

Supporting Students With Autism Spectrum Disorders in Inclusive Settings

DEBRA LEACH AND MARY LOU DUFFY



With ongoing collaboration among general education teachers, special education teachers, related services professionals, and parents, students with autism spectrum disorders (ASDs) can receive a quality education alongside their typically developing peers. This article provides strategies to promote the successful inclusion of students with ASDs in general education classrooms. The suggestions provided are categorized by preventive, supportive, and corrective strategies and techniques. These strategies can provide general education teachers with a set of tools that enable them to be proactive in preventing behavior, academic, and social problems; enhance instruction and enable students to reach their full potential; and address problems if and when they do arise. Special emphasis is given to strategies to increase active engagement in instructional activities.

Keywords: inclusion; autism; disabilities; accommodations; strategies; instruction; intervention(s)

Two independent trends are affecting general education teachers with regard to their involvement in the education of students with autism spectrum disorders (ASDs): (a) increasing prevalence estimates of ASDs and (b) an emphasis on the inclusion of students with disabilities in general education classrooms (Williams, Johnson, & Sukhodolsky, 2005). According to the Centers for Disease Control's Autism and Developmental Disabilities Monitoring Network data released in 2007, 1 in 150 children have an ASD (Office of Enterprise Communication, 2007). With a nationwide emphasis on the inclusion of students with special needs in general

education classrooms, general education teachers are more likely than ever to be faced with the task of including students with ASDs in their classrooms. While students on the autism spectrum historically have been

Authors' Note: Please address correspondence concerning this article to Debra Leach, Winthrop University, Withers 204, Rock Hill, SC 29733 (e-mail: leachd@winthrop.edu).

Intervention in School and Clinic, Volume 45 Number 1, September 2009 31-37
DOI: 10.1177/1053451209338395 • © 2009 Hammill Institute on Disabilities
<http://isc.sagepub.com> hosted at <http://online.sagepub.com>

segregated from general education settings, the least restrictive education component of the Individuals With Disabilities Education Improvement Act (2004) reaffirms the idea that for education of students with disabilities, regardless of the label, the primary location in school should be the general education classroom.

As early as the mid-1990s, researchers examined the outcomes of inclusion for students with ASDs and found that students with ASDs who were included in general education classrooms showed increases in social engagement skills and had a larger circle of friends than did students in segregated settings (Fryxell & Kennedy, 1995; Hunt, Farron-Davis, Beckstead, Curtis, & Goetz, 1994). Because social interaction and communication are among the core deficits for students with ASD (*Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition, Text Revision [DSM-IV-TR]*, American Psychiatric Association, 2000), promoting inclusion for these students is essential. It is difficult to positively impact the social development of children with ASD if they do not have opportunities to learn alongside their typically developing peers who display well-developed social skills.

Teaching students with ASD requires the use of specific strategies and approaches with which general education teachers may not be familiar. The social, communication, behavioral, and cognitive challenges that may affect the performance of students with ASD can be barriers to successful inclusion if general education teachers are not provided with information and support from special educators to meet the needs of their students. This support is typically welcomed by general educators faced with the challenges of including students with ASDs, and they have reported that the techniques found most useful are those that help support the social integration of a child with ASD into the classroom (Harrower & Dunlap, 2001). This article provides strategies and techniques related to social integration, as well as academic engagement, improved communication, and enhanced positive behaviors.

Three Types of Strategies

The strategies presented are organized by whether they are preventive, supportive, or corrective in nature. The natural instinct for many teachers and parents is to automatically consider corrective strategies. If a child with ASD displays challenging behaviors, the question often takes the form, What do I do when . . . ? However, the questions that perhaps should be asked first are, What can I do to prevent . . . ? and How can I support the

student so that . . . ? When preventive and supportive strategies are put into place, corrective strategies may not be necessary. The preventive and supportive strategies focus on what can be changed in the environment and what can be changed about the behavior of the adults and peers in the environment to promote positive behaviors for the student with ASD. When teachers focus on making such changes as opposed to always trying to change the student, success in the inclusive classroom will be greater.

Preventive

The preventive tips or strategies are those that teachers engage in before they begin teaching. These strategies may include planning practices, outcome options, environmental considerations, and grouping accommodations. The idea behind the preventive management strategies is to limit ambiguity or chaos so that lessons flow smoothly and activities are well planned out in advance.

Supportive

The supportive tips or strategies are those that teachers employ while they are teaching. In the context of discipline tactics, supportive strategies include such techniques as attending to visual cues, verbal rehearsal of rules or directions, and peer-supported cues. The goal is to remind students of behavior expectations before they engage in an activity in which ambiguity or chaos could occur.

