A Guide to Teaching Students With Autism

2nd Edition

by Robert Pennington
and Darlene E. Perner

Council for Exceptional Children

DADD
Division on Autism and
Developmental Disabilities

The voice and vision of special education

We thank Robert Pennington and Darlene E. Perner for editing this volume in the series and thank all the contributing authors to this volume as well. We are confident that readers will find the information offered in this work to be of significant value.

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Foreword

In summer 1974 I wasn't old enough to secure a job, but I was too old to approach my summer break as an endless season of unplanned, unstructured free time. So, between taking the "behind the wheel" portion of driver's education, going on daily runs with friends from the cross-country team, and mowing several neighbors' lawns, I filled my days by volunteering at a summer day camp for children with developmental disabilities.

It was at camp that I was introduced to the term autism, as well as my first bit of misinformation about it. I was assigned to a group of relatively older campers, and in the group was a boy about my age, a boy I will call Raymond. Raymond was non-verbal, but it was clear that his receptive language far exceeded his expressive skills. He followed multi-step directions easily, and he knew the names of objects and people around him.

Raymond was easygoing and comfortable in his own skin. He would regularly engage in repetitive behavior by wiggling his fingers by the side of his eyes and making rhythmic dat-dat-dat-dat sounds, much like the sound of baseball cards in bicycle spokes (but much quieter). Once people became used to it, they hardly noticed. Occasionally, however, the repetitive behavior would escalate, and Raymond would rock his entire body back and forth, making increasingly louder noises which were hard to ignore. Our group leader, a college student majoring in special education, modeled what to do when this happened. She would come near him and say in soft voice, "Raymond, Raymond." He would cease the repetitive behavior and look at her, she would smile, he would smile back, and we would all continue with whatever we had been doing. By summer's end, whoever was sitting closest to Raymond knew how to implement the "soft voice and smile" technique when Raymond's behavior escalated.

The daily camp schedule called for a whole camp gathering at the end of the day culminating in a "goodbye song," after which the campers were taken to their busses and family cars. Once the campers had dispersed, the paid camp counselors (college students) and the adults who ran the camp would head off for their daily debriefing, the older teenagers with driver's licenses would take off, and our band of volunteer counselors would hang out and talk while waiting for our moms, older siblings, or whomever to pick us up. Nobody was in a hurry to get home. We were in the clutches of the awkward early teen years of life – too old to be treated as children, but too young to plausibly pass as grown-ups. One day, one of my peers mentioned that Raymond had autism, and a great conversation ensued.

One counselor reported "I heard autism was caused by being traumatized early in life, by parental abuse or something." Rebecca, the wisest of our crew, jumped all over this theory. She pointed to the joy that Raymond and his father displayed when they were reunited daily when his dad came to pick him up. It made no sense to assume that Raymond had been abused as a child. Also, if something traumatic had happened to him as an infant, surely being raised in a loving home would have snapped him out of whatever "autism spell" he had fallen under. Rebecca asked us, rhetorically, "How would it make Raymond's family feel if somebody told them that crap?"

After pausing to give Rebecca's words some thought, the conversation got more interesting. A peer suggested that the "bad parents and/or trauma causes autism theory" may have emerged from *Tommy* – the "rock opera" from the British rock band "The Who" that had been out for a few years. Tommy *is a "deaf, dumb, and blind boy who lives in quiet vibration land,"* according to one of early tracks on the album. Tommy is traumatized as an infant by his mother and is abused by extended family members during his childhood. He retreats into his own world which nobody can penetrate, and he is miraculously cured when a doctor smashes a mirror when Tommy sees his own reflection.

By the end of our discussion, we had concluded that the prospect of Raymond's autism being the fault of his family was even more far-fetched than the fictional story of *Tommy*. Moreover, blaming his family and searching for a miracle cure were both awful ideas. It was better to accept Raymond and other campers for who they were and to look for the best in them and their families, just like we had been doing during our finest moments all summer. In retrospect, despite our awkward age, we turned out to be a rather insightful group.

But the flow of misinformation about autism didn't stop in the camp parking lot. There was more to come in college and beyond. In my teacher preparation program, I took a required psychology course for special education majors and it was titled something like "Abnormal Child and Adolescent Psychology." Every week the syllabus featured readings and lectures on a different disability group. I looked forward to "Autism Week" because I had known Raymond.

In fairness to the professor, the course provided plenty of accurate information. I recall her explaining that autism was not a mental health disorder, and it was not a disease, but rather a neurological condition. And she explained why this distinction was important to understand. I also vividly remember her telling the story of Bruno Bettelheim and the "Refrigerator Mother" theory from the 1950s, which posited that autism was caused by a lack of maternal warmth and how the accumulated research evidence had shown that this theory was nonsense. My thoughts immediately went back to Raymond and the camp parking lot discussion. It struck me that we had figured out that blaming the family was nonsense a lot faster than the scholarly community.

There was some information in the course that was true about autism in the late 1970s and only later was recognized as untrue. For instance, we were taught that autism was a low-incidence disability that affected only a tiny portion of the population. Indeed, prevalence studies in the 1960s and 1970s suggested autism was diagnosed in approximately 1 of every 3,300 children (Treffert, 1970). But this is far from the case today. The Autism and Developmental Disabilities Monitoring Network (Centers for Disease Control, 2021) recently reported that 1 in 44 children were identified with autism spectrum disorder (ASD). Although experts quibble about the details in their explanations for this incredibly dramatic increase in prevalence, the consensus is that the rise in prevalence is mostly due to a combination of broadened diagnostic criteria, greater access to screening, and better screening techniques (Wright, 2017). Putting explanations aside, ASD is clearly not a low-incidence disability today.

A steady stream of misinformation about ASD continued to flow during my career as teacher in the public schools and later as a faculty member at the university level.

There is not enough space to go into all the myths, half-truths and outright lies that entered and exited the ASD discourse during the past four decades, sometimes more than once. But here is a short list of things we absolutely, positively know to be true in response to some of the more infamous fallacies:

ASD is *not* caused by vaccines. An irresponsible researcher named Andrew Wakefield and his coauthors published a paper in a medical journal linking vaccines to autism. Shamefully, the data on which the article was based was fake (i.e., Wakefield made it up). Fake data led to fraudulent findings and false conclusions. *Lancet*, the journal that published the article, retracted it and apologized for printing it. Multiple studies have since been published that confirm that there is no scientific evidence to suggest that vaccines cause autism. The fact that certain celebrities have continued to spread this bogus information, which puts the health of children at risk, is maddening.

