

CHAPTER 12

Autism Spectrum Disorders

Matt Tincani

Imagine a World . . .

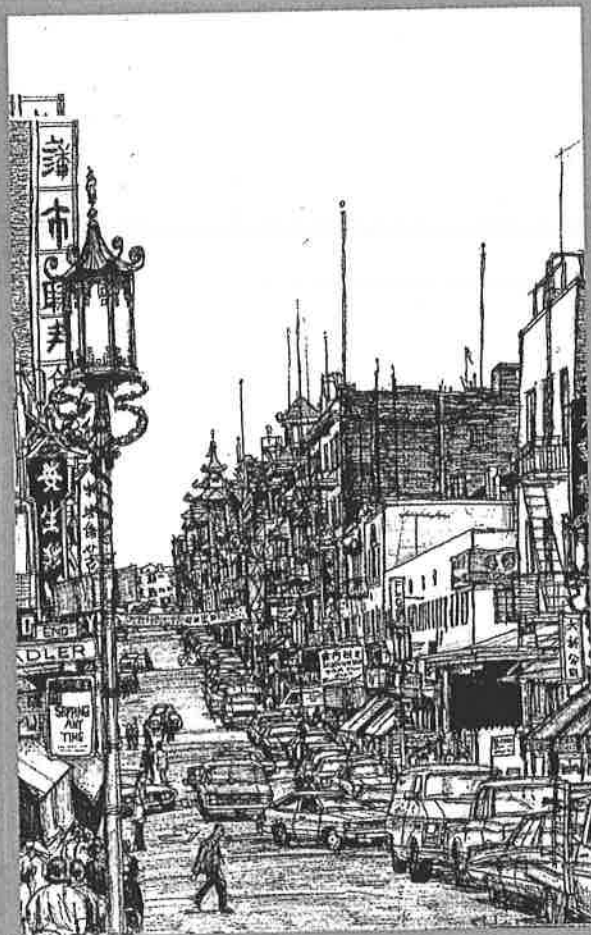


where every family gathering is a celebration . . .

Chapter Objectives

After studying this chapter, you will be able to

1. Understand the relationship among autism, Asperger syndrome, and PDD-NOS as autism spectrum disorders (ASD).
2. Identify core characteristics of individuals within the autism spectrum.
3. List the causes of ASD.
4. Describe how environments can be structured so that individuals with ASD maximally benefit from instruction.
5. Identify data-based instructional strategies for students with ASD.



Stephen Wiltshire is an English artist with autism. His unique talents and abilities have caught the attention of the public and the artistic communities worldwide. From the time when he was a very young child, Wiltshire was able to reproduce, down to the most amazing details, practically anything he saw. His panoramas of London, viewed from the top of the Eye (a large Ferris wheel), are precise. And, what is most amazing, he executes his drawings from memory, sometimes days after he has seen

what will be the focus of his artwork. He now has his own gallery in London and he travels around the world, including Dubai, drawing more amazing scenes providing us a glimpse of life as he sees it. Wiltshire's ink sketch of San Francisco's Chinatown was, as many of his works are, drawn from memory. It is perfect down to the very details of the Chinese street signs, which he cannot read or write with meaning.

autism spectrum disorders (ASD)
A group of disorders with similar characteristics including difficulties with communication, social interaction, and manneristic behaviors



After reading this chapter, complete the Self-Assessment for Chapter 12 on MyEducationLab to gauge your initial understanding of chapter content.

Autism spectrum disorders (ASD) have been the subject of much recent attention. Newspapers, magazines, and television news shows feature almost daily stories about the “autism epidemic.” One reason for concern is that ASD can produce substantial impairments in social and intellectual functioning. Another reason for alarm is that the number of reported ASD cases has increased substantially in recent years. The Centers for Disease Control and Prevention (CDC) now report that as many as 1 in 150 children in the United States have an ASD (Rice, 2007). Nonetheless, continual advancements in screening, diagnosis, and intervention offer hope to individuals with this group of disorders.

ASD is a broad term that includes three conditions characterized by limitations in three areas of development: communication, social interaction, and repetitive behaviors or interests. Autism is one of the specific diagnoses included within ASD. In addition to autism, Asperger syndrome and pervasive developmental disorder—not otherwise specified (PDD-NOS) also are conditions included in the group of disabilities called ASD.

Where We've Been . . . What's on the Horizon?

Autism was first identified in the last century. Considerable confusion has surrounded this condition and its causes since it was first recognized. Until fairly recently autism was narrowly defined, restricting its diagnosis to only those individuals with severe disabilities. Today, it is understood that like most other disabilities, autism can range from mild to severe problems. Also, present-day experts consider autism as one of a spectrum of similar disorders. So, to better understand today's conceptualization of ASD, let's see how this field emerged and the direction of its development.

Historical Context

Although ASD has always been part of the human condition, its discrete identification is relatively recent. ASD was first identified by Johns Hopkins psychiatrist Leo Kanner, who in 1943 published his landmark paper “Autistic Disturbances of Affective Contact.” Kanner described 11 children who displayed “extreme autistic aloneness” and failed to communicate or to form normal social relationships with those around them. Kanner borrowed the term *autism* from Eugene Bluer, a Swiss psychiatrist who coined the term in 1911. Bluer used the term *autism* to describe patients with schizophrenia who actively withdrew into their own world. Almost simultaneously, but independently of Kanner, Viennese psychiatrist Hans Asperger (1944/1991) described a similar condition that would later be named Asperger syndrome. At the time that Kanner's and Asperger's works were published and throughout much of the 20th century, psychiatry offered little hope for the treatment of individuals with ASD. Encouraged by the work of Bruno Bettelheim, ASD was falsely viewed as being caused by bad parenting, including “refrigerator mothers.” The effects of the psychoanalytic view of ASD were devastating. Parents blamed one another for the disorder, and treatment efforts were focused on ineffective psychoanalysis methods and institutional placements.

Beginning in the 1960s, the conceptualization and treatment of ASD changed dramatically. First, researchers began to investigate the epidemiological basis for ASD. No evidence was found to support the psychoanalytic theory that autism was the result of bad parenting (Wing, 1989). Instead, experts began to believe that ASD resulted from neurobiological problems with a genetic basis. Second, a number of researchers, most notably Ivar Lovaas, demonstrated that behaviorally based teaching techniques could produce measurable improvements in language and intellectual functioning of children with ASD. Third, parents organized themselves and advocated for themselves and their children. Bernard Rimland spearheaded this advocacy movement. He was a psychologist who dedicated his career to studying ASD after his son was diagnosed with the condition. Rimland helped collect and organize the information known about ASD, but he also joined with other parents

to form a parent advocacy group called the National Society for Autistic Children, now called the Autism Society of America (www.autism-society.org). Finally, thanks to the work of Uta Firth (1991) and others, Asperger syndrome has become increasingly recognized as a distinct condition within the ASD spectrum.

Challenges That Autism Spectrum Disorders Present

We have come a long way since the mid-20th century in our understanding of ASD. Today, children with these disorders are educated within inclusive school settings more than ever before, and researchers have developed a body of data-based teaching strategies for students on the spectrum (Simpson et al., 2005). Still, ASD presents serious challenges, challenges that tend to persist throughout the individual's life span.

Temple Grandin is a prominent spokesperson for people with ASD. Grandin is a successful college professor and world-renowned animal husbandry expert. She also has autism. By speaking openly about her experiences as a person with autism, she provides insight into the lives of people on the spectrum and the unique challenges they face. In her 1996 book, *Thinking in Pictures and Other Reports of My Life with Autism*, she writes, "I think in pictures. Words are like a second language to me. I translate both spoken and written words into full-color movies, complete with sound, which run like a VCR tape in my head. When somebody speaks to me, his words are instantly translated into pictures" (p. 19). She also writes of her struggles with autism, including her difficulties in learning to express her emotions:

Some people believe that people with autism do not have emotions. I definitely do have them, but they are more like the emotions of a child than of an adult. My childhood temper tantrums were not really expressions of emotion so much as circuit overloads. . . . When I get angry, it is like an afternoon thunderstorm; the anger is intense, but once I get over it, the emotion quickly dissipates. . . . I still have difficulty understanding and having a relationship with people whose primary motivation in life is governed by complex emotions, as my actions are guided by intellect. (pp. 87–90)

Grandin's writings illustrate how people with ASD struggle to understand their worlds as they relate to others. Despite living with autism her entire life, Grandin has developed into a successful, independent adult. We will learn more about how the specific impairments of ASD challenge individuals, families, and educators later in this chapter.

Fortunately, ASD is very much in the public spotlight and gaining the recognition it deserves from public officials who provide the funds to better understand and more appropriately educate individuals with ASD. Many advocates now work on behalf of people with ASD to raise awareness and support for ASD research. Bob and Suzanne Wright, described in the Making a Difference Feature, are two prominent advocates who are making a difference in the lives of people with ASD.

Making a Difference

Bob and Suzanne Wright

Bob and Suzanne Wright are not typical grandparents. They are the founders of Autism Speaks, a leading national organization dedicated to autism. Bob, who retired as vice chairman of General Electric and chairman and CEO of NBC Universal in May 2006, and his wife Suzanne first learned about autism when their grandson Christian was diagnosed with autism in 2004.

Bob and Suzanne were desperate to help their grandson, and they were ready to use all of their resources to get treatment for Christian. They were shocked to find out that very few options were available. Like most families dealing with this devastating disorder, finding quality treatment supported by science was very difficult. "We discovered, to our surprise, just how scarce the resources are for parents dealing with autism, and how thin the knowledge is. We had so many questions,



and instead of answers, we found a bewildering array of theories and guesses" (Wright, 2005). They were also surprised to find out that quality treatment was very expensive. "I could not believe how devastating it can be for some other families. They have to take second and third mortgages to cover the care and schooling. . . . We have to do something" (Arango, 2007).