Corrective

The last set of tips or strategies consists of those that are corrective in nature. In a management setting, these techniques are used when a negative situation has just occurred and the teacher needs to react or redirect. In the case of a classroom teacher who is working with students with ASDs, corrective strategies are those that can be used to redirect or refocus students to the desired task at hand.

Engagement

Actively engaging in the environment is one of the main difficulties for students with ASDs (Simpson & Myles, 1998). Students with ASDs will often go into “their own world” and, as a consequence, often lose out on crucial learning opportunities (Dunlap, 1999). Students with ASD may begin displaying stereotypic

TABLE 1
Preventive Strategies for Students
With Autism Spectrum Disorders

Strategy	Implementation
Social stories (Gray, 2003)	Create stories to address specific behavioral or social issues. Stories can include pictures if the teacher feels the use of pictures will help the student with comprehension and/or motivation. Stories can easily be created with PowerPoint®, which allows teachers to insert digital photographs and video clips to enhance the stories.
Picture Exchange Communication System (Frost & Bondy, 1985)	The child can learn common requests and their corresponding picture for use in the general education classroom. The request using the picture should be paired with expectations for verbalizations for students who are able to express a variety of sounds.
Visual schedules (Bryan & Gast, 2000)	A personal daily schedule with words and/or pictures can be attached to the top of a student's desk, or it can be displayed for the whole class. Explicit instruction should be provided to the student to make the use of the schedule a part of the classroom routine.
Environmental arrangements (Kluth, 2003)	Arrange furniture and materials to clearly define work spaces, and make changes to respond to a student's sensory challenges. This may include removing distracting stimuli, reducing noise levels, changing sounds, using a soft voice, or allowing the student to wear earplugs or headphones for some activities.

behaviors when they are disengaged. These can entail behaviors such as repetitive verbalizations that are shouted out or stereotypic body movements such as rocking or hand flapping, or the students may get out of their seats and wander around the classroom. It can become quite difficult to regain the attention of the child with ASD once these behaviors occur; therefore, each section of this discussion will contain suggestions for increasing engagement during instructional lessons in order to minimize disruptive behaviors that may arise because of disengagement.

Preventive Strategies

Because of the impairments in communication and social interaction and the behavioral challenges often exhibited by students with ASD (*DSM-IV-TR*), preventive measures should be taken to promote the success of these students in general education classrooms.

Otherwise, a variety of behavior problems and learning difficulties may arise. There are a variety of techniques that can be used to prevent problems from arising, such as (a) social stories (Gray, 2003) to prepare students for transitions or upcoming events, (b) the use of the Picture Exchange System (Frost & Bondy, 1985) to increase communication skills for students who have limited verbal abilities, (c) the use of visual schedules to help students understand the classroom routine (Bryan & Gast, 2000), and (d) arrangement of the furniture and stimuli in the environment to clearly define work spaces and limit sensory overload. Table 1 provides a list of these preventive strategies, along with brief descriptions for implementing each strategy.

Provide a Variety of Instructional Formats

To prevent problems associated with disengagement, it is important to provide a variety of instructional formats to increase the likelihood that students with ASDs will engage in the lessons and participate (Green, Brennan, & Fein, 2002; Kamps & Walker, 1990). For example, if a child with ASD is in a class in which whole-group instruction makes up the typical instructional format of the class, this format likely will not provide enough variety to keep the student engaged. Because of language and social interaction difficulties that students with ASD have, they often are simply unable to participate in the *sit and get* method of instruction. Instead, a variety of instructional activities (e.g., small-group instruction, peer teaching, cooperative learning, hands-on learning centers, one-on-one instruction, computers, and whole-group lessons that build in opportunities for active engagement) need to be part of the everyday learning experiences in the classroom.

At the same time, it is important to alternate activities to reduce the likelihood of desk fatigue or disengagement (Bender & Mathes, 1995). A schedule should be planned so that there is not a repetition of instructional formats. A typical class period may begin with independent work, then go to small-group instruction, then hands-on learning centers, then whole-group instruction, then a cooperative learning activity, and so on. Preparing a classroom schedule in advance can also allow the teacher to systematically plan for highly preferred activities immediately following less-preferred activities to increase on-task behavior for the less-preferred activities (Mercer & Mercer, 2004). If a student dislikes reading groups but loves working on the computer, it may be helpful to schedule computer time immediately