The overwhelming, vast majority of children with ASD are not people with savant syndrome. *Rain Man* was an entertaining movie in the late 1980s, and it was based on a true story. Unfortunately, one of its legacies is that many in the general public got the impression that people with ASD have some sort of genius intellectual or artistic ability hiding just below the surface. Savant abilities are rare across the entire human population, including people with ASD. Although the positive stereotype may seem benign, it can be harmful. A society that celebrates people with ASD with a magical, mystical ability isn't embracing the vast majority of people with ASD for who they are and the contributions they can make to the world when provided the right opportunities and supports.

Children with ASD are *not* dangerous and they are *not* anti-social. Most children with autism display some difficulties in their social communication and social interaction skills, which makes navigating social situations challenging for them. Because social situations can trigger anxiety and confusion, some children with ASD are at risk of becoming overwhelmed and distressed. It is within the realm of possibility that upon becoming upset, a child with ASD may physically hurt a peer or adult in some way. For instance, a flailing arm may hit a nose in its path. But it is essential to remain aware that the child with a flailing arm is not acting with

malice. It could be a completely unintentional movement or maybe it's an action that has worked for them in the past to improve their circumstances. What is needed is people who are knowledgeable about how to interact with a child with ASD who is in distress, and who can provide behavioral supports so that the child will not pose any danger to themselves or others. Also, children with ASD can and do form strong attachments with others. Unfortunately, social discomfort and awkwardness has been misinterpreted to suggest that a child is incapable of establishing friendships and even loving others. Like all children, children with ASD need friends and they need opportunities to love and be loved by others.

Perhaps the most concerning misconception about children with autism is a subtle one that stems from a perception that ASD is a pathology. ASD as a pathology inevitably leads to the idea that people diagnosed with ASD have something within them that needs curing. Although certain professionals can do good work within a medical mindset (e.g., those working on brain imaging research and investigating medications), a pathological worldview of people with ASD is not very useful to the work of educators. Teachers need to be good instructors, not curers.

Many efforts to find a cure for ASD have been a disaster for people with ASD. Thus, it is a relief that certain organizations focused on autism have made efforts to remove any mention of "cure" from their mission statements and organizational goals (e.g., see Autism Speaks, 2021). The past five decades have surely taught the ASD community to be skeptical of claims that a "breakthrough" has occurred that has shattered everything previously known. Bogus cures that put children's health at risk (e.g., chelation therapies that cleanse heavy metals from the body) are far more worrisome than interventions that simply lack evidence of effectiveness (e.g., sensory integration therapy). However, wasting time and resources on faux treatments is a shame when there are so many useful actions to take that are supported by evidence (and described in this book).

Certainly, teachers should have a basic awareness of characteristics that are common to different disability populations, including ASD. But characteristics do not have to be framed as pathologies. Understanding children's strengths and limitations contextually, in relationship to the daily demands encountered in school, community, and the home, is known as the social-ecological conceptualization of disability. Teachers adopting this perspective of ASD will be on the lookout for their students' strengths and envision their students' futures as being full of possibilities. Teachers choosing to focus on their students' potentialities will have high expectations for their students' progress. High teacher expectations have long been known to influence classroom interactions and student outcomes in a myriad of positive ways (Donohoo, 2018).

The time has come to discard the bad information about ASD and get to work on learning and applying useful information. In the second edition of this book, Rob Pennington and Darlene Perner have gathered an impressive collection of leading experts in educating students with ASD. A quick scroll through the Table of Contents reveals that this book is written by educators who are highly knowledgeable about the evidence base and who have walked the walk as practicing teachers and/or alongside educators who are teaching in today's classrooms. This book is not in the vein of "*let us admire and pontificate about the many problems and challenges*" – it is a book about best practices that work. This book is also not a "*1001 super-duper ideas for your classroom*" type of resource. The authors respect the intelligence of their readers and do not deliver superficial information that is void of substance and context. The authors clearly and thoughtfully explain the best practices that are the focus of the book, and content is organized meaningfully. Education, and more specifically the education of students with ASD, is an applied field. This book targets readers who are seeking strategies and resources that can be successfully applied to the real-world of teaching and learning.

This book is an ideal resource for future or practicing educators who are serious about becoming the best instructor they can be for their students with ASD. I have no doubt that teachers who take the initiative to read and study it will find that their time was well spent. To this book's editors, authors, and, most importantly, its readers, I can assure you that the Raymonds of the world and their families will notice and appreciate your efforts.

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Introduction

The PRISM series, developed by the Council for Exceptional Children (CEC) Division on Autism and Developmental Disabilities (DADD), is a collection of volumes that highlight evidence-based, research to practice teaching strategies and interventions geared toward supporting students with developmental disabilities (DD) including autism and intellectual disability (ID). The volumes in the PRISM collection address interventions in the classroom, home, and community and focus on how to help students build needed skills.

This 14th book in the PRISM Series, "A Guide to Teaching Students with Autism Spectrum Disorder, Second Edition" consists of 17 chapters written by 33 contributors.

The following descriptions highlight the contents of the chapters in this volume.

Chapter 1 *Environmental Arrangement* introduces the reader to strategies for arranging the educational environment to facilitate learning and well-being for students with Autism (ASD). The authors provide guidance in arranging both the physical layout of the classroom and daily instructional routines to facilitate positive student outcomes. Further, they offer a range of supports that can be embedded to assist learners in navigating the demands of the school environment.

Chapter 2 *Collaborative Teaming* emphasizes the essential role of collaboration within programming for students with ASD. The authors offer guidance for establishing and capitalizing on the use of collaborative interdisciplinary teams and reducing barriers to effective collaboration. The authors also describe person-centered approaches that can be supported by their collaborative models.

Chapter 3 *Collecting and Using Data to Enhance Instruction* introduces the reader to measures and measurement systems that can be used to monitor student progress and evaluate the effectiveness of educational strategies. The authors provide recommendations for using technology to increase the ease of data collection and offer guidance on data-based decision making.

Chapter 4 *Assessing Preference for Students with Autism Spectrum Disorder* introduces the reader to a myriad of strategies for identifying preferences of students with a range of support needs. In this new chapter, the authors provide guidance on selecting particular assessments based on student characteristics, as well as how to incorporate preference assessment procedures into daily instructional routines.