On February 25, 2006, Bob and Suzanne founded Autism Speaks with intentions of raising money for research to find the causes, identify effective treatments, and find a cure for autism. Today Autism Speaks also strives to increase awareness about how autism affects individuals, families, and society. Through donors and fund-raising events, Autism Speaks has generated tens of millions of dollars for research. Bob and Suzanne have increased awareness of autism by doing interviews on major television shows, on radio programs, and in magazine and newspaper articles. With heightened awareness of autism by the public and intense advocacy by Autism Speaks, President George W. Bush signed the Combating Autism Act in December 2006. The Combating Autism Act authorizes hundreds of millions of dollars for autism research, prevention, and treatment through 2011.

Autism Speaks is growing rapidly. Several prominent autism organizations have merged with Autism Speaks in order to achieve greater goals. Without Autism Speaks, it is unlikely that awareness and funding would have obtained its current status. Thanks to Bob and Suzanne Wright, groundbreaking research, treatment, and supports are becoming more available. To learn more about Autism Speaks, visit www.autismspeaks.org.

Autism Spectrum Disorders (ASD) Defined

An important way that we learn more about ASD is through research. The basic science of ASD is rapidly emerging, with new findings being announced weekly about how brain development and genetics interact to produce ASD. Although researchers are far from totally understanding the causes for ASD, this information may tell us much about what ASD truly is and how it develops. Perhaps these findings will lead to very early identification and the possible amelioration of ASD's most devastating biological and behavioral effects.

At the same time, rapid strides are being made in the development of educational supports for children, youth, and adults with ASD. Increasingly, individuals with ASD are being educated in inclusive settings, learning from the same curriculum as other children and developing lasting friendships with them. This is an exciting time to be involved in the education of students with ASD. More than ever before, there is increased optimism about our ability to understand ASD and more effectively educate individuals with these disabilities.

ASD is a diverse set of three syndromes:

- Autism
- Asperger syndrome
- Pervasive developmental disorder—not otherwise specified (PDD-NOS)

Each of the three types of ASD has specific diagnostic criteria. So, one way to think of ASD is as an umbrella of disorders—one of which is autism with the others sharing a range of traits with it. Figure 12.1 illustrates ASD in this way. These conditions share similar behavioral characteristics in the areas of (a) social interaction, (b) verbal or nonverbal communication, and (c) repetitive behaviors or interests. Unusual responses to sensory stimuli are also often present. The key word in the term ASD is *spectrum*, which implies similar characteristics but great variance in the actual behavioral patterns exhibited. Accordingly, even persons within the *same* category on the spectrum—autism, Asperger syndrome, or PDD-NOS—have very different and diverse sets of characteristics. Thus, ASD is a truly heterogeneous set of

Figure 12.1 • Autism Spectrum Disorders (ASD) Umbrella



conditions. Table 12.1 shows the IDEA '04 definition of autism and the National Institute of Mental Health (NIMH) definition of ASD. Individual definitions and descriptions of each of the ASD conditions are found in their respective sections.

Professionals are just beginning to understand ASD, so different views of each condition, their symptoms, and severity are still developing. To some, the ASD umbrella represents distinctly different types of autism. Others, however, suggest that types of autism may be formed across diagnostic categories and may instead be based on level of intellectual functioning, age of onset, or number or severity of symptoms (Tanguay, Robertson, & Derrick, 1998).

Only a few years ago, experts included five conditions in the ASD umbrella. However, current thinking only includes the three we discuss next. Although two conditions—Rett syndrome and childhood disintegrative disorder (CDD)—are still described in the 2003 edition of DSM-IV-TR, they are not currently considered part of the spectrum. However, for a basic understanding of conditions often associated with ASD, it is helpful to know about these two conditions.

Discovered more than 40 years ago by Andreas Rett, an Austrian physician, **Rett syndrome** is a genetic condition. The signs of the syndrome appear early in life, but only after a period of seemingly normal development that then stops and begins to reverse (Percy, 2001). Unlike many genetic conditions, Rett syndrome only occurs in girls. Behaviorally, it is characterized by a progressive expression of repeated, stereotypic hand wringing; lack of muscle control; along with communication and social deficits. Sometimes initially misdiagnosed as autism, Rett syndrome has different characteristics. Autism is not usually characterized by hand wringing and a progressive loss of motor skills. Children with Rett syndrome tend to have better social skills when compared to children with autism. And, while about half of the individuals with autism have mental retardation or intellectual disabilities, most children

Rett syndrome A pervasive developmental disorder with a known genetic cause that occurs only in girls

Table 12.1 • Definitions of Autism Spectrum Disorders and Autism

Source	Definition of Autism Spectrum Disorders (ASD)
National Institute of Mental Health (NIMH)	All children with ASD demonstrate deficits in 1) social interaction, 2) verbal and nonverbal communication, and 3) repetitive behaviors or interests. In addition, they will often have unusual responses to sensory experiences, such as certain sounds or the way objects look. Each of these symptoms runs the gamut from mild to severe. They will present in each individual child differently. For instance, a child may have little trouble learning to read but exhibit extremely poor social interaction. Each child will display communication, social, and behavioral patterns that are individual but fit into the overall diagnosis of ASD. <i>Strock (2007, p. 2)</i>
Office of Special Education Programs (OSEP), federal government	Definition of Autism <i>Autism</i> means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. (i) Autism does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance, as defined in paragraph (c)(4) of this section. (ii) A child who manifests the characteristics of autism after age three could be identified as having autism if the criteria in paragraph (c)(1)(i) of this section are satisfied. <i>U.S. Department of Education (2006, pp. 1260–1261)</i>

Sources: From *Autism spectrum disorders* by M. Strock (2007, p. 4); and 34 *CFR* Parts 300 and 301, Assistance to States for the Education of Children with Disabilities and the Early Intervention Program for Infants and Toddlers with Disabilities; Final Regulations (pp. 1260–1261), U.S. Department of Education, 2006, *Federal Register*, Washington, DC.

childhood disintegrative disorder (CDD) A pervasive developmental disorder; the individual has typical development until about the age of 5 or 6

with Rett syndrome do. It develops progressively and results in cognitive disabilities typically more severe than are observed in people with autism.

A far rarer disorder than autism is **childhood disintegrative disorder (CDD)**. The most distinguishing aspect of CDD is that these children develop as their peers without disabilities do until they are 5 or 6 years old, at which time a developmental regression begins. In particular, these children lose already acquired language and social skills. Eventually, their behaviors are similar to the behavior patterns of children with autism; however, their long-term outcomes are far worse because the regression continues to deepen. Of the disorders related to ASD, CDD is the least understood.

As scientists' understanding of the neurobiology and genetics of ASD develops, the underlying differences in the brains of people with various types of ASD may reveal an organizational scheme consistent with or completely different from our current behavioral definitions. As it stands now, no consensus exists among experts about what dimensions should be used to develop subtypes of ASD. Now, to gain a better understanding of the similarities and differences among them, let's examine each of the three conditions currently considered as part of the spectrum.

Autism

autism One of the autistic spectrum disorders (ASD); ranges from low to high functioning

Technically, the term **autism** refers to a specific diagnosis within the ASD cluster, much like the words *sports car* identify a specific type of motor vehicle that has similarities and differences with other automobiles. The term *autism* is often used in place of the term *ASD* to refer to all of the disorders included under the ASD umbrella, but this is technically inaccurate. Instead, *autism* should be used as one specific type of disorder within the ASD umbrella of disorders.

The IDEA '04 definition is found in Table 12.1, and the one developed by the American Psychiatric Association (APA) in its *Diagnostic and Statistical Manual of Mental Disorders* is found on Table 12.2 (APA, 2003). Note that the IDEA '04 definition of autism is a general description and lacks the specificity needed to fully appreciate the different ways in which ASD can be expressed. Now compare the IDEA '04 definition to the DSM-IV-TR definition. According to that description, all children with autism have impairments in communication, impairments in social skills, and restricted range of interests.

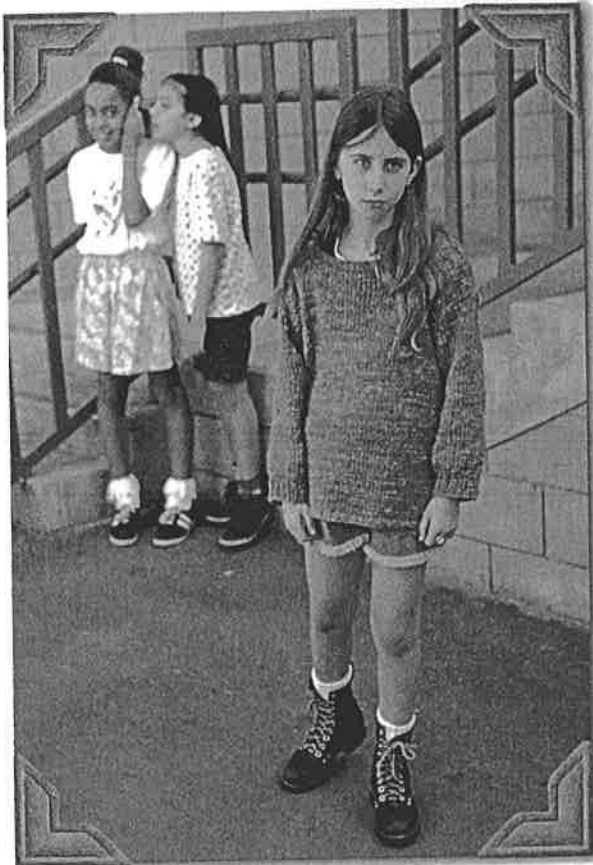
People with autism have difficulty communicating. Approximately 50% of persons with autism do not talk (Wetherby & Prizant, 2005). Often labeled as nonverbal, these individuals may express their needs through gestures, such as pointing, or they use augmentative or alternative communication (AAC) systems, such as the Picture Exchange Communication System (PECS; see A Closer Look at Data-Based Practices later in this chapter). For children with autism who can talk, their speech patterns are often characterized by **echolalia**—or repetition of words they have previously heard—limited vocabulary, poor intonation, and pronoun reversal (e.g., child says “You want a drink” rather than “I want a drink”). Children with autism also have trouble with the pragmatics of speech. (Read again Chapter 4 for a review of pragmatics and language impairments.) For example, they may have difficulties starting conversations, ending conversations, making eye contact, or taking turns speaking.