TABLE 2
Supportive Strategies for Students
With Autism Spectrum Disorders

Strategy	Implementation
Set clear behavioral and social expectations	The teacher first states the expectation, then models the expectation, then has the student work with the teacher to model the expectation, and finally the student models the expectation while the teacher watches and provides corrective feedback if needed.
Identify the "Big Ideas" as a way to differentiate instruction for all learners (Wiggins & McTighe, 1998)	Create an information sheet or note card that lists the key ideas that will be presented. The teacher then can go over the sheet with the student and send it home for the parents to review as well. During the lesson, the student has the information sheet available as the teacher refers to it during the presentation
Use graphic organizers and guided notes (Lazurus, 1996)	Pair verbal instruction with visual cues. This may include flow charts, tables, webs, story maps, and Venn diagrams. Guided notes contain the main ideas and some of the supporting details. The teacher lectures, emphasizing the main ideas, and then discusses the supporting details in the same order as they appear on the note-taking sheets. The students listen, fill in the missing details, and complete the notes as the teacher talks.
Differentiate assessment (Anderson, 2007)	Students can demonstrate mastery through making oral presentations, drawing pictures, creating models, role-playing, or writing responses.

following the successful completion of reading groups as opposed to attempting to remove the child from the computer to go to reading.

Supportive Strategies

To ensure that students with ASD are fully benefiting from the instruction in general education classrooms, a variety of supportive strategies can be used to enhance learning across the school day. Some strategies include (a) setting clear behavioral and social expectations for all classroom routines and lessons to enable students to participate appropriately, (b) identifying the big ideas for each lesson to help students determine what information is relevant during an instructional lesson (Marks et al., 2003), (c) using graphic organizers and providing guided notes, and (d) differentiating assessment to allow students to show what they have learned in ways that are unique to their learning preferences, strengths, and interests (Anderson, 2007). Table 2 provides a list of these supportive strategies for students with ASD, with brief explanations for implementing each strategy.

Increase Active Engagement in Instructional Lessons

To increase active engagement during instructional lessons, a variety of supportive strategies can be used. It is essential to provide instruction via methods best understood by the student, such as presenting information visually, orally, through modeling, and/or using kinesthetic participation (Simpson, de Boer-Ott, & Smith-Myles, 2003).

Physical participation. Active engagement may be increased for some students with ASD if the teacher provides opportunities for physical participation in lessons. This may include having the students use gestures and actions as part of the lesson. For example, if a teacher is reading a book, the students can be encouraged to demonstrate through actions what the characters are doing (e.g., having the students slap their hands on their legs to indicate the horse is trotting along). These physical opportunities to participate in lessons not only can decrease disengagement but can also provide opportunities to embed learning opportunities to enhance imitation and social interaction skills. Another way to increase active engagement during instructional lessons is to ask multiple questions throughout the lesson that the child can answer. It may be that the student with ASD will be called on more often than other students are, but that is often what is required to ensure engagement.

Role-play. Role-play can also be used to increase engagement during instructional lessons. For example, if a teacher is reviewing a procedure pertaining to cleaning up materials, the child with ASD can be asked to demonstrate the procedures. This will not only prevent the child from displaying disruptive behaviors because of disengagement but will increase the likelihood that the student will comprehend the information.

Group response. Having specified group responses during whole-group instruction can also increase engagement. If the teacher gives each student a mini dry erase board, students can have multiple opportunities to respond during instructional lessons. They can use the boards to participate in a variety of ways, such as writing words, solving math problems, drawing pictures, indicating an answer for a multiple-choice question, or generating a question about the content of the lesson. Other group responses can include giving thumbs-up and thumbs-down, using fingers to represent numbers, and responding chorally.

TABLE 3
Corrective Strategies for Students
With Autism Spectrum Disorders

Strategy	Implementation
Differential reinforcement of incompatible behaviors	Provide positive reinforcement to students when they are engaging in a behavior that cannot occur at the same time as the challenging behavior. For example, providing positive reinforcement when a child is sitting down, when the challenging behavior entails walking around the room.
Differential reinforcement of zero rates of behavior	Provide reinforcement when the student does not display the challenging behavior for a certain time. For example, if the student refrains from shouting out irrelevant verbalizations for 10 minutes, the teacher provides positive reinforcement.
Differential reinforcement of lower rates of behavior	Provide positive reinforcement when the challenging behavior occurs less often. For example, if the student shouts out only four times instead of the usual six or seven times, the teacher provides positive reinforcement.
Differential reinforcement of communicative behavior	Provide positive reinforcement when a student uses appropriate communication to get wants and needs met instead of displaying challenging behavior. For example, if instead of having a tantrum, the student says, "I want to go to the bathroom" or uses a picture to request to use the bathroom, the teacher reinforces the student by allowing the bathroom break.