Chapter 5 *Systematic Instruction* emphasizes the importance of systematic instruction in educational programming for students with ASD. The authors describe several well established instructional procedures for teaching new skills to students with ASD and a range of support needs.

Chapter 6 *Embedded Instruction* introduces the reader to embedded instruction as a means for building systematic and explicit instruction into daily routines. The authors describe a practical model for the planning and implementation of embedded instruction, as well as descriptions of several powerful strategies that can be used in its delivery.

Chapter 7 *Teaching Communication Skills to Individuals with ASD* introduces the reader to a framework for identifying the need for, and planning of, communication supports. In this new chapter, the author offers strategies in teaching students with ASD to both initiate and respond during interactions with others. The author also provides guidance in supporting the use of augmentative and alternative communication systems.

Chapter 8 *Functional Communication Training* introduces the reader to one of the most well-researched practices for supporting students to engage in contextually appropriate behavior. The authors provide a step-by-step model for implementing functional

communication training, including strategies for application in natural settings. The authors also provide guidance for thinning supports to reflect those available in typical school and community settings.

Chapter 9 *Improving Social Communication Skills for Students with ASD* introduces the reader to two broad strategies for supporting the development of social skills including (a) peer-mediated social communication strategies and (b) video modeling. The author describes several applications of each strategy and provides step-by-step guidance on their implementation.

Chapter 10 *Peer Support Arrangements* provides detailed guidance on the implementation of peer support arrangements for improving a range of outcomes for students with ASD. In this new chapter, the authors contextualize the use of peer supports within a teaming approach and offer recommendations for supporting effective teams. Further, they present strategies for training paraprofessionals and peers to serve as supports in authentic settings.

Chapter 11 *Collaboration to Meet the Sexuality Needs of Individuals with ASD* provides the reader with considerations and strategies for implementing sexuality instruction for students with ASD. In this new chapter, the authors also detail how to use evidence-based practices within sexuality instruction. Finally, the authors offer guidance regarding supporting LGBTQ+ students, the use of social media, and masturbation.

Chapter 12 *Self-Management and Individuals with Autism* introduces the reader to self-management strategies for facilitating independence. In this new chapter, the authors provide detailed implementation steps and decision-making tools for designing effective self-management programs.

Chapter 13 *Supporting Reading Development* introduces the reader to considerations in designing reading programs for students with ASD. The authors describe the existing evidence of the efficacy for several commercially available reading programs. Further, they offer several targeted and intensive reading strategies that can be applied to students with differing reading skill repertoires.

Chapter 14 *Teaching Writing to Students with ASD* introduces a framework for teaching written expression skills to students with ASD. The authors describe strategies for making writing meaningful for students with ASD and incorporating predictable writing routines and technology to facilitate successful experiences in writing.

Chapter 15 *Teaching Mathematics to Students with ASD* introduces the reader to the importance of mathematics instruction for all students. The author distills from the available literature several strategies to support students with ASD in developing essential skills in mathematics and provides rich examples of the applications of systematic instruction, modeling, and metacognitive strategies.

Chapter 16 *Teaching Transition Skills to Students with ASD* introduces the reader to critical considerations when supporting students with ASD in transitioning to adulthood. In this new chapter, the author describes strategies for teaching transition skills, incorporating student preferences, and promoting self-determination and focuses on the development of a range of supports to ensure students have the best possible opportunities for success in the post-secondary settings.

Chapter 17 *Language Considerations Regarding Individuals with ASD* introduces the reader to the concepts of person-first and identity-first language regarding autism. In this new chapter, the authors provide guidance for educators in talking about ASD in ways that promote a welcoming and inclusive educational environment.

Environmental Arrangement

Janet Sanchez Enriquez, Darcy Fredrick, & Robert Pennington

An essential consideration when designing educational programs for all students, including those with autism spectrum disorder (ASD), is the arrangement of the instructional environment. Through careful planning, features of the student's educational environment can be structured to both support the student's skill acquisition and reduce challenging behavior. Teachers can provide students with more frequent opportunities to respond, increase the predictability of daily routines, and decrease the influence of competing sensory stimuli during instruction through the choices they make in setting up their classroom. When teachers consider environmental arrangement in their daily planning, they can increase students' on-task behavior, academic achievement, and engagement during instruction (Pianta et al., 2008). Building the optimal instructional environment involves making decisions related to the physical layout of the classroom, the placement of preferred items within the classroom, the use of antecedent prompts and visual supports, the temporal structure of activities, the selection of appropriate instructional arrangements, and the consideration and respect of students' cultural diversity.

As addressed within the Individuals with Disabilities Education Act (1997), these critical programming decisions can be documented as supplementary aids and services in the individualized education program (IEP). Supplementary aids and services are comprised of any support, program modification, or accommodation that is provided to a student to help them achieve annual goals, access the general education curriculum, and be educated with peers without disabilities. Environmental supports can contribute greatly to the education of persons with ASD and therefore should be documented in the IEP to ensure their inclusion in the educational program.

Physical Layout of the Classroom

Teachers must initially consider the safety of all students when arranging the physical layout of the classroom and remove any visual barriers that would provide students the opportunity to engage in unsafe behavior without intervention (i.e., clearing of high barriers or shelves throughout the classroom/setting). For example, some students with ASD may engage in elopement (i.e., running out of the classroom), therefore, there should be a clear line of sight from every point in the classroom to every accessible window and door and, when possible, teachers should position themselves between students and the door to supervise but not necessarily restrict students' movement. Similarly, teachers must be able to monitor and restrict access to dangerous materials, edibles, and allergens. Some students with ASD may have a decreased awareness of the dangers these materials present and need protection until appropriate safety skills can be taught. Additionally, students may be seated in positions that place them at a decreased proximity to stimuli (e.g., open doors, food items, computer) that may trigger problem behavior. Though not a permanent solution, these simple adjustments in the environment can result in significant reductions in challenging behavior.

Second, teachers should structure the classroom to accommodate various instructional arrangements, (i.e., one-to-one [1:1], small-group, large-group). For example, teachers may provide seating arrangements that offer opportunities for students to work with their peers and engage in observational learning and 1:1 arrangements to support intensive systematic instruction. When providing direct instruction, teachers should position themselves within sufficient proximity to effectively implement prompts and deliver reinforcers. Students should be able to navigate the environment easily, free

of clutter or materials. To increase the predictability of instructional routines, teachers should maintain consistency in the types of programming that occur in these areas. For example, a teacher may place a small kidney-shaped table in the back of the room that is designated for small-group instruction. Students may transition more easily as they learn the expectations associated with each instructional area.

