**

“Change is one of the most frequent sources of distress for students with ASD, often resulting in intense displays of negative emotion or behaviors . . .” (Gray, 2010, p. 42).

Matthew is a bright child with an autism spectrum disorder. At the beginning of his preschool experience in a group with 12 other children, Matthew had had occasional “meltdowns”—periods when he appeared unable to cope with situations and cried incoherently, refused to engage in any other activities, and withdrew.
into “hiding places.” However, these episodes decreased in frequency and intensity after Matthew became familiar with the preschool classroom and activities, and the episodes virtually disappeared a few weeks after. Matthew liked going to his preschool program and was generally happy there. After he turned 5 years old, Matthew entered a public school kindergarten class. He now had a new teacher and assistant, 20 new classmates, a new physical environment, and new rules to follow. Every day, Matthew came home from school upset; he also had frequent meltdowns in school. A meeting between his mother and teacher did not lead to a plan to improve the situation. After more than six weeks of witnessing her son’s daily unhappiness, stress, and reluctance to go to school, Matthew’s mother decided that she needed to move Matthew to a special education (non-public) school. Sadly, an opportunity for inclusion was lost. What could have been done to reduce Matthew’s meltdowns and general state of unhappiness and stress in school? Had his teacher recognized the confusion and fear created in Matthew by new situations and changes, she could have used preventive measures.

**Strategy:**

**Priming the Child for School Experiences**

Priming, a strategy with a strong research base, is widely used in programs serving students with ASD and is a way of preparing a child for new experiences. Priming prepares children for unexpected changes by exposure to elements of these potential challenges, but rehearsed in relaxed conditions. Priming can be a powerful tool for helping children with ASD cope more effectively with various stressors encountered in school (Koegel, Koegel, Frey, & Green-Hopkins, 2003). Matthew could have been primed for his kindergarten experience if he had been given the chance to meet the teachers prior to the addition of other students. He could have become somewhat familiar with the physical environment and examined the play materials in the room, choosing some to use either by himself or with a teacher, and leaving with a borrowed item he appeared to like. Matthew also could have begun kindergarten with a shortened day so that he would not have had to adjust to over five hours of new experiences all at once.

Once in the class, Matthew could have been primed each time a new activity or routine was introduced to the group. This might have involved having a staff member provide Matthew with an opportunity to become familiar with the new experience or procedure individually; the priming takes place before the whole class is expected to participate. Depending on the nature of the experience, Matthew could have previewed new materials, observed the teacher model a new procedure, role-played a change in a routine, or participated with the teacher in writing a brief story about a change that would take place soon. These relatively simple priming strategies can be tremendously beneficial for easing some of the difficulties facing many young children with ASDs, particularly early on in the school year.

**Strategy:**

**Creating an Understandable Environment**

It is often much easier for a child with ASD to understand what he should do when the areas are clearly demarcated and the planned activities are clearly described in advance. Confusion and anxiety reign for children with ASD when the physical arrangement of the room changes frequently, when the room is cluttered, when routines are not well-delineated and practiced, and when children do not know what will come next. While this is true for all young children, it matters much more when a child has an autism spectrum disorder.

Daily class schedules, whether using pictures or written words, or a combination of the two, can help organize the life space of the student with ASD (Mesibov & Shea, 2008). By enhancing predictability about upcoming events and activities, schedules reduce the anxiety and distress often associated with uncertainty about what is going to happen next and when other activities will occur. While daily class schedules are used in many early childhood classes, the daily schedule may only be referred to once at the beginning of the morning and then ignored for the rest of the day. For children with autism spectrum disorders, it is often helpful to present the daily schedule in smaller chunks (such as a morning schedule of activities) and, later in the day, present the afternoon schedule, with the schedule being kept readily available for children to inspect, and/or revisiting the schedule at the end of each activity. In addition, some children with ASD may benefit from an individual schedule that they can keep with them (Mesibov, Browder, & Kirkland, 2002). Such a schedule reflects individual variations (e.g., a session with a speech or occupational therapist). Other visual organizers (e.g., visual timers and picture-word signs illustrating the sequence of steps for carrying out a task) also may help support the functioning of young children with ASD. The organizers can be useful to other students as well.