Special interests. Another way to increase active engagement is to incorporate the child's preferences and special interests into instructional lessons (Hurth, Shaw, Izeman, Whaley, & Rogers, 1999). For example, if a student has a special interest in trains, the teacher can embed the topic of trains into a variety of lessons to intrigue the students. If the teacher is presenting a science lesson related to velocity, examples can be provided that refer to the velocity of a train. If the teacher is presenting a prewriting strategy, the picture of a train can be used to demonstrate the parts of the story: The head of the train is the beginning of the story, the cars of the train contain the body of the story, and the caboose represents the ending. While it is not realistic or appropriate to embed the student's special interest into every lesson, it is certainly effective to do so often when planning instruction.

Corrective Strategies

In general, using a positive behavioral support model is recommended when dealing with behavioral challenges of

students with ASD. This entails primarily examining preventive and supportive strategies when addressing challenging behaviors. However, manipulating consequences (i.e., responses to challenging behavior) is often necessary in addition to implementing preventive and supportive strategies. Corrective strategies that address consequences include a variety of differential reinforcement procedures, such as differential reinforcement of incompatible behaviors, differential reinforcement of zero rates of behavior, differential reinforcement of lower rates of behavior, and differential reinforcement of communicative behavior (Scheuermann & Webber, 2002). These are listed and described in Table 3.

Prompting–Fading Procedures

One of the most effective corrective strategies for students with ASD who often become disengaged is the prompting–fading procedure. The prompting–fading procedure is often required to positively redirect the student to the task at hand when disengagement occurs. Prompts can include physical guidance, gestures, models, verbal cues, auditory stimuli, pictures, written text, and tactile stimuli (Green, 2001). Providing prompts to the students helps them understand what they are supposed to do. Instead of providing negative consequences when a child gets off task or begins to display inappropriate behaviors, consider the challenging behavior as an alarm that is going off and indicating the student needs support to engage appropriately. For example, if the student is expected to write a story about a recent vacation but is having difficulty getting started, the teacher can provide the assistance necessary to enable the student to engage in the writing activity. This may entail supports such as (a) questioning to brainstorm ideas, (b) drawing pictures to generate a sequence of activities, or (c) providing the first sentence and having the child continue independently. Prompts should be used to increase engagement but not as a barrier to independence. Thus, consistently reducing the intensity of prompts is essential.

Conclusion

With legislation and research supporting the inclusion of students with ASD in general education classrooms, it is vital to provide general education teachers with the information and support they must have to be able to meet the needs of these students in their classrooms. This article provides strategies that can make a positive impact on students with ASD in general education classrooms.

However, collaborative problem solving should take place to specifically select appropriate interventions for individual students. Despite empirical and legislative support, research has indicated that family involvement in school-based services is often minimal (Spann, Kohler, & Soenksen, 2003). It is important for parents of students with ASD to be included in the problem-solving process when problems arise. The parents may be able to suggest strategies that are effective in other settings and that can be applied in the classroom. Additionally, parents need to be supplied with information from school professionals that may assist the parents in meeting the needs of their child outside of school. Sharing information with parents communicates the willingness of school personnel to accommodate and share decision making with family members (Webber, Simpson, & Bentley, 2000). This is essential for students with ASD who require intensive behavioral, academic, and social interventions. Because children with ASD often have a variety of professionals working with them, it is necessary to include individuals such as special education teachers, speech/language pathologists, occupational therapists, psychologists, and behavioral analysts, as well as parents, in the problem-solving process in order to provide general education teachers with the necessary supports to address the challenges that may arise. Ongoing collaboration is essential and should be systematically planned and implemented when one is including students with ASD in general education classrooms (Simpson et al., 2003). Through collaboration, general education teachers can receive more information regarding the implementation of the strategies discussed in this article, as well as a variety of other preventive, supportive, and corrective strategies to enhance the educational experiences of students with ASD in inclusive settings.

About the Authors

Debra Leach, EdD, is an assistant professor of special education at Winthrop University. Her current interests include autism spectrum disorders, inclusion, and natural environment intervention for young children with disabilities. **Mary Lou Duffy**, PhD, is an associate professor of exceptional student education at Florida Atlantic University. She teaches and does research in the areas of teacher preparation and transition of people with disabilities from school to work. She is currently working on a text on classroom management for special education teachers.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.