Third, teachers should arrange instructional environments in ways that facilitate interaction. Opportunities for peer interaction should be considered as important as those for academic learning. Play, leisure, and instructional areas should promote sharing of materials, requesting access to materials from peers, and engaging in other forms of social interactions. For example, a teacher may divide a set of puzzle pieces between two students and ask them to complete it together, or a teacher may provide three students with one calculator to complete a math task. Certainly, many students with ASD will require explicit instruction in communication and turn-taking skills, but the first step will involve providing opportunities in which instruction can occur.

Finally, teachers must consider the impact of distracting stimuli on students' acquisition and performance of skills. Some students with ASD may have atypical responses to sensory input. These stimuli (e.g., loud air conditioners, radios, honking cars, flashing computer screens), which can be aversive or reinforcing, may capture students' attention during instructional tasks and impede learning. Determining the impact of environmental stimuli on each student's distractibility is highly individualized and may be assessed by asking the student, observing the student's response to the stimuli, or directly manipulating the environment (e.g., change in seating arrangement), and subsequently observing the student's response to the change. Once a source of distraction is determined, the teacher may reduce its impact by removing it, decreasing its proximity to the student, or changing the student's position so that it is no longer in their visual field. Gradually, the teacher may reintroduce the distracting stimulus to ensure the student is learning in an environment congruent with real world contexts.

The perfect physical layout is not always feasible for a particular group of students. When teachers are faced

with arranging their classroom, priority should be given to elements that will prioritize student safety. For example, if placing a certain piece of furniture towards the front of the room allows students to access their supplies easily, but impedes the teacher's view of all students, the teacher's line of vision should be prioritized.

Placement of Preferred Items

The placement of preferred items within the instructional environment is critical to the success of any program. Free access to reinforcing items can distract students from instruction and may compete with the reinforcers used by teachers during instructional tasks. For example, a student might have difficulty understanding why they must complete a difficult task to earn a token when they can just walk to the teacher's desk and take a piece of candy. At the beginning of the year, teachers should limit access to reinforcers so students can acquire the skills necessary for obtaining them. Once students acquire appropriate requesting, waiting, and self-management skills, teachers may gradually increase the availability of preferred items within the student's environment.

Teachers also may consider strategically placing preferred items in the environment to promote communication. For instance, teachers may "salt" a play area with preferred toys by placing them in view but out of reach (e.g., on a shelf in a clear tub). As a student indicates an interest in a toy, the teacher might use the opportunity to prompt the student to make a request. The placement of preferred items in naturalistic contexts plays a vital role in the development of an effective communication repertoire.

Antecedent Prompts and Visual Supports

Antecedent prompts and visual supports have been used to increase student success and independence across a wide range of skills. Antecedent prompting involves the manipulation of antecedent stimuli to increase student performance (Browder et al., 2020). Visual prompts can be presented before or as a part of the direction that cues the student to engage in the target behavior. For example, a teacher may present a pictured sequence of a chained task or a brief video

depicting a desired response prior to asking the student to complete the task. Teachers should place antecedent prompts in critical areas to facilitate independence. Ultimately, these prompts should be faded.

Visual supports help students understand what is expected of them. They can be used to "remind" students to engage in a particular skill or to help them understand spoken directions. Further, they can be employed in a range of natural environments including daycare, home, community, and the workplace. In the classroom, they can be used in various instructional formats including large-group, small-group, and 1:1 instruction. Visual supports can take many forms including calendars, activity schedules, cue cards, or the physical arrangement of materials. For example, a teacher may place three activities on a shelf in the order in which they are to be completed or affix a symbol on the bathroom door to prompt students to wash their hands. Visual prompts can be designed to resemble supports used by persons without disabilities. A student may first learn to use a large picture schedule, but over time pictorial prompts can be faded and support transferred to a school agenda, planner, or a web-based app used by same-age peers without disabilities. It is important to consider the following when developing visual supports: (a) durability, (b) portability, (c) size, (d) age appropriateness, and (e) effort required to respond to the visual prompting system. Additionally, discussions regarding the cultural and social acceptance of the visual aids with families and caregivers are advised (Cohen & Demchak, 2018).

For most students, simply placing visual supports within their instructional environment may be insufficient. Instructional strategies may be necessary to teach students to use visual aids. Researchers have identified procedures such as modeling, graduated guidance, and verbal feedback for instructing students to follow a schedule (Kelley et al., 2013; Spriggs et al., 2007); For instance, Bryan and Gast (2000) used graduated guidance and a picture schedule to promote independent transitions across instructional activities. Following the presentation of a page of a photo album containing a picture depicting an activity to complete, the teacher manually prompted each student to complete the tasks. Once the students could follow the steps in the schedule, the physical prompts were faded.

Visual supports also may be used to help students with ASD comprehend the passage of time. Teachers may use both physical timers and timer apps to indicate how long a student must engage in a task, when a transition is to occur, or when reinforcement is available. Several types of timers are available, including Time Timers (https://www.timetimer.com), sand timers, and traditional egg timers. Also available is the web-based app VisTimer, which illustrates elapsed time via an animated shrinking pie chart and includes a setting signaling the interval's conclusion.

Another way to demonstrate the passing of time is by indicating progression through a daily or mini-schedule. Mini-schedules show learners each step of an activity or routine by presenting words, images, or objects in order of completion. Students can monitor their progress through activities by marking on or through each step or by moving activities from a "to do" column to a "finished" area of the schedule.

Temporal Structure of Classroom Activities

The temporal structure of classroom activities also can play a vital role in student success. First, teachers must consider the length of instructional activities. These decisions should be individualized for each student but often are related to a student's skill repertoire and their ability to work for a delayed reinforcement (Heflin & Alaimo, 2007). A student who loses motivation without frequent reinforcement may require shorter periods of instruction that involve continual opportunities to respond and for target behaviors to be reinforced. Though it may be tempting for teachers to determine the length of an activity based on the amount of content to cover, they first should establish a length of time in which the student can respond successfully and then gradually increase the duration of activity. This by no means suggests that students receive less time engaged in instruction, but that teachers intersperse brief instructional sessions between short intervals of preferred activities or increased levels of reinforcement during the activity.