**Reducing Inflexibility**

“Flexibility of thinking is a highly important ability that is often—to the detriment of the child—omitted as a teachable skill on a child’s IEP . . . . Parents and teachers need to give it more attention” (Grandin & Barron, 2005, p. 123).

“Everything changes,” said David, a 6-year-old boy as he questioned me about what 1 (“Ms. Cohen”) was doing in his classroom when it was not my day to be there. David’s words continued on page 4 . . .


reflected his unhappiness at the complexity of his life and the unease he experienced in reaction to changes in his familiar schedules and routines. He clearly wanted everything to stay the same, and he wanted me to go away and come back on the day when he expected me to be there.

Children with ASD often have a strong need for sameness. Inflexibility or rigidity is a reflection of individuals who are trying to make sense of their worlds and reduce the anxiety they experience, often on a daily basis. Rigidity is one of the most impeding characteristics of children with ASD. It frequently leads to tantrums and meltdowns that put stress on teachers and parents. Lessening the grip of this characteristic can lead to a major improvement in the functioning of children with autism spectrum disorders.

**Strategy:**

**How Else Can We Do That?**

Once students are comfortable with the classroom and their teachers, a way to work on the goal of helping them become more flexible is to make it a practice to teach more than one way of doing tasks and solving problems. “How else could we do this?” and “Let’s find another way to do that” could become useful mantras to be included in many learning experiences for the benefit of all students. A teacher might comment, “Sometimes we will do it this way and sometimes we do it that way,” or state, “It’s good to be able to do things in different ways.” Other versions of this idea might include creating variants of a familiar game or new ways of using materials, or funny word games, such as “Unexpected Labels” (Gutstein & Sheely, 2002, p. 47), in which common objects are given different names. Such activities are introduced cautiously, with children being primed for them. For particularly inflexible children, provide the option of just watching and listening at first or being given the role of supplying the correct name after a made-up name has been created. “Yes, David, that is really a hat, but we are playing a game now; we are making up new names for fun. Do you want to make up a new name for the doll’s shoe, just for fun?”

It is also important to avoid reinforcing the inflexibility of children with ASD and recognize when you are in danger of doing so. The daily class schedule could contribute to such rigidity, which is why we recommend introducing the concept of a surprise activity into the schedule on varying days and times, once or twice a week. At first, the surprise activity should always be something the children particularly enjoy; later, it can be an activity that is regularly in their schedule but is varied slightly. The children also should be primed for changes in the schedule that are likely to be challenging (e.g., a fire drill or assembly program).

**DEALING WITH CHILDREN’S DELAYED RESPONDING**

It is not uncommon for a teacher to conclude that a child with ASD was not paying attention or did not grasp a concept. For example, after having just introduced material, the teacher asks a question and does not receive a response. The teacher may then go on to another child or topic, only to have the first child answer her question a minute or so later. David was one such child. His kindergarten teacher had taught the concepts of “before” and “after” in relation to the days of the week, using a chart that listed the days vertically. David kept staring at the chart after the teacher ended the lesson and directed the children to another activity. A few seconds later he called out the correct days before and after the current day and explained his response by saying, “Up is before and down is after.” David was problem solving in his own way, looking for a strategy or rule that fit this new learning experience, but he needed some extra time to process what he was asked to do and figure out a way of doing it.

**Strategy:**

**Recognizing and Meeting the Need for Extra Processing Time**

The first step in helping a child who sometimes needs more time to process what is expected and formulate a response is to recognize the need for extra time. This need is fairly common in children with ASD; this need has to be addressed without damage to the child as a member of the group. Teachers can devise several ways to do this.