echolalia Repeating words, sounds, or sound patterns with no communicative intent, meaning, or understanding; a speech pattern that may occur immediately or even days later

Table 12.2 • DSM-IV Diagnostic Criteria for Autism

- A. A total of six (or more) items from (1), (2), and (3), with at least two from (1) and one each from (2) and (3):
 1. Qualitative impairment in social interaction, as manifested by at least two of the following:
 - a. Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
 - b. Failure to develop peer relationships appropriate to developmental level
 - c. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)
 - d. Lack of social or emotional reciprocity
 2. Qualitative impairments in communication as manifested by at least one of the following:
 - a. Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternate modes of communication such as gesture or mime)
 - b. In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
 - c. Stereotyped and repetitive use of language or idiosyncratic language
 - d. Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level
 3. Restricted repetitive and stereotyped patterns of behavior, interests, and activities as manifested by at least one of the following:
 - a. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
 - b. Apparently inflexible adherence to specific, nonfunctional routines or rituals
 - c. Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
 - d. Persistent preoccupation with parts of objects
- B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play
- C. The disturbance is not better accounted for by Rett's disorder or childhood disintegrative disorder.

Source: From *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text Revision, p. 75), by the American Psychiatric Association (APA), 2003, Arlington, VA: APA. Reprinted with permission.



Children with autism are often excluded from social interactions with peers.

stereotypies Nonproductive behaviors (e.g., twirling, flapping hands, rocking) that an individual repeats at a high rate; commonly observed in youngsters with autism spectrum disorders; also called stereotypic behaviors

autistic savant An individual who displays many behaviors associated with autism yet also possesses discrete abilities and unusual talents

Social impairments are another area of concern for children with autism. This often means that they do not spontaneously initiate social interactions with others, and may seem to live in their own worlds. As a result, children with autism often have fewer friendships with peers than other children. Instead, they may prefer to spend a significant amount of their time alone. Children with autism also frequently have difficulties understanding the meaning of social situations, adding to their difficulties in forming social relationships.

People with autism typically have repetitive patterns of behavior, referred to as **stereotypies** (sometimes called stereotypic behaviors), or they might have unusual or very focused interests (Lewis & Bodfish, 1998). For example, a child with autism may be interested only in spinning the wheel of a toy car or only in wiggling the string of a pull toy. In addition, some children may have rigid or set patterns of behavior. For example, one child might line toys up in a specific way and follow the same routine every day. If these patterns of behavior are violated, a tantrum might result to protest the disruption. Another child may repeat the same movement, such as waving a hand in front of his or her eyes, over and over again.

It is important to remember that about 75% of people with autism have intellectual disabilities (Sturmey & Sevin, 1994). (Remember, IDEA '04 uses the term *mental retardation*; see Chapter 8 for a review.) Thus, 25% of people with autism have average or above-average intelligence. It is also important to know, however, that intellectual disabilities are not part of the autism diagnosis. This wide range of cognitive ability has resulted in people using terms such as *low-functioning autism* and *high-functioning autism*. Low-functioning autism refers to children with autism and intellectual disabilities who are often nonverbal, whereas *high-functioning autism* usually refers to children with minimal or no intellectual disabilities and who are verbal. Although these terms provide a general description of children's intellectual functioning, they have less value in helping educators design appropriate individualized educational programs for children with autism.

Are there subtypes of autism? As our discussion illustrates, the skills children diagnosed with autism exhibit vary greatly. Some experts think that different levels of intellectual functioning, variety in the age of onset, and number and severity of symptoms suggest subtypes of autism (Tidmarsh & Volkmar, 2003). That is, "autism" may not be one single thing but, rather, a tight clustering of highly related disorders that manifest themselves in multiple but often similar ways. This idea, along with classifications of differential responses to interventions, may lead to the identification of different subtypes of autism (Gillum & Camarata, 2004). For example, some children with autism and communication problems respond well to interventions using spoken language, but others respond better to visually oriented interventions.

Regardless, one potential subtype of autism, **autistic savants**, is far more interesting to the general public than to researchers. The number of people who are autistic savants is very small, less than 1% of individuals diagnosed with autism, but the public is fascinated by the paradox of this group's abilities (Begley & Springen, 1996). Some, like the character Raymond in the film *Rain Man*, described in this chapter's On the Screen, can instantly count the number of wooden matches that have fallen on the floor, remember the dates of important events, or recall the numbers of all of the winning lottery tickets for the past year. Others have outstanding musical or artistic abilities. Even in light of these talents, these individuals are unable to initiate or maintain conversations and often have other severe disabilities. For example, 9-year-old Alex Mont can solve complicated mathematics problems,

On the Screen: *Rain Man*



Charlie Babbitt receives word that his wealthy father has died and that the majority of the estate is bequeathed to an autistic brother, of whom he was unaware. Charlie kidnaps his brother from the institution where he had been living for over 30 years, in an effort to get custody of Raymond so he can gain access to the inheritance. However, Charlie grows to care for Raymond and comes to realize that Raymond's disability is too overwhelming, requiring professional care.

This classic film explores a rare form of autism, wherein the person is extremely gifted (autistic savant) in mathematics but is extremely low functioning in adaptive skills. Although Raymond is more verbal than most people with autism, many scenes depict the "disconnectedness" they often exhibit. Furthermore, the film demonstrates Raymond's dependence on familiarity and sameness and on an environment providing comfort, routine, and safety. This film won Oscars in the categories of Best Director, Best Original Screenplay, and Best Picture, and Dustin Hoffman's performance as Raymond earned him the Best Actor award.

—By Steven Smith

even calculus, but has difficulties comprehending social cues. Alex also could not distinguish a horse from a cow until after he finished kindergarten. While these splinter skills are fascinating to the observer, they are rarely functional for the individual with autism.

Asperger Syndrome

First described by Dr. Hans Asperger, **Asperger syndrome** is a collection of behavioral characteristics that are associated with problems developing adequate social skills and with restricted or unusual interests. Table 12.3 provides the DSM-IV-TR description of this type of ASD. Although the communication of people with Asperger syndrome may be peculiar, this characteristic is not due to a delay in language development. In fact, children with Asperger syndrome develop speech and language on a par with children without disabilities. Other aspects of communication, however, are problematic. Some children with Asperger syndrome understand language very literally, which can make it difficult for them to form flexible conceptual categories, understand jokes, or interpret the behavior of others (e.g., gestures). For these individuals, the social use of language can be a particular challenge, as can be the ability to comprehend other people's feelings or emotions (Safran, 2001).

Unlike individuals with autism, the majority with Asperger syndrome have normal intelligence, and they should not be confused with those individuals with high-functioning autism. Children with autism are diagnosed when a language delay becomes apparent, whereas children with Asperger syndrome develop language normally. The distinction between autism and Asperger syndrome, however, may turn out to be only a matter of semantics. Presently, controversy exists about whether

Asperger syndrome One of the autism spectrum disorders (ASD) where cognition is usually in the average or above-average range

Table 12.3 • DSM-IV-TR Diagnostic Criteria for Asperger Syndrome

- A.** Qualitative impairment in social interaction, as manifested by at least two of the following:
1. Marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
 2. Failure to develop peer relationships appropriate to developmental level
 3. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
 4. Lack of social or emotional reciprocity
- B.** Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
1. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
 2. Apparently inflexible adherence to specific, nonfunctional routines or rituals
 3. Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
 4. Persistent preoccupation with parts of objects
- C.** The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.
- D.** There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years).
- E.** There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.
- F.** Criteria are not met for another specific pervasive development disorder or schizophrenia.

Source: From *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text Revision, p. 84), by the American Psychiatric Association (APA), 2003, Arlington, VA: APA. Reprinted with permission.

there are any meaningful differences in the behaviors or performance of people with high-functioning autism and Asperger syndrome. It will take years of additional research before scientists fully resolve this issue. Besides typical intelligence, children with Asperger syndrome have other unique characteristics, which can include the following (Smith Myles & Simpson, 2002):

- Social stiffness and awkwardness
- Tendency to focus on a favorite conversational topic
- Inflexibility with routines
- Difficulty understanding nonverbal cues
- Limited awareness of others' feelings
- Concrete and literal thinking
- Good comprehension of factual material
- Obsessive interests
- Poor organizational skills
- Emotional vulnerability and stress
- Sensory problems
- Clumsiness
- Low self-esteem and depression

Pervasive Developmental Disorder—Not Otherwise Specified (PDD-NOS)

PDD-NOS is the third disorder included within the ASD umbrella. Problems in the areas of communication, social skills, and unusual behaviors, including a restricted range of interests, are the three common characteristics of ASD. Each type of ASD is different in how these behavioral profiles are expressed. Almost every, but not

all, individuals with ASD exhibit all three areas of concern to some extent. However, when they do not, or when problems in all three areas are mild, a different diagnosis is made. In these cases, the disorder is identified as **pervasive developmental disorder—not otherwise specified (PDD-NOS)**. (Although the DSM-IV-TR describes PDD-NOS, it does not provide a table of its common characteristics.) The PDD part of the diagnosis signifies characteristics very similar to those of autism and Asperger syndrome, but the characteristics are not as clearly expressed. The NOS part refers to other specified disorders or syndromes. Although they share characteristics, PDD-NOS is currently considered as distinct from the other types of ASD (Walker et al., 2004).