The strategy of alternating preferred and nonpreferred activities to increase student engagement is empirically supported (Iwata & Micheal, 1994) and can be easily implemented in classroom contexts. This technique can

be applied differentially for students with dissimilar skill repertoires. For example, a teacher might consider arranging a high school student's schedule so that his favorite classes are 2nd, 4th, and 6th periods. Another teacher might intersperse 2 minutes of access to a computer game following 10 minutes of discrete trial training. Again, the amount of time between preferred activities will differ across students, but in general teachers should start where the student is successful and gradually make adjustments from that point.

Instructional Arrangement

It is important to consider the type of instructional arrangement that will be most effective during instruction. In both general education and special education settings, students are often required to participate in a range of instructional contexts. Collins et al. (1991) suggested four types of arrangements frequently used during instruction: (a) one-to-one (1:1), (b) tandem, (c) small-group, and (d) large-group. Teachers should plan for providing instruction in various formats throughout the day. Students with limited skill repertoires may require some time spent in 1:1 instructional arrangements to acquire skills more rapidly, especially if they have difficulties waiting for their turn to respond. During 1:1 instruction, teachers can deliver large numbers of trials and closely monitor every element of instruction. It is important to note that these 1:1 arrangements may involve peer to peer, general education teacher to students, or special education teacher or paraprofessional to peer.

Group instructional formats may be challenging for some students with ASD. These formats may require students to wait while the teacher provides feedback to specific students, respond to peer interactions, and work for less frequent reinforcement. Collins and colleagues (1991) described the tandem format for transitioning students from 1:1 arrangements to group instruction. When using a tandem arrangement, a teacher works with a student in a 1:1 format alongside another teacher who is working with a small group of peers. Gradually, the student receives instructional trials in the small-group format and the 1:1 support is faded.

Small-group instruction provides a bridge from the intensive 1:1 instruction to the more naturalistic large-group instruction that occurs in most general education classrooms. When using small-group instruction, teachers can closely monitor student responses, deliver systematic instruction, and maintain high rates of reinforcement. Teachers can increase student engagement and reduce wait time by using active responding strategies. These strategies involve having all students orally respond at once (i.e., chorale responding) or by having students simultaneously indicate their answer by writing on a dry erase/chalkboard or by holding up a card with the correct answer(i.e., response cards; Horn, 2010). The success of any size instructional group lies in the effectiveness and efficiency of the teacher. In other words, the teacher must apply evidence-based instructional practices but also maintain a pace of instruction that ensures maximum opportunities for the student to respond and access high rates of reinforcement.

Finally, teachers should plan supports for students in large-group instructional contexts. The ability to acquire new skills in a large-group setting is critical in maintaining access to general education classes and the content rich environments therein. Teachers should explicitly teach skills that are necessary to be successful during large-group instruction (e.g., hand-raising, attending to a speaker from a distance, tracking instructional stimuli). Teachers also can apply the active response strategies described above. It is important to assess students frequently, as their difficulties attending to and comprehending in large-group formats may be subtle. One additional consideration that should be made in general education classrooms is the placement and positioning of instructional support staff (i.e., paraprofessionals, related service staff). All efforts should be made to position support personnel in ways that do not impede access to the instruction delivered by the general education teacher or reduce interaction with students' natural peer supports.

Creating a Culturally Responsive Learning Environment

A culturally responsive learning (CRL) environment promotes respect for every student, and most significantly, the unique experiences, knowledge, and language each student brings to the classroom (Hollie, 2019). Acknowledging the connection between the environment and student behavior prepares teachers

to organize and design the classroom to optimize learning. A culturally responsive learning environment for all learners, including students with ASD, consists of (a) a print-rich environment, (b) learning centers, (c) culturally colorful materials, (d) optimal arrangement (e) multiple libraries, (f) the use of technology, (g) relevant bulletin boards, and (h) displayed student work and images of students (Powell & Rightmyer, 2011).

Teachers should create authentic print-rich environments comprised of print representations of classroom/subject-specific content, conventional symbol systems, and word walls to support comprehension for linguistically diverse learners. Teachers might also create learning centers that contain culturally and linguistically diverse reading and listening materials and maintain libraries reflecting diverse socioeconomic, gender, and culturally responsive categories. Culturally responsive digital and media resources should be available in various forms, different languages, and represent the newest digital technologies. Teachers might consider their diverse populations when selecting colors or classroom furniture. For example, Shade et al. (1997) suggested that Native American students might prefer earth-tone colors or pastels or bright yellow hues.

The educational environment also should feature items (e.g., culturally relevant prints, artwork, artifacts) and activities which encourage students to share. Students in CLR classrooms can be encouraged by showcasing their efforts in classroom displays that are updated at least every three weeks. Teachers should model respect and enthusiasm for each student's unique contribution and capitalize on opportunities to engage in discussion around diverse perspectives.

Finally, as previously mentioned, the arrangement of desks and tables can inspire social interactions and exchanges among students and teachers. The spatial arrangement can foster collaborative learning groups that promote connectivity, community, and culture sharing. Customizing the classroom to reflect and encourage discussion around diverse learners' unique societal and cultural characteristics creates a culturally responsive learning environment, which can enhance engagement in the learning process and increase individualization.

Final Words

In conclusion, the careful arrangement of the educational environment can have a powerful impact on student performance. Teachers should get to know their students and seek to understand their cultural experiences to best match environmental supports to their individualized needs. This is critical for students with ASD, in that many find their school experience challenging (Carrington & Graham, 2001; Simpson et al., 2003). Fortunately, teachers have the power to design welcoming classrooms perceived by students with ASD to be safe, predictable, and highly reinforcing. Hopefully, the simple environmental arrangement strategies described in this chapter serve as a good place to start.