- Anderson, K. M. (2007). Tips for teaching: Differentiating instruction to include all students. *Preventing School Failure*, 51(3), 49–54.
- Bender, W. N., & Mathes, M. Y. (1995). Students with ADHD in the inclusive classroom: A hierarchical approach to strategy selection. *Intervention in School and Clinic*, 30(4), 226–232.
- Bryan, L. C., & Gast, D. L. (2000). Teaching on-task and on-schedule behaviors to high-functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders*, 30(6), 553–567.
- Dunlap, G. (1999). Consensus, engagement, and family involvement for young children with autism. *Journal of the Association for Persons with Severe Handicaps*, 24, 222–225.
- Frost, L. A., & Bondy, A. S. (1985). *PECS—The picture exchange communication system*. Newark, DE: Pyramid Educational Consultants.
- Fryxell, D., & Kennedy, C. H. (1995). Placement along the continuum of services and its impact on students' social relationships. *Journal of the Association for Persons With Severe Handicaps*, 20, 259–269.
- Gray, C. (2003). *Updated guidelines and criteria for writing social stories™*. Arlington, MI: Future Horizons.
- Green, G. (2001). Behavior analytic instruction for learners with autism: Advances in stimulus-control technology. *Focus on Autism and Other Developmental Disabilities*, 16(2), 72–85.
- Green, G., Brennan, L. C., & Fein, D. (2002). Intensive behavioral treatment for a toddler at high risk for autism. *Behavior Modification*, 26(1), 69–102.
- Harrower, J. K., & Dunlap, G. (2001). Including children with autism in general education classrooms: A review of effective strategies. *Behavior Modification*, 25(5), 762–784.
- Hunt, P., Farron-Davis, F., Beckstead, S., Curtis, D., & Goetz, L. (1994). Evaluating the effects of placement of students with severe disabilities in general education versus special classes. *Journal of the Association for Persons With Severe Handicaps*, 19, 200–214.
- Hurth, J., Shaw, E., Izeman, S. G., Whaley, K., & Rogers, S. J. (1999). Areas of agreement about effective practices among programs serving young children with autism spectrum disorders. *Infants and Young Children*, 12(2), 17–26.
- Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. § 1400 et seq.
- Kamps, D., & Walker, D. (1990). A comparison of instructional arrangements for children with autism served in a public school setting. *Education and Treatment of Children*, 13(3), 197–216.
- Kluth, P. (2003). *You're going to love this kid*. Baltimore: Paul H. Brookes.
- Lazurus, B. D. (1996). Flexible skeletons: Guided notes for adolescents. *Teaching Exceptional Children*, 28, 36–40.
- Marks, S. U., Shaw-Hegwer, J., Schrader, C., Longaker, T., Peters, I., Powers, F., et al. (2003). Instructional management tips for teachers of students with autism spectrum disorder (ASD). *Teaching Exceptional Children*, 35(4), 50–54.
- Mercer, C. D., & Mercer, A. R. (2004). *Teaching students with learning problems* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Office of Enterprise Communication. (2007). *CDC releases new data on autism spectrum disorders (ASDs) from multiple communities in the United States*. Washington, DC: Department of Health and Human Services: CDC. Retrieved November 2007 from <http://0-www.cdc.gov.mill1.sjlibrary.org/od/oc/media/pressrel/2007/r070208.htm>
- Scheuermann, B., & Webber, J. (2002). *Autism: Teaching does make a difference*. Belmont, CA: Wadsworth.

- Simpson, R. L., de Boer-Ott, S. R., & Smith-Myles, B. (2003). Inclusion of learners with autism spectrum disorders in general education settings. *Topics in Language Disorders, 23*(2), 116–133.
- Simpson, R. L., & Myles, B. S. (1998). Understanding and responding to the needs of students with autism. In R. L. Simpson & B. S. Myles (Eds.), *Educating children and youth with autism: Strategies for effective practice* (pp. 1–23). Austin, TX: PRO-ED.
- Spann, S. J., Kohler, F. W., & Soenksen, D. (2003). Examining parents' involvement in and perceptions of special education services: An interview with families in a parent support group. *Focus on Autism and Other Developmental Disabilities, 18*(4), 228–237.
- Webber, J., Simpson, R. L., & Bentley, J. (2000). Parents and families of children with autism. In M. J. Fine & R. L. Simpson (Eds.), *Collaboration with parents and families of children with exceptionalities* (pp. 303–324). Austin, TX: PRO-ED.
- Williams, S. K., Johnson, C., & Sukhodolsky, D. G. (2005). The role of the school psychologist in the inclusive education of school-age children with autism spectrum disorders. *Journal of School Psychology, 43*(2), 117–136.
- Wiggins, G., & McTighe, J. (1998). *Understanding by design*. Alexandria, VA: ASCD.