Characteristics

Despite the heterogeneity of ASD, some general statements can be made about characteristics that people with these disorders share (see Table 12.4 for many of these specific characteristics). ASD is a lifelong disability, and no specific physical characteristics are associated with the condition. Although identified during early childhood, ASD is present very early in development. Although ASD results in unique profiles of symptoms across individuals and conditions, it typically affects three important areas that help define the condition (Barnhill, 2001):

- Communication
- Social interactions
- Restricted range of interests or behavioral repertoires

pervasive developmental disorder—not otherwise specified (PDD-NOS) One of the autistic spectrum disorders (ASD) in which not all three ASD characteristics (problems in communication, social interaction, and repetitive or manneristic behaviors) are present or they are mild

myeducationlab Go to the Activities and Applications section in Chapter 12 of MyEducationLab for, and complete Activity 1, an IRIS Information Brief: "Autism and Pervasive Developmental Disorders."

Table 12.4 • Characteristics of Autism

Impairment in Reciprocal Social Interactions

- Normal attachments to parents, family members, or caregivers do not develop.
- Friendships with peers fail to develop.
- Cooperative or peer play is rarely observed.
- Emotions, such as affection and empathy, are rarely displayed.
- Nonverbal signals of social intent (smiling, gestures, physical contact) tend not to be used.
- Eye contact is not initiated or maintained.
- Imaginative play is seldom observed.
- The lack of social-communicative gestures and utterances is apparent during the first few months of life.
- Preferred interaction style could be characterized as "extreme isolation."
- Understanding of others' beliefs, emotions, or motivations is greatly impaired.
- Joint attention deficits (not being able to cooperate or share interest with others in the same event or activity) impair normal social reciprocation.

Poor Communication Abilities

- Functional language is not acquired fully or mastered.
- Content of language is usually unrelated to immediate environmental events.
- Utterances are stereotypic and repetitive.
- Gestures, facial expressions, and nonverbal cues are poorly understood.
- Conversations are not maintained.
- Spontaneous conversations are rarely initiated.
- Speech can be meaningless, repetitive, and echolalic.
- Many fail to use the words *I* and *yes* and have problems with pronouns in general.
- Both expressive and receptive language are extremely literal.
- Verbal turn-taking, choosing a topic, and contributing properly to a conversation are rare.

Insistence on Sameness

- Marked distress is typically experienced over trivial or minor changes in the environment.
- Aspects of daily routine can become ritualized.
- Obsessive and compulsive behavior is frequently displayed.

- The need to complete self-imposed, required actions is intense.
- Stereotypic behaviors (rocking, hand-flapping) are repeated in cycles difficult to stop.

Unusual Behavior Patterns

- Hypersensitive and/or inconsistent behaviors are the response to visual, tactile, or auditory stimulation.
- Aggression to others is common, particularly when compliance is requested.
- Self-injurious or outwardly aggressive behavior (hitting, biting, kicking, head-banging) is common and frequent.
- Extreme social fears are manifested toward strangers, crowds, unusual situations, and new environments.
- Loud sounds (barking dogs, street noises) can result in startle or fearful reactions.
- Severe sleep problems occur with frequency.
- Noncompliant behavior to requests from others results in disruption to the individual and others (tantrums).
- Self-stimulation (twirling objects, rocking) consumes a considerable amount of time and energy.
- The ability to pretend is lacking.



Spotlighting Belinda Pandey: A Day in the Life

Belinda Pandey is the mother of two children with autism. Here, she shares a story about her older boy with ASD.

Today I was whining on the phone to Mom about how hard it is to parent a child with autism. I related Justin's total meltdown at the store today and how embarrassing and frustrating it was. I went on to complain about the stress and the expense of trying to get the services that Justin needs, the sleepless nights, being bitten and scratched, and the endless poop cleanup. I bemoaned the fact that he is just going to get bigger and stronger and less manageable. There were a few "why me's," and "I did not sign up for this" was said at least once.

Mom listened quietly until I was finished ranting. Then she said, "I know it's hard to be you. Think how hard it is to be him." I felt so ashamed. She's absolutely right. Since getting Justin's diagnosis I have been treating him like he is a

problem to be solved. I have been focusing on how his autism is disrupting our lives and trying to "fix" him. I have been dragging him from therapy to therapy, changing his food, and plying him with supplements. I have lost sight of the fact that he is a sweet little boy who is doing the best he can given the circumstances.

I haven't tried to understand how he sees the world; it must be so terrifying and confusing for him. He has no way to know what is coming up next or how to prepare for it. He has no way to tell us that something is painful or scary. He has no way to ask for comfort or help. It's so easy to take it personally when he tantrums or lashes out; but, it's not personal—it's the only way he has to communicate. Instead of focusing on how "bad" he is being, I need to focus on what he is trying to say and help him learn a more appropriate way to say it.

Above all I need to remember that he's just a little kid, and he's doing the best he can.

self-injury Self-inflicted injuries (head banging, eye poking)

aggression Hostile and attacking behavior, which can include verbal communication, directed toward self, others, or the physical environment

special interest area A topic of interest that can be used to encourage conversations, reduce anxiety, and increase academic motivation

In addition to these three defining characteristics of ASD and those described in the DSM-IV-TR diagnostic criteria (review those definitions found in Tables 12.2 and 12.3), individuals with ASD may be unusually sensitive to sensory input, such as loud noises or soft touches (Talay-Ongan & Wood, 2000). Some individuals with ASD have serious problems with their behavior. They might turn these tendencies inward and hurt themselves, inflicting **self-injury**, or they might turn such behavior outward and hurt others through what is called **aggression**. Others with ASD have trouble developing the abilities necessary to understand other people's perspectives or to predict others' behavior—both important skills for successful communication (Baron-Cohen, 2001). In the Spotlighting feature you learn more from Belinda Pandey, a parent of two children with ASD.

A Strength-Based Perspective

Reflecting on the characteristics described in this chapter, it is easy to understand how children with ASD have difficulties succeeding in school. Even so, students can make substantial educational progress with the right interventions. Just like the rest of us, people with ASD are unique and have a variety of strengths and abilities. For example, although children with Asperger syndrome tend to focus their conversations on a particular topic of interest, they also tend to become experts on that topic, or **special interest area**. By engaging a student in his or her special interest area, teachers can encourage conversations, reduce anxiety, and increase academic motivation (Winter-Messiers et al., 2007). Therefore, it is useful for teachers to understand children with ASD in terms of their strengths and abilities, as well as their problem areas. With this in mind, let's proceed to a discussion of how many students have ASD.

Prevalence

Prevalence is the number of cases of a condition within a population at a particular point in time. The prevalence of ASD has been the subject of much recent controversy and debate. In 2007, CDC reported that the prevalence of ASD was about

1 in 150 children in the United States (Rice et al., 2007). This figure reflects data from national studies, which found that the prevalence rates of ASD were 10 times higher than those reported in the 1980s and 1990s (Yeargin-Allsopp et al., 2003). Experts agree that ASD is being diagnosed more frequently; however, a consensus does not yet exist about why this is happening. Some feel that factors such as broadening diagnostic criteria and increased public awareness account for the relatively rapid increase in reported cases (Fombonne, 2003). Others suggest that environmental factors, including ingredients in vaccines, have contributed to a real increase in ASD. Although there is no scientific evidence to support the role of vaccines in increasing rates of ASD (Schechter & Grether, 2008), debate about why the ASD prevalence has risen will likely continue. For more information about the CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network, visit www.cdc.gov/ncbddd/autism/addm.htm.

Despite the national concern about rising cases of ASD, this disability remains very low incidence (Office of Special Education Programs [OSEP], 2008). Since 1990, when autism became a separate special education category, states have reported to the federal government the number and percentage of students with ASD identified and served in the public schools. Only 0.34% of all students ages 6 through 21 provided with special education services are identified through the IDEA '04 autism category. Although students with ASD account for a relatively small portion of all students with disabilities served under IDEA '04, current trends suggest that numbers of students served within this category will continue to rise.

Causes and Prevention

Much recent research has focused on identifying the causes of ASD. In the future, scientists hope to use this information to facilitate early identification of ASD in infants and toddlers, or to prevent the development of ASD altogether. Unfortunately, research to date has not yielded specific reasons why children develop these disorders, and scientists are still years away from completely understanding the contributing factors. Nonetheless, some general conclusions about the causes of ASD can be drawn.

Causes

As we learned earlier in the chapter, ASD is not caused by bad parenting. Rather, most experts agree that ASD is a neurobiological disorder that has a genetic basis. Scientists have studied the patterns of ASD within families, finding that children who have an identical twin, fraternal twin, or sibling with ASD are more likely to have ASD themselves (Newschaffer, Falb, & Gurney, 2005). Although it is clear that genetics figure strongly in why children develop these disorders, it is not yet understood which genes place an individual at risk. The genetic pattern for inheritance of ASD is complex and will require many additional studies for scientists to fully understand. To complicate matters, significant numbers of children experience loss of skills before the signs of ASD fully develop (Rogers, 2004). Developmental regression has led some experts to speculate that a combination of biological and environmental factors could trigger the onset of ASD, but little scientific evidence currently supports this view.