Priming is a useful strategy for this purpose, with the child being called on during group instructional activities only after he has had an earlier opportunity on an individual basis to become familiar with the content and/or process involved in answering the question. Another useful strategy is to alert the child to a question he will be asked to answer later, and to direct him to think about it until he is ready to answer. When he is ready to answer, he indicates so and then is called on.

A third strategy is to note how much extra time a child usually needs to respond appropriately to different types of questions; adequate time is provided if it does not significantly interfere with the group. In most instances, only a few additional seconds of extra processing time are needed. In some classrooms, the teacher and child can share this need for extra processing time with the other students; peers will be asked to cooperate by giving the child extra quiet time to think through responses.

When a child needs more time than is feasible to provide in a group activity, she can be provided alternatives. For example, she can answer the question later, choose a classmate

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to answer the question, or answer a different question. Once the teacher knows the child well, she can thoughtfully select the types of questions that she is unlikely to need much, if any, extra time to answer.

**Reducing Sensory Overload**

“When the senses are distorted, the child’s true potential will never be discovered. He’ll always be seen as incapable, when in fact, he’s just expending all his energy trying to deal with the invasive world around him” (Grandin, 2008, p. 91).

Unusual response to sensory stimuli, such as oversensitivity to sounds or to being touched and exaggerated reactions to light, are associated features of autistic disorder (American Psychiatric Association, 2000). Reflections of such responses can be seen when, in noisy settings, children cover their ears as if in pain, often close their eyes or squint in rooms with bright or fluorescent lighting, and become upset when touched even lightly. A recent meta-analysis of studies on sensory modulation symptoms in individuals with ASD found a significant difference between ASD and typical comparison groups, with the presence of sensory symptoms higher in the group with autism spectrum disorders. The largest difference in total symptoms and in over-responsivity, in particular, was found in studies including children ages 6 to 9 years of age (Ben-Sasson et al., 2009).

**Strategy:**

**Reducing High Levels of Stimuli Likely To Produce Sensory Overload**

Teachers can help such children by recognizing that stress, avoidance, and interfering behavior may be triggered by high levels of noise, by a highly stimulating visual environment, and by certain tactile experiences. The first step to pursue in preventing sensory overload is to examine the classroom and other environments that the children are exposed to throughout their school day. In this way, teachers can identify and modify unnecessary intense sensory stimuli. Classroom adaptations include: shutting off some of the fluorescent overhead lighting, closing the blinds on sunny days, and modulating children’s and teachers’ voices. Additionally, leaving adequate space around the child with tactile hypersensitivity reduces the chance the child will be jostled. Occupational therapists can recommend additional accommodations for students with tactile hypersensitivity. The Incredible 5-Point Scale (Buron & Curtis, 2003) presents a useful visual tool for teaching voice modulation and maintenance of voice levels. For some children, it is useful to have earphones readily accessible when noise levels become unbearable or interfere with concentration. Additionally, creating a quiet, set-off area, to which a child can withdraw for a short period of time when becoming overwhelmed, may significantly reduce interfering behaviors, such as meltdowns.

**Improving Social Understanding and Social Skills**

Typically developing children usually acquire an understanding of social expectations with a minimum of direct instruction in school; they intuit such unwritten rules from the behavior of adults, older siblings, and peers whom they observe. The opposite is true of most children with ASD, who may require explicit instruction to acquire an understanding of socially appropriate behavior in different situations. They may, for example, not understand when and how to appropriately greet other children, familiar adults, and adults they do not know. Other common difficulties include: not knowing what amount of physical closeness or distancing is appropriate when interacting with different people in different settings and situations, not knowing how to make play bids that other children will recognize as such, and not knowing how to appropriately engage in turn-taking and co-operative play. Some students may not understand when or why a teacher is upset with them. One contributing factor for the delay in acquiring socially expected behavior is that children with ASD often have difficulty “reading” such non-verbal communications as facial expressions, tone of voice, and gestures. This, in turn, can affect desirable outcomes, such as the development of friendships. In a meta-analysis of school-based social skills interventions for children with ASD, Bellini, Peters, Benner, and Hopf (2007) found that, overall, such interventions had fairly low levels of effectiveness; however, interventions implemented in the child’s classroom had significantly better effects than interventions taking place outside the classroom. These data highlight the important role that classroom experiences can play in improving the social skills of children with ASD.