Resources

Autism Focused Intervention Resources & Modules: *Visual Supports*. https://afirm.fpg.unc.edu/visual-supports

Autism Internet Modules: *Visual Supports*. https://autisminternetmodules.org/

Evidence-based Instructional Practices for Young Children with Autism. https://ebip.vkcsites.org/environmental-arrangement/

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Collaborative Teaming

Robin R. Drogan & Maureen P. Walsh

Collaboration is a construct that requires shared respect and responsibility through intentional efforts to support individuals with ASD (Emmons et al., 2018; LaBarbera, 2017). Collaboration advances access to meaningful school participation for individuals with ASD, which can lead to higher levels of achievement and improved quality of life (Emmons et al., 2018). Collaborative teams provide the opportunity for continuous enhancement and refinement of effective instructional practices. Effective teams meet regularly to communicate, listen, evaluate, reflect, and adjust. Teaming creates accountability that improves outcomes for individuals with ASD.

High-leverage practices (HLPs), established by the Council for Exceptional Children (CEC) Professional Standards and Practice Committee (PSPC; McLeskey et al., 2017) for special education teachers, identify three indicators associated with collaboration. These HLPs are evidence-based recommendations that may make a positive impact on school success for individuals with ASD. The HLPs are: (a) collaborate with professionals to increase student success, (b) organize and facilitate effective meetings with professionals and families, and (c) collaborate with families to support student learning and secure needed services. These HLPs can serve as a starting point for the special educator as a facilitator to these collaborative processes. In addition, when further broken down, the collaboration HLPs provide a framework for assessing strength and need areas for further development.

Special educators, as facilitators to effective collaboration, should first understand and engage team members in the preparation for effective collaboration. Essential elements to successful collaboration include: (a) committing to the team, the teams' vision, and students, (b) understanding and respecting the cultures of all collaborators' disciplines and backgrounds, (c) accessing supports and resources from the administration, and (d) utilizing effective communication practices that avoid or eliminate barriers to collaboration (Emmons et al., 2018).

Preparation for Collaborative Teaming

Commitment to the Team and Students

As part of the commitment to the team and students, the team members need to establish shared expectations. Team members should recognize the value in working with others from diverse disciplines and backgrounds. It is important to understand, from the beginning, that a diverse team brings unique perspectives worthy of consideration. Each team member should be acknowledged as an equal and contributing member vital to successful outcomes for students with ASD. Embracing the right mindset for teaming from the start (e.g., professional disagreements are healthy and can lead to growth and compromises) and adopting a willingness for self-reflection, can help in building the team's capacity and increase the use of effective practices. Reflection begins with understanding the team's strengths and shortcomings. There are essential questions that should be answered frequently throughout the teaming process: (1) Does the team ask open-ended questions (i.e., What do you want or desire for the student related to services, outcomes, and supports?); (2) Does the team ask questions to elicit in-depth information from the family regarding the student; (3) Is the team open to differing opinions; (4) Are the family's perspectives held at the forefront of

Collecting and Using Data to Enhance Instruction

Charles L. Wood, Kerry W. Kisinger, & Sloan O. Storie

Ms. Clyde (all names are pseudonyms) is in her second year of teaching kindergarten in a general education classroom. This year, one of her students with ASD, Howie, is struggling to follow directions within classroom routines. During circle time, he is often disruptive and does not stay in the circle time area. Ms. Clyde has developed classroom expectations and gives all children periodic reminders, but she does not feel this is working for Howie. She is not sure what else to do.

Why Collect and Use Data?

Effective teachers collect and use data to guide their instruction and evaluate student learning. Data help teachers determine students' progress toward goals such as increasing the accuracy of a new skill or reducing the frequency of a challenging behavior. Graphed or charted data provides a visual representation of student performance and can be a useful tool for determining whether changes need to be made to instruction (e.g., switching or modifying teaching or intervention strategies). They also can be useful in communicating progress with a student, other professionals, and families. This chapter describes and provides examples of selecting and defining a target behavior, collecting data, making data collection efficient, and using data to enhance instruction.

Defining Behavior

When asked for some examples of classroom behaviors, many teachers may generate a list of behaviors that may include students running with scissors, poking their reading partner, talking over classmates, or refusing to stay seated. Often, the term "behavior" is associated with an action that is disruptive, distracting, or challenging to the learning environment. While all the examples listed above are challenging behaviors, they do not adequately represent all the behaviors in a classroom. Human behavior, broadly defined, is simply what a person says or does while interacting with their environment (Alberto & Troutman, 2013). Adopting this definition, we would have to add sharpening a pencil, reading aloud, writing flashcards, or practicing a difficult speech to our growing list of classroom behaviors.

When selecting a behavior to target for instruction or change, it is necessary to determine the extent to which a change in the behavior is socially significant. Socially significant changes in behaviors are relevant, typically accepted by the community, and allow individuals to interact safely with their environment and other individuals (Cooper et al., 2020). For example, socially significant changes in behavior in a classroom might include increasing a student's requests for permission to use a peer's materials, waiting in line quietly until it is time to go outside, or keeping hands to oneself.

Socially significant changes to challenging behavior are those that actually improve outcomes for students engaging in the behavior. Some behaviors may be obnoxious or annoying to a classroom teacher, but they

Chapter

4

Assessing Preference for Students with Autism Spectrum Disorder

Christopher A. Tullis & Senny T. Schnell

Preference, or the extent to which we choose to interact with some things, but not others, is an incredibly important consideration when teaching students with ASD. Formal preference assessments or stimulus preference assessments (SPA) are those that measure the overt or explicit behavior of a student with ASD related to items, activities, or interactions in their environment that may reinforce a variety of behaviors. These assessments can help assist teachers in figuring out what their students like, which then can be used as a part of their educational programming. The routine assessment of preference for students with ASD can be conceptualized as a supplementary aid and may be formally documented in a student's IEP.

Typically, assessing preference in practice takes two major forms: informant methods (e.g., surveys, inventories) and direct assessment (i.e., observation of behavior with stimuli). It is most beneficial to use a process-based approach to determine the most preferred stimuli for a student. Even if you think you "know" what someone likes, using a more formal preference assessment both verifies this observation and allows the student to have input in how their educational environment is arranged. Preference assessment approaches should be tailored to both the needs of individual students and the constraints present in the current environment. Preference assessment practices can be implemented with relative ease in educational contexts and allow students to provide necessary input given their current skills.

This chapter will outline informant and direct methods of assessing preference and describe a general process-based approach to preference assessment. Preference assessment in a formal manner may not be appropriate for all students with ASD and student skill levels are a key driver behind whether this type of assessment is necessary. For example, a vocal student with ASD who can reliably communicate a range of wants and needs (i.e., not simply one-word utterances about a restricted number of stimuli) may not need a formal preference assessment because they can simply tell a teacher what items may be reinforcing.