Current research is beginning to show linkages between behavioral characteristics, developmental trajectories, neurobiology, and genetics as they relate to ASD, but many myths about the cause of ASD remain on the Internet and in the popular media. Some causes suggested in recent years have included environmental toxins, gastrointestinal anomalies, vitamin deficiencies, and vaccines. Such speculation about possible causes of ASD creates dangerous situations. For example, some parents believe that the measles/mumps/rubella (MMR) vaccine causes ASD. Although strong evidence indicates that no such link exists (Schechter & Grether, 2008), some parents are withholding MMR vaccines from their children because they are concerned that the

Figure 12.2 • Healing Thresholds Web Site

Educational professionals and parents alike use the Internet to learn more about ASD. Healing Thresholds is a Web site that provides concise information about ASD therapies, research, and news developments. The site is especially helpful because it presents scientifically based information in a way that is easy to understand. Healing Thresholds features include:

- information about popular therapies, such as applied behavior analysis, including the research support for each;
- layperson summaries of peer-reviewed ASD research;
- briefs on ASD-related developments in the news; and
- a virtual community center where members can share ideas and experiences about ASD.

To learn more, visit Healing Thresholds at <http://autism.healingthresholds.com>.

vaccine may cause their child to develop ASD. The unfortunate result of this practice will be an increase in cases of measles, mumps, and rubella among children who do not receive the vaccine (Cowley, Brownell, & Footes, 2000).

Parents and professionals often use the Internet to learn more about ASD. While thousands of Web sites provide information about these disorders, much of this information is inaccurate or out-of-date. One site, however—www.healingthresholds.com—contains accurate, concise, and current information about ASD research and interventions (see Figure 12.2).

Prevention

Unfortunately, because there is so much to learn about the causes of ASD, prevention is not currently a realistic goal. Perhaps in the future, as researchers learn more about why ASD occurs, steps can be taken to prevent children from being born with or later developing characteristics associated with ASD. Until then, educational interventions are our primary basis for improving symptoms associated with ASD.

Overcoming Challenges

Just as there is rampant lay speculation about possible causes of ASD, there is also an ongoing stream of “cures” (Seroussi, 2000). The Internet and popular press are littered with stories of children being “cured” using vitamins, special diets, or newly discovered medical drugs, often based on a single case history. Parents and professionals who support these alternative treatments may believe in them and think these treatments help remediate a child’s symptoms, but no scientific evidence validates these claims. Until ASD is well understood and consistently effective treatments are developed, the causes and treatments for ASD will remain the subject of considerable speculation, conjecture, and controversy.

However, it is important to remember that ASD is a significant, lifelong disability. Long-term outcomes, even for those with average intelligence, in the areas of independent living, employment, and life satisfaction are inconsistent (Sperry, 2001). Most people with ASD require comprehensive services and supports across the life span. In general, the more severe the form of ASD, the greater the supports needed by the individual. Effective services and supports require high levels of coordination and consistency. Unfortunately, because services offered by social service agencies, health care providers, and mental health systems are often fragmented, these goals are difficult to achieve.

From early in life, the skill deficits of children with ASD affect their learning, as well as their development of social relationships. They do not participate in turn-taking exchanges. This lack of reciprocal social interaction adversely affects the acquisition and use of preverbal communication (e.g., gestures), as well as the eventual acquisition of speech and language skills (Stone & Yoder, 2001). Most cultural morés are passed from generation to generation via implicit teaching that involves social interactions and observational learning. Both of these means of learning represent problem areas for children with ASD. Most instruction at school is socially mediated and language based, again problem areas for students with ASD. Thus, the social and communication problems faced by children with ASD create a cascade of obstacles to learning and development (Carpenter, Pennington, & Rogers, 2002). In this way, ASD pervasively affects the person's entire developmental trajectory.

myeducationlab Go to the Activities and Applications section in Chapter 12 of MyEducationLab, and complete Activity 2 to learn more about social skills instruction for a child with autism and her typically developing peers in a resource room.

Assessment

Experts are focusing more attention on early screening and identification of ASD than ever before. One important reason is that ASD is often not diagnosed until two or more years after the initial signs appear (Filipek et al., 2000). If diagnosis is delayed, then intervention is delayed. Several major medical organizations, including the American Academy of Pediatrics, have developed recommendations for the screening and diagnosis of ASD in young children (Johnson & Myers, 2007; See Figure Figure 12.3). Importantly, these guidelines create a role for pediatricians to assist in the identification of ASD through early screenings. Educationally, early diagnosis is critical because it can lead to earlier intervention and better educational outcomes. For more information about the American Academy of Pediatrics guidelines for screening and evaluation of children with ASD, visit www.aap.org/healthtopics/autism.cfm.

As we have learned, ASD is a complex, lifelong disorder. There are many differences in how ASD develops among children; therefore, assessment is not a straightforward procedure. Rather, diagnosing ASD involves careful evaluation of the individual's history and unique behavioral characteristics. Three general considerations inform the ASD assessment process (Ozonoff, Goodin-Jones, & Solomon, 2005):

- Maintain a developmental perspective.
- Include information from multiple sources and contexts.
- Conduct multidisciplinary assessments.

Figure 12.3 • Early Signs of ASD

Early signs of ASD in children less than 24 months old may include

- a family history, including siblings that are diagnosed with ASD;
- poor eye contact;
- poor response to other's voices;
- poor attempts at interactive play;
- more interest in looking at objects than people;
- delayed pointing to request or share;
- decreased to-and-fro babbling and jargonizing;
- lack of warm, joyful, reciprocating expressions.

Source: Information from Johnson and Meyers, (2007).

joint attention The ability to mutually interact or to share interest in events or objects

The first of these considerations, maintain a developmental perspective, means that clinicians must carefully evaluate the child's acquisition of developmental milestones to assess which deficits are occurring. For example, one child with ASD may be quite verbal but have significant impairments in social interaction, while another may lack verbal skills altogether but respond to others' directions. A developmental perspective provides a complete picture of the individual child's strengths and weaknesses. The second consideration, include information from multiple sources and contexts, suggests that information from multiple settings and situations increases the accuracy of assessment. So, the assessment team should consider the child's skills across multiple settings (e.g., home vs. school), including familiar and unfamiliar situations. The third consideration, conduct multidisciplinary assessments, means that involving professionals from different disciplines (e.g., psychology, speech language pathology, special education) provides a more complete picture of the child's skills. Multidisciplinary assessment also facilitates the development of comprehensive intervention programs to teach skills (see Chapter 2 for more on multidisciplinary assessment).

Until recently, children with ASD were not diagnosed until the age of 5, but in part because of new assessment tools, now it is possible to diagnose children as young as the age of 2 (Bryson, Rogers, & Fombonne, 2003). For example, the *Autism Diagnostic Observation Scale* (ADOS) and the *Screening Test for Autism in Two Year Olds* (STAT), along with developmental assessments and parent reports, can help identify very young children with ASD. Because many typically developing children are just beginning to develop spoken language at the age of 2, and because the diagnostic features of ASD include language delay, both the ADOS and the STAT include measures examining other skills, such as children's ability to imitate motor movements. Apparently, children with ASD also have early deficits in motor imitation skills that can be used for diagnosis before deficits in language become apparent.

Researchers are still developing instruments that can accurately diagnose ASD in children younger than the age of 2 (Bryson et al., 2003). In fact, efforts are underway to develop methods to detect ASD even before a child's first birthday. Around 9 months of age, children without disabilities begin to engage in what psychologists describe as joint attention. **Joint attention** involves two people such as a child and a parent. It occurs when first one person looks at an object, then looks at the other person, and finally when the two people simultaneously look at the object. That is, they together (or jointly) look at (or attend) to the same object. Researchers believe that joint attention is important in the development of both language and social skills (Mundy & Neal, 2001). While children with ASD do participate in joint attention episodes, their pattern and type of participation are different from those of children without disabilities (Shienkopf et al., 2000). Why is this information important? Potentially, it can help us understand more about the development of social and language skills as well as the core characteristics of ASD. Such information might also lead to earlier identification of children with ASD.

Trained psychologists who have experience in diagnosing children with ASD are required to administer most assessment instruments used to identify ASD. One screening tool that does not require training is the *Checklist for Autism in Toddlers* (CHAT). It was developed to help physicians spot early warning signs. Another measure, the *Childhood Autism Rating Scale* (CARS; Schopler et al., 1980), is widely used to confirm a diagnosis and also to monitor the child's growth over time. CARS also describes the severity of problems that a child with ASD demonstrates.

Early Intervention

While children can be diagnosed with ASD before the age of 3, empirical evidence demonstrating which practices and programs are best for these very young children is still emerging. In other words, the ability to diagnose children with ASD has outpaced the validation of effective interventions. A few practices developed for older

children with ASD and other developmental disabilities have also proven to be effective with toddlers with ASD. For example, Schertz and Odom (2007) used a parent-mediated approach to increase joint attention in two-year-old children with ASD. Similarly, the *Walden Program* is effective with preschoolers with ASD and has been adapted to serve even younger children. Others, like the *Inclusive Program for Very Young Children with Autism*, are being developed from collective information about child development, the nature of ASD, and existing interventions that have been validated with 2-year-olds with ASD (Garfinkle & Kaiser, 2004).

Many parents turn to homeopathic remedies, including high doses of vitamins and special diets, as alternative therapies for both younger and older children with ASD. Most experts view homeopathic treatments skeptically because little scientific evidence supports their effectiveness in improving skills (Smith, McAdam, & Napolitano, 2007). It is important to weigh the unlikely benefits of alternative remedies against the costs and potentially undesirable effects of these treatments. For example, a special diet that restricts certain ingredients may constrain a child's already limited food choices and elicit challenging behaviors when preferred foods are not available.