A number of curriculum manuals have been published in recent years focusing on teaching children with ASD socially appropriate behavior (e.g., Baker, 2003; Bellini, 2006; Gray, 2000; Myles, Trautman, & Schelvan, 2004). These manuals
use different approaches and strategies to meet their goals. Social Stories™, a particular type of social narrative created by Carol Gray (Gray, 2000), demonstrates a consistent evidence-based strategy (Delano & Snell, 2006; Quirmbach, Lincoln, Feinberg-Gizzo, Ingersoll, & Andrews, 2009; Scattone, Tingstrom, & Wilczynski, 2006), and is a cognitive approach focused on developing understanding of expected social behavior in various situations often encountered in school and in the community. The premise of social stories is that children with ASD display inappropriate behavior in some social situations because they do not predict appropriate behavior in particular situations. Once those expectations are clarified, children will usually strive to act accordingly. Thus, these stories aim to enhance the child’s understanding of social situations by providing key social information (including others’ expectations and perspectives).

**Strategy:**

**Use of a Cognitive-Behavioral Approach to the Teaching of Social Skills**

Baker’s cognitive-behavioral approach (2003) aims at teaching social rules that will help the child with ASD function in a more socially acceptable way. The premise is that children not only lack understanding of appropriate social behavior, but also lack the necessary skills for implementing such behavior. Therefore, this approach focuses heavily on skill development. One of Baker’s skill lessons is “Don’t Be a Space Invader” (pp. 78-79). This lesson was designed to teach appropriate physical distance from others. The message “Stand at least an arm’s length away. Don’t get too close.” is presented with an illustration of cartoon-like stick figures displaying appropriate and inappropriate distancing. Each skill is taught through a specified sequence (didactic instruction, modeling, and role-play). Suggested activities for practicing each skill are provided.

**Strategy:**

**Teaching Social Skills Through Activities for All Students**

This approach, as exemplified by the work of Paula Kluth (2003), favors less explicit instruction focused on the child with ASD and less intrusion into the natural classroom process. In contrast to the more behavioral approach of Baker, Kluth teaches compliment-giving through class-wide activities—for example, setting up a compliment box in the classroom, then picking some students to read the compliments and selecting one or two students to be given compliments by five other students at the end of each day (p. 95). Teaching children to give compliments serves a dual purpose as it contributes to the development of positive social relationships and facilitates supportive communications toward children with ASD from their classmates, a necessary ingredient in successful inclusion. Kluth created a classroom community with many opportunities for connection and interaction in which supports and adaptations for the child with ASD could be made naturally.

**Conclusion**

The reported increase in the prevalence of autism spectrum disorders is likely to result in increased numbers of children with ASD in inclusive classroom settings. Teachers who understand the special challenges facing such students will be better equipped to prevent interference with the learning process for both those children and their classmates. Teachers who incorporate evidence-based strategies will likely experience improved success in meeting the needs of their students.

**References**


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**Additional Practices To Support Social Understanding and Relationships**

- Encourage children to communicate their confusion about behavioral expectations as they arise in different social situations (e.g., “Where am I supposed to go?” “What am I supposed to do?”) and take the time to provide clarification on the spot, providing further activities to support understanding and skills as soon as is feasible.

- Dramatic play is a powerful tool for practicing social roles and relationships, but for some children with ASD, the reciprocal social interactions involved in spontaneous dramatic play with peers is an overwhelming challenge (Wolfberg, 2003). Such children need a “jump start” with this process. One way to do this is to have a teacher and the child with ASD engage in two-character dramatic play based on common themes. The teacher coaches the child in his or her role as needed, and with the two roles later being reversed. After such practice, the child may be ready to engage in these play themes with one other child. At this point, supported practice in role play with three characters in the theme could prepare the child for dramatic play with two peers.


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