Informant Methods

Broadly defined, informant methods for assessing preference may include formal surveys completed by teachers or family members that contain both open-ended and closed-ended elements (e.g., Fisher et al., 1996) or informal open-ended conversations (e.g., asking what the student typically likes). These assessment tools can be easily implemented in educational contexts but have limitations when used as the sole method of identifying preferred stimuli. Research has indicated that teacher reports can be somewhat inaccurate depending on the teachers' familiarity with the learner (Green et al., 1988; Russo et al., 2014).

Although it seems in some instances that informant methods of preference assessment can be effective in identifying stimuli that is reinforcing to a student, caution should be exercised as indirect assessments do not allow the student to have adequate input on what preferred stimuli are used during programming. Additionally, informant methods may be biased by

Systematic Instruction

Brian Dunlop & Kara Hume

One important goal of educators is to increase student engagement and active participation in classroom activities throughout the school day. Research has indicated that engaged behavior in students with disabilities is the single best predictor of academic gains (Bulgren & Carta, 1993) and a powerful promoter of school completion and graduation (Reschly & Christenson 2006). Similarly, the amount of time a student with ASD is actively engaged in activities and interactions has been cited as one of the best predictors of positive student outcomes (Iovannone et al., 2003). However, characteristics associated with ASD, such as difficulty planning, organizing, and ignoring competing input; and challenges with making connections between ideas (Hill, 2004) are often at odds with characteristics of traditional classrooms and instruction, making engagement in school difficult. If active engagement is going to be achieved for students with ASD, systematic instruction should be implemented to meet their needs.

What Is Systematic Instruction?

Walker et al. (2020) defined systematic instruction for students with ASD as "an [evidence-based practice] that draws on the principles of applied behavior analysis and includes prompting students in a defined, consistent manner to perform an observable and measurable behavior and providing feedback contingent on student responses" (p. 304). Essentially, educators should plan individualized instruction based on the specific needs and characteristics of their students with ASD while implementing data-based strategies to promote high levels of engagement (Iovannone et al., 2003).

What Strategies Are Used and How Are They Implemented?

The instructional strategies discussed in this chapter are included for several reasons. First, there is an evidence base that supports their usage with students on the autism spectrum. The National Clearinghouse on Autism Evidence and Practice (NCAEP, https://ncaep. fpg.unc.edu/) has identified 28 instructional strategies that meet criteria as evidence-based practices (EBP; Hume et al., 2021). All the strategies discussed in this chapter meet those criteria. Second, these strategies are easily applicable in a classroom setting with one or more students with ASD. Last, they are practices that can benefit a broad range of students with or without ASD, including those facing attention, organization, and processing challenges. In addition to being identified as EBPs by NCAEP, each of the strategies discussed in this chapter is based on the science of applied behavior analysis (ABA). ABA involves the application of techniques rooted in behavioral principles to teach new skills and improve outcomes for wide range of learners with and without disabilities (for further description of ABA and its application to students with ASD, see Boutot & Hume, 2012).

Task Analysis

Task analysis is the process of breaking complex behavior into its component parts to facilitate incremental skill acquisition (Alberto & Troutman, 2006). Task analysis is the foundation of many instructional strategies for students with ASD, is used to break skills down into manageable pieces, and enjoys a significant evidence base for efficacy (Tyner & Fienup, 2016). When using task analysis, it is important to first identify what steps of a task a student can currently perform.
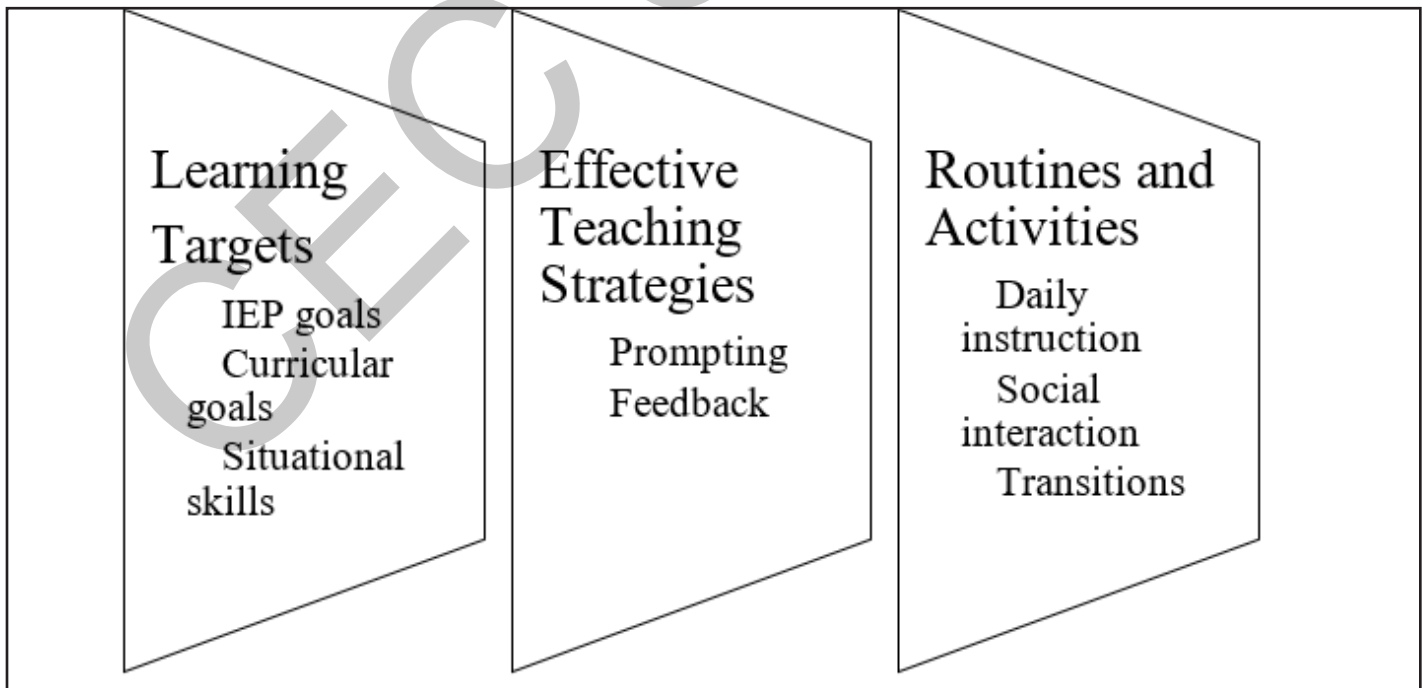
Chapter

6

Embedded Instruction

Jordan C. Shurr, Darlene E. Perner, & Robin R. Drogan

Embedded instruction "is a mode to implement systematic instruction of academic skills within the ongoing routine of a lesson or classroom setting alongside grade-level peers within the inclusive classroom" (Jimenez & Kamei, 2015, pp. 132). This strategy includes the use of student learning targets (i.e., singular or a set of skills or concepts), systematic instruction, and natural routines and activities in the classroom. Embedded instruction provides a structured opportunity for students with ASD to learn in an inclusive classroom with their grade-level peers (Browder et al., 2020). In addition, embedded instruction gives students a chance to learn from both special and general educators (Goldman & Gilmour, 2021).