Some children may be prescribed psychotropic medications to reduce the behavioral excesses of ASD, including stereotypies and aggression. Although evidence supports the effectiveness of psychotropic medications in suppressing undesirable behaviors in some children, response is inconsistent and medications are unlikely to help children learn new skills (Harris, LaRue, & Weiss, 2007). Prescription medications may also produce significant side effects. For these reasons, psychotropic medications should be used sparingly, particularly with children younger than 5 years old, and only when other strategies to reduce problem behavior have been exhausted (Bryson et al., 2003).

In contrast, educational programs for 3- to 5-year old children are some of the most developed and best studied, but much is still to be learned (Handleman & Harris, 2000). For example, no one program is consistently effective, so universal recommendations about educational programming cannot be made. Also, no guidelines can suggest whether one type of program would be better than another for a particular child. Finally, few studies have measured the effectiveness of a treatment program using randomized, control group experiments, and no studies have compared the effectiveness of one program against that of another.

Although no programs have been completely validated, research has identified some key features of effective programs that make a difference in the lives of these preschoolers. These key features are apparent even across programs that differ in philosophy, theoretical background, intensity of services, and timing of instruction with peers (Dawson & Osterling, 1997; Harris & Handleman, 1994; Levy, Kim, & Olive, 2006). Key elements of successful programs include

- highly supportive teaching environments,
- low staff-to-student ratios,
- plans for generalization,
- interventions to promote language and communication,
- predictable and routine schedules,
- behavioral approaches to address challenging behaviors,
- supports to facilitate program transitions, and
- parent involvement and support.

These programs also include some common targets for instruction. For example, students with ASD profit from instruction that is clear, specific, and concrete. More important content that teachers should include in their curriculum for these preschoolers is found in *Tips for Effective Instruction*.

Even though most effective programs for young children with ASD share some features, significant differences exist across programs. (Some disagreements among the advocates of different programs have been so intense that they have had to be resolved in the courts!) Two particular programs are popular in the education of preschoolers with ASD: the *Treatment and Education of Autistic*

TIPS for Effective Instruction

Teaching Preschoolers with Autism

Explicitly teach preschoolers with autism these skills.

- **Attention:** by focusing on the discrete elements of the task being taught
- **Imitation:** by guiding practice and reinforcing each step of a skill copied
- **Making requests:** by insisting that the desire be expressed orally before it is fulfilled
- **Compliance:** by insisting that an adult's request is followed
- **Play with objects:** by providing opportunities to interact with interesting toys and rewarding preschoolers when they play with the toys
- **Play with others:** by arranging opportunities and toys appropriate for playing with peers and rewarding them when they do so

structured teaching A feature of the instructional program, TEACCH, developed for students with autism where visual aids (start-to-finish boxes) are used to help students comprehend their environments

behavior analysis Research methodology using single-case designs; derived from the work of B. F. Skinner; paradigms describing human behavior in terms of events that stimulate or cause a behavior's occurrence, maintains behavior, and increases its likelihood

discrete trial teaching A highly structured technique using teacher-directed activities, repetition of skills through practice, and use of rewards

and Communication-Handicapped Children (TEACCH) and the Young Autism Program (YAP). Let's look at some highlights of these programs.

TEACCH

One program often used with students with autism was developed at the University of North Carolina at Chapel Hill. TEACCH is an intervention program that emphasizes the use of structured teaching (Lord & Schopler, 1994). **Structured teaching** involves adapting materials and environments to help children make sense of the world. Once new skills are acquired, children are taught to perform them more and more independently. The program relies on "start-to-finish boxes" as well as visual supports and schedules in teaching. The underlying philosophy of the program is that children with ASD are missing skills that they can compensate for through visual supports and other forms of structure, but they cannot learn. TEACCH is an individualized program that supports families through collaboration and training. In this program, parents become cotherapists. Although TEACCH has not been eval-

uated with rigorous research studies, preliminary evidence suggests it is beneficial for students with ASD (Smith et al., 2007).

The Young Autism Program (YAP)

YAP, one well-known program, grew out of the work of Ivar Lovaas at UCLA (Lovaas, 1987). Sometimes it is simply referred to as "the Lovaas program" or, incorrectly, as "ABA" (which stands for applied behavior analysis¹). YAP is an intensive (up to 40 hours per week) program that uses the principles of **behavior analysis** (e.g., positive reinforcement, extinction, and shaping) that have been developed by behavior analysts over the last five decades, beginning with the work of Dr. Charles B. Ferster at the Indiana University Medical Center (Ferster & DeMeyer, 1961). YAP incorporates **discrete trial teaching**, a highly structured technique involving teacher-directed activities, repetition of skills through practice, and careful application of rewards. The goal of YAP is to teach the child, one skill at a time, all the skills the child needs to participate independently in all facets of daily living. While there is considerably more research to support YAP in comparison to TEACCH, YAP has been evaluated primarily in home-based rather than school-based settings (Sallows & Graupner, 2005).

Comprehensive Approaches

Neither TEACCH nor YAP by itself is likely to address the unique educational needs of every child with ASD. Therefore, comprehensive approaches that incorporate an array of research-supported techniques, including those found in TEACCH and YAP, maxi-

¹ Laypersons often refer to the UCLA program as "ABA therapy." This is incorrect. ABA stands for applied behavior analysis (Baer, Wolf, & Risley, 1968). ABA is the science of behavior first developed in the laboratory by experimental psychologists such as B. F. Skinner and then applied to educational and other settings. YAP and other programs for children with ASD use ABA techniques, but ABA is not synonymous with any one treatment program but is the basis of most effective treatments for ASD.

mize the educational potential of each child. One example of a comprehensive approach is the *Pyramid Approach to Education in Autism* (Bondy & Sultzer-Azaroff, 2002). Developed at the Delaware Autistic Program, a statewide public school program for students with ASD (Bondy, 1996), the Pyramid Approach uses a broad spectrum of data-based techniques to support skill acquisition across domains. These techniques include visual supports and discrete trial teaching, in addition to incidental teaching strategies, delayed prompting, reward systems, activity schedules, and other behavioral strategies known to be effective for children with ASD (Matson et al., 1996). In tandem with effective practices, the Pyramid Approach adopts a functional perspective on selection of instructional goals and emphasizes the importance of community integration. Importantly, the Pyramid Approach is specifically designed to be implemented in public school settings with students of a variety of ages and functioning levels.

Teaching Students with ASD

Many of the principles that are effective in working with younger children with ASD also work well when incorporated into educational programs for older children, adolescents, and young adults with ASD (Kennedy & Horn, 2004). In particular, consistent structure, support of functional communication, instruction on social skills, and a functional and positive approach are important for school-age children with ASD (Scott, Clark, & Brady, 2000). Educators must collaborate to develop appropriate and individualized instructional plans. Here are some questions that educators may consider when planning students' educational programs (Bondy & Sulzer-Azaroff, 2002):

- What are the long-term goals of the student's education (e.g., getting a job, living independently)?
- What skills will the student need in future environments?
- What skills do typically-developing children perform?
- What are the student's strengths and weaknesses?
- What pivotal behaviors should the student learn?
- What skills will the student need in school, including inclusive settings?
- What skills will the student need in the home and community?

Four areas in particular have come to the forefront in recent years about how to effectively educate school-age learners with ASD. These include accessing the general education curriculum, making instructional accommodations, using data-based practices, and using technology.

Accessing the General Education Curriculum

A major barrier to the academic and social inclusion of students with ASD is lack of access to the general education curriculum. Traditionally, students with ASD have been taught a separate curriculum, often one that was age inappropriate and non-functional. For example, in previous decades it was common to see teenagers with ASD being taught, as a primary instructional objective, to sort different-colored chips into bins. Such a curriculum was not academically challenging, nor did it facilitate the development of social skills for interacting with others. However, in the past two decades, educators have shifted their focus to ensure what students with ASD learn is aligned with what students without disabilities learn (e.g., science, history, mathematics, English/language arts). This content alignment encourages students with and without ASD to access similar general education material. It also provides a basis for common learning and social experiences (Ryndak & Alper, 2003).

Instructional Accommodations

Access to the general educational curriculum and inclusive environments helps maximize the educational potential of each student with ASD. Because there is such a large ability range for students with ASD, the general education curriculum must be adjusted to each student's strengths and needs. For example, students with ASD are unlikely to

 Go to the Activities and Applications section in Chapter 12 of MyEducationLab, and complete Activity 3 to learn more about academic instruction in reading and language for children with autism in a resource room.

Accommodating for Inclusive Environments

Creating Situations Where Individuals with ASD Participate Successfully

Make Events Predictable

- Develop a schedule.
- Make novel experiences predictable.
- Avoid surprises.
- Do not make unannounced changes.
- Provide structure and a routine.
- Know how well the individual handles free time.

Communicate Instructions and Consequences Carefully

- Seek consistency in everyone's responses to inappropriate behavior.
- Use direct statements.
- Do not use slang or metaphors.

- Avoid using only nonverbal cues.
- Use personal pronouns carefully.

Foster Positive Participation

- Provide feedback about the appropriateness of responses.
- Remember to tell the individual when behavior is proper.
- Arrange tasks that the person can perform.
- Translate time into something tangible or visible.
- Enhance verbal communications with illustrations or pictures.
- Use concrete examples.

fully benefit from the social aspects of general education unless the teacher implements specific classroom modifications and supports to promote social interactions (Laushey & Heflin, 2000). Instructional accommodations allow educators to tailor the general education curriculum to the needs of students with ASD, while minimally changing the learning environment for other students. Here are a few general principles:

- Events should be made predictable.
- Expectations need to be carefully explained.
- A positive learning environment must be fostered.

By making accommodations, like those listed in *Accommodating for Inclusive Environments*, students with ASD are more easily and meaningfully included in general education classrooms.

Data-Based Practices

Along with access to the general education curriculum and instructional accommodations, most programs for students with ASD include explicit strategies to reduce distracting behaviors that interfere with learning and successful interactions. Challenging behaviors that hinder students' academic progress and social skills can range from stereotypies, such as hand flapping and excessive rocking, to more serious behaviors like aggression, self-injury, and property destruction. In the past, some educators relied on punishment to reduce problem behaviors. Three significant problems with punishment are that it (Cooper, Heron, & Heward, 2007)

- produces only temporary reductions in negative behaviors;
- does not teach any new skills; and
- leads to negative side effects, including the child withdrawing from and avoiding the educational environment.

Today, educators adopt a more positive and functional approach to reducing challenging behavior called **positive behavior support** (see Chapter 7 for a detailed description of positive behavior support). One critical aspect of positive behavior support involves assessing which events in the environment trigger and maintain problem behaviors. This process is called **functional behavioral assessment** (again, see Chapter 7). For example, through functional behavioral assessment the educational

positive behavior support A three-tiered model of support offering progressively more intensive levels of intervention

functional behavioral assessment A process in which interviews, observations, and environmental manipulations are conducted to determine why certain behaviors occur

team may discover that a student's disruptive hand flapping is more frequent when difficult assignments are presented and that hand flapping results in escape from demanding tasks. With this information, the team can design strategies to reduce the challenging behavior based on its functions. One strategy, **functional communication training**, involves teaching the student a more appropriate response that is functionally equivalent to the problem behavior (Durand & Merges, 2001). In the current example, the team could teach the student to request a break rather than flapping his or her hands to temporarily escape from the task. For more information about a proactive approach to classroom management based on positive behavior support, read this chapter's Tips for Classroom Management.

Strategies like functional communication training are most effective when used in combination with proactive systems that teach children to manage their own behaviors. Visual supports include a variety of techniques that help students with ASD to understand routines, transition independently from one lesson to the next, and acquire new skills. **Activity schedules** are specific visual support strategies that enable students to achieve higher levels of independence (Stromer et al., 2006). Activity schedules can range from simple written or pictorial directions

functional communication training A strategy to reduce problem behaviors by teaching functionally equivalent alternatives

activity schedules Written or pictorial directions to help perform skills and routines

TIPS for Classroom Management

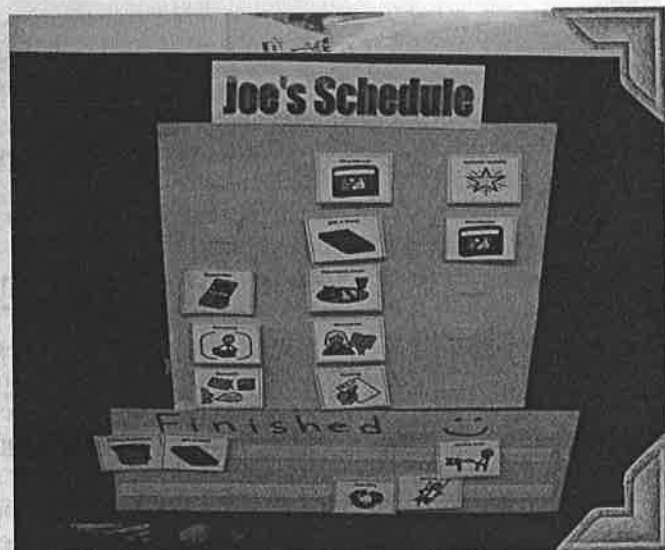
POSITIVE BEHAVIOR SUPPORT

Modify the classroom environment to minimize challenging behavior.

1. Carefully identify the inappropriate behavior(s) in observable terms.
 - For example: *Raymond flaps his hands in front of his face.*
2. Analyze events that trigger the problem behavior(s) and change them.
 - For example: *Raymond engages in this behavior when he has nothing to do, is bored, or the work is too hard for him. He continues with flapping his hands until he is reminded to work on his assignment or is given work to do that he can accomplish.*
3. Determine events that trigger the problem behavior and change them.
4. Determine substitute behaviors to develop.
 - For example: *Independent seatwork, reading silently, computing math problems are substitute behaviors, Mrs. Norega, his teacher has selected as alternate behaviors to Raymond's hand flapping.*
5. Teach and reward alternate behaviors.
 - For example: *Mrs. Norega carefully matches assignments with Raymond's skills and has alternative work available. She also prompts Raymond with these words: "Raymond, time to go back to work." And, for completing assignments, he earns a colored pencil (at the moment one of his favorite things to collect).*
6. Work with everyone to be sure that there is consistency across all settings, such as home and school.
 - For example: *Mrs. Norega implements her program for teaching Raymond functionally equivalent behaviors and gathers data to evaluate its effectiveness. Using the data from her successful program, she shows other teachers who work with Raymond and his parents how to implement it as well.*



Joe's teacher helps him see his daily assignments by using an activity schedule to help organize his day.



Social Stories™ Short stories that describe a specific activity and the behavioral expectations associated with that activity

augmentative and alternative communication (AAC) Assistive technology that helps individuals communicate, including devices that actually produce speech

picture exchange communication system (PECS). A technique where pictures are used to communicate, for individuals with autism who are nonverbal

placed in a student's notebook to interactive computer-based programs that include video clips with models of appropriate behavior. Depending on the type and purpose, activity schedules can be carried with the student or placed on the wall of the classroom, as seen in the photos.

Difficulty with social interactions is a defining characteristic of ASD. Social situations are often puzzling for students on the spectrum who have difficulty understanding the rules and norms of appropriate behavior. Therefore, it is often necessary for educators to explicitly teach social skills. **Social Stories™** is a popular strategy for helping students with ASD learn how to cope and interact in various situations (Gray & Garand, 1993). A Social Story is a short story written for an individual that describes a specific activity and the behavioral expectations associated with that activity. For example, a Social Story about lining up in the classroom might describe the instruction given by the teacher, what the students do and why, and how the target individual should respond. Other common social situations addressed by Social Stories could include sharing, turn taking, greeting, and coping with teasing. While the research on Social Stories is still emerging, preliminary studies have found them to be effective in improving social and behavioral skills of students with ASD (Sansosti, Powell-Smith, & Kincaid, 2004).

There are many strategies available for teaching communication to students with ASD. Because approximately 50% of persons with ASD do not talk, **augmentative and alternative communication (AAC)** devices provide another means to promote functional interactions (Cafiero, 2005). AAC devices range from high-tech computer tools with touch screens that enable users to generate sophisticated messages, to low-tech systems that help individuals articulate their basic wants and needs. Some team members may express concerns that AAC systems hinder students' speech by teaching them to rely on devices for communication. To the contrary, no scientific evidence suggests that AAC devices hinder speech. In fact, AAC systems may actually promote speech for some users with ASD (Tincani, 2004; Tincani, Crozier, & Alazetta, 2006).

Of the low-tech AAC strategies available, one that capitalizes on the visual strengths of students with ASD is the **picture exchange communication system (PECS)** (Charlop-Christie et al., 2002; Frost & Bondy, 2002; Schwartz, Garfinkle, & Bauer, 1998; Schwartz et al., 2001). PECS is a carefully sequenced approach for teaching people with ASD to communicate by exchanging pictures. Read this chapter's A Closer Look at Data-Based Practices to learn how PECS helps students with ASD become functional communicators by helping them express their desires and needs to others.

Technology

Students with ASD do not usually need high-tech supports to be successful in school. Rather, a variety of both low-tech and high-tech devices are available to support the development of communication, social interactions, and academic skills. Some examples of technology-based supports for students with ASD include (Tincani & Boutot, 2005)

- low-tech AAC systems, such as PECS;
- high-tech AAC devices, including voice output communication aides (VOCAs);
- interactive programs to support reading and writing skills; and
- multimedia programs to promote social and self-management skills.

While less research has been done on technology-based learning systems compared to other interventions for ASD, some promising practices are emerging. One example of a multimedia intervention, **video modeling**, involves the child viewing a model performing a desired behavior to teach social, communication, play, or functional skills (Bellini & Akullian, 2007). The student can view peers, siblings, or adults engaging in desired behaviors, or, as with video self-modeling, the child can view him- or herself performing specific skills. Video modeling capitalizes on the visual strengths of learners with ASD and helps teach targeted skills by providing clear examples. High-tech interventions like video modeling are becoming more popular as video recording equipment and software programs become less expensive and more available. Still, the potential benefits of high-tech interventions must be weighed against the costs, training, and other resources necessary to implement these tools.

Transition

Transitions are common in life. Some of those transitions are made with excitement and others with fear or trepidation. For some of us, a move to a new city is filled with joy, and the thrill of what is waiting around the next corner is uplifting. For others, transitioning to a new town is fraught with worry. Each of us is different, and each situation is different. The same is true for individuals with ASD. In particular, successful transitions at two different times—moving from early intervention programs and leaving the shelter of school and on to adult services—make real differences in the lives of these individuals and their families. Let's take a look at each of these points of time in turn.

Transition to Preschool

Myriad rules, regulations, and funding mechanisms guide how infants, toddlers, and preschoolers with disabilities, including ASD, receive early intervention services. Most early-identified infants and toddlers with disabilities—until their third birthday—receive early intervention services through Part C of the IDEA law. Part C services typically are designed to serve the family, as well as the child with the disability. Often, these services are brought to the family's home, incorporating parents and siblings, rather than just professionals, as agents of intervention. Part B services are designed for preschoolers and students up through their high school years (for some up to the age of 21). Services are delivered at schools: preschools, elementary schools, middle schools, and high schools. Some families find the transition from one type of service to another too great, and asked the federal government for other options. For this reason, the Federal government responded by providing alternatives. These are described in What IDEA '04 Says About Options for Children Ages 3 to 5.

video modeling A multimedia intervention in which the student imitates a model performing desired behaviors

myeducationlab Go to the Building Teaching Skills section in Chapter 12 of MyEducationLab, and complete the activities. As you watch the videos and answer the accompanying questions, compare how different types of multimedia and instructional software can enhance instruction for students who have autism.