Planning for embedded instruction includes selecting learning targets, identifying effective teaching strategies (i.e., systematic instruction), and determining the most appropriate routines and activities for instruction within the general education environment with grade-level peers (see Figure 6-1).

Figure 6-1
Embedded Instruction Components

Learning Targets
  IEP goals
  Curricular goals
  Situational skills

Effective Teaching Strategies
  Prompting
  Feedback

Routines and Activities
  Daily instruction
  Social interaction
  Transitions

Teaching Communication Skills to Individuals with Autism

Natalie R. Andzik

Students with ASD face varying degrees of challenges when engaging in social communication (Crocker et al., 2006). Further, approximately 25-40% of individuals with ASD have more complex communication needs (CCN) and may never develop functional vocal speech (http://www.autismspeaks. org). The long-term outcomes for these individuals are often less than desirable (e.g., unemployment, social isolation)—collaterally, educators are tasked with improving the outcomes for these individuals (Steinhausen et al., 2016). Decades of research have shown that with the collaboration of a multidisciplinary team, augmentative and alternative communication (AAC) supports are effective in supporting the communicative competence of individuals with ASD and CCN (Romski et al., 2015). School-based teams should work together to assess the communication strengths and areas of need of individuals with ASD and CCN, select appropriate AAC devices for their use, and teach and guide individuals to use their new device across communication functions (e.g., protest, joke), settings, communication partners, and throughout their lifespan.

Using the SETT to Establish Communication Strengths and Areas of Need

Currently, there is no uniform or universally adopted means for school-based professionals to identify language and communication needs for individuals with ASD and CCN (Koegel et al., 2020). For best results, it is important to build a team consisting of a range of professionals when making communication decisions for these individuals. Although there is

no specific communication assessment mandate, an assistive technology assessment is required by the Individuals with Disabilities Education Act (2004) for all students who may benefit from technology. Toward this end, the Student, Environment, Technology, Tools (SETT) framework is a widely used guide that school-based teams can use when gathering data and making decisions about AAC (Zabala, 1995).

Student Considerations

Teams should identify student strengths, interests, and needs regarding communication. In most cases when working with students with ASD and CCN, the speech and language pathologist (SLP) will be able to provide information as to how the student is currently communicating. The SLP may use formal assessment methods such as the Kaufman Speech Praxis Test (1995); or they might use informal methods (e.g., parent interview, teacher report) or nonstandard behavioral observations when attempting to assess the communicative competence of a student with ASD. An occupational therapist (OT) also can conduct assessments and describe to the team how proficient the student is when navigating fine motor tasks, which ultimately will guide the team when making decisions about communication device layouts (e.g., specific modality). The general and special education teacher may inventory skills the individual needs to engage in the classroom. They also will be able to assess the student's familiarity and preference when communicating with picture icons, line drawing icons, word only icons, or through typing. Finally, the family member can communicate to the team the cultural

Chapter

8

Functional Communication Training

Robert Pennington, Andy Masud, & Corinne Kingsbery

A student's ability to control their environment through communicative interaction is essential to enjoying school and, ultimately, a self-determined life. In their daily lives, most students continuously recruit the attention of others, request access to preferred items, and seek assistance. Further, they often decline opportunities to engage in nonpreferred activities, protest aversive conditions, and push back against attempts at coercion. Unfortunately, many students with ASD may not have acquired conventional requesting and protesting skills and, as a result, may have difficulty navigating the availability of preferred and nonpreferred items, activities, and people within typical environments. In the absence of these critical skills, some will engage in problem behavior to change their circumstances. These "problem" or contextually inappropriate behaviors can have deleterious effects as they may preclude students' access to naturalistic environments (e.g., general education classrooms, community), limit opportunities for postsecondary education and employment, and inhibit the development of meaningful relationships.

Fortunately, researchers have established the effectiveness of functional communication training (FCT) for teaching individuals to make requests in lieu of emitting problem behavior to change their environment. For example, an educator might teach a student to emit a manual sign to request a break instead of engaging in disruptive behavior to escape a difficult instructional task. First developed by Carr and Durand in 1985, FCT has become one of the most widely researched interventions for addressing problem behavior and has garnered sufficient empirical support

to be deemed an evidence-based practice (Gerow et al., 2018; Steinbrenner et al., 2020). Further, it can be implemented effectively in naturalistic settings (e.g., general education classroom, home) and by families, teachers, and paraprofessionals (Walker et al., 2018).

Generally, FCT comprises five steps: (a) functional behavior assessment, (b) identification of an alternative functional communication response (FCR), (c) training the FCR, (d) differentially responding to the FCR and problem behavior, and (d) schedule thinning for maintained responding in the natural environments.

Functional Behavior Assessment

Despite it sometimes seeming so, students do not just emit problem behavior "out of the blue." Further, they do not engage in a particular problem behavior solely because they have ASD or any other learning difference. They emit problem behavior because in the past it has produced some desirable change in their circumstances. For example, a student might scream when presented with a novel instructional task because in the past screaming has produced escape from a range of unpleasant conditions (e.g., going shopping with mom, a sibling encroaching on the child's toys, unfamiliar academic task demands). Understanding the purpose or function a behavior serves for an individual is key to addressing it. This understanding of the "why" of problem behavior helps the educator shift from simply modifying behavior through punishment or less natural reinforcement systems (e.g., token boards, behavior contracts) toward helping individuals find more effective and less harmful ways to change their circumstances.