What IDEA '04 Says About . . .

Options for Children Ages 3 to 5

Federal funds to support the preschool education of students with disabilities who are beyond age three are allocated through Part B of IDEA. Part C of the law outlines the requirements for early intervention services for infants and toddlers.

Parents of children eligible for preschool services provided through Part B may choose to continue early intervention services under Part C. This continuation of Part C early intervention services:

- must have an educational component that
 - promotes school readiness and
 - incorporates preliteracy, language, and numeracy skills;
- may continue until the child is eligible to enter kindergarten;
- must be developed and implemented jointly through the state and local school systems;
- must be approved by the parents through informed written consent.

A Closer Look at Data-Based Practices:

The Picture Exchange Communication System

Interacting with others and exchanging information can be challenging for many individuals with ASD. Yet, it is very important to develop functional communication skills, skills that allow each of us to express our wants and needs. Many children with ASD must be taught functional communication, abilities that children without disabilities develop naturally, through explicit instruction. One technique that has proven successful is called the Picture Exchange Communication System (PECS) developed by Andy Bondy and Lori Frost. PECS is a system for teaching functional communication to students with language difficulties, including students with ASD. Although PECS is often used with non-verbal individuals, PECS may also help persons who have limited speech to better communicate their wants and needs. PECS is unique because it is the only augmentative and alternative communication (AAC) system that teaches students to initiate communication from the beginning. In PECS, students are taught to communicate by exchanging picture symbols.

Steps to Follow

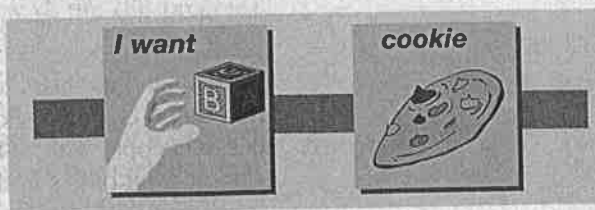
1. Conduct a reinforcer assessment
 - a. Determine what a student wants through observation, interview of others and presenting a variety of items to the student.
2. Prepare materials.
 - a. The picture symbols can come from a variety of sources, including photographs, magazines, the Internet, commercially available collections of picture cards, and computer programs specifically designed to generate picture symbols.
 - b. A PECS exchange board is created (see illustration in this box).
3. Phase 1: Teach students how to communicate.
 - a. Two trainers are used in this phase. One picture symbol is presented at a time.
 - b. When the student reaches toward a desired item, one trainer assists the student to pick up a picture symbol and to exchange it with a partner to request that item. Verbal instructions (e.g., "What do you want?") are avoided to help the student to become more independent.
 - c. Once students learn to initiate communication, PECS focuses on increasing students' spontaneity, expanding their vocabulary, and helping them to engage in more complex conversations.
 - d. Students become motivated to communicate through the use of highly preferred items identified through a reinforcer assessment.
4. Phase 2: Foster student's independence and persistence.
 - a. Students are taught to travel an increasing distance to get a picture symbol from a communication book, and to travel an increasing distance to exchange a picture with a partner.
 - b. The second trainer who is providing physical prompts gradually fades out to promote independence. Verbal instructions are avoided.
 - c. By teaching the students how to travel, students learn how to gain the attention of others in a way that is functional.
 - d. Students are taught to carry their communication books.
 - e. The trainers create many opportunities for communication to occur throughout the day.
5. Phase 3: Teach students to discriminate preferences from an expanding array of picture symbols.
 - a. Students learn to discriminate between a picture symbol for a highly preferred item (e.g., candy) and a non-preferred item (e.g., sock), paying attention to the symbols in order to communicate the right message.
 - b. Students learn to discriminate among a variety of preferred items (e.g., spin toy and ball).
 - c. The number of picture symbols in the communication book is gradually increased to expand vocabulary.



Source: Picture used with permission from Pyramid Educational Products. Pyramid reserves all rights to the picture.

6. Phase 4: Introduce sentence structure.
 - a. Students are taught to construct a sentence (i.e., "I want [item].") to request something through a technique called backward chaining.
7. Expanding sentence structure
 - a. Students learn to request items by their attributes (e.g., "I want blue candy.").
8. Phase 5: Respond to questions.
 - a. Individuals learn to answer the question, "What do you want?"
9. Phase 6: Comment on the environment.
 - a. Students learn to answer a comment question, (e.g. "what do you see?").
 - b. Some students learn to comment spontaneously by assembling sentences, such as "I see (item)" or "I hear (sound)."

Example of a PECS Sentence Strip



Source: Adapted from the *Picture Exchange Communication System* training manual by L. Frost and A. Bondy 2002, Newark, DE: Pyramid Educational Products, Inc.



Go to the Activities and Applications section in Chapter 12 of MyEducationLab, and complete Activity 5 to learn more about inclusive practices.

Transition to Services for Adults

An important part of educational programming for students with ASD is the successful transition from supports provided at school to adult focused supports (Wehman, 2000). Just like the rest of us, people with ASD want to live independently and have meaningful, sustaining employment. Although many persons with ASD have talents and skills that make them employable, their difficulty with social interactions and their need for routine often results in a need to receive **supported employment**. For adults with ASD, supported employment can address several major areas of assistance (Muller et al., 2003). Some examples of these are

- mastering the job application process,
- adapting to new routines,
- communicating in the workplace, and
- navigating social interactions with employers and coworkers.

In addition, like other adults, people with ASD often want opportunities to continue their education after high school, but for these individuals, additional supports may be required to insure ongoing success (Getzel & Wehman, 2004). In general, the difficulties faced by people with ASD are similar to those faced by others with disabilities. Transition components of IEPs (see Chapter 2 for a review) are necessary and important, but issues such as living and working independently require ongoing support for people with ASD and their families. Transition outcomes, such as living and working in the community, become the focus of educational programming in high school and on through adulthood.

For people with ASD, life as an adult can be a challenging and rewarding part of life, as it is for all of us. However, people with ASD may need additional supports to succeed. Many of these individuals, like Jessy Park, are happy, successful adults, particularly when they are able to focus on their interests, preferences, and opportunities to continue to grow as individuals (Park, 2001). Jessy is an artist whose work is receiving national attention, but she is unable to live independently or interact with people comfortably enough to live and participate in the community without additional help from others. With these supports, she does well; without them, she often struggles to succeed. Anthony Crudale, another recognized artist with ASD, is a college graduate and a marathon runner (Raia, 2001). Although he drives a car and has a college degree,



Go to the Activities and Applications section in Chapter 12 of MyEducationLab, and complete Activity 4. As you watch the video and answer the accompanying questions, notice the interactions between the pre-school children who have autism and their typically developing peers in this inclusive classroom.

supported employment A strategy used in job training in which the student is placed in a paying job and receives significant assistance and support and the employer is helped with the compensation

at age 24 he requires assistance to live independently and work. His mother worries that people do not understand ASD and that Anthony's inability to maintain eye contact with other people, his short verbal responses, and his inability to carry on conversations make others uncomfortable. She believes that he, and others with ASD, are excellent employees because of characteristics like focusing on specific tasks, attention to detail, and the need to complete jobs, but that others in society need to understand the unique characteristics of people with ASD. These observations highlight the fact that for people with ASD to be successful as adults, they require understanding and support from others in their community.

Collaboration

peer supports An instructional strategy that facilitates social interaction and access to the general education curriculum

Students with ASD must have access to the least restrictive environment (LRE), which in school contexts often means general education settings and peers without disabilities (Ryndak & Alper, 2003). Sometimes, this access is hard to achieve and maintain. Using techniques such as adapting or modifying the school curriculum and using **peer supports** can help teachers encourage behaviors that will allow students to remain engaged in instruction provided in the general education classroom (Kennedy & Horn, 2004). One peer supports strategy involves pairing the child with ASD and a peer buddy who does not have a disability (Laushey & Heflin, 2000). In dyads, the peer buddy can facilitate communicative responses and social interactions that would otherwise not occur.

Such interventions, along with adjustments and accommodations, become part of the package necessary to ensure LRE and a free appropriate public education (FAPE) to students who are challenging to teach. Interdisciplinary teams of professionals, including general and special educators and related services professionals such as behavior analysts, need to work together to identify the specific accommodations needed for each student. It is imperative that students with ASD experience typical and supported interactions with peers without disabilities. Such inclusion provides these students with appropriate role models, where they can observe how others behave and interact with each other. Some programs, such as *Learning Experiences: An Alternative Program for Preschoolers and Parents (LEAP)*, integrate children with autism into inclusive settings at the outset of treatment (Hoyson, Jamieson, & Strain, 1984; Strain & Hoyson, 2000). With older students, the focus is on inclusive education and skill building in the LRE. However, it is important to remember that the following elements must be present:

- Sufficient structure
- Supports for functional communication
- Use of behavior analysis techniques
- Supports for social interactions

behavior analyst A support professional with expertise in applying principles of behavior to develop interventions for students with ASD and other disabilities

Board Certified Behavior Analyst™ (BCBA) A behavior analyst who has fulfilled national certification requirements, including coursework and fieldwork, has passed a competency exam, and holds at least a master's degree in a related field (e.g., education, psychology)

task analysis Breaking down problems and tasks into smaller, sequenced components

Collaborating with Support Personnel: Behavior Analysts

As we are discovering, children with ASD need to learn many different things, including communication and socialization, as well as adaptive daily living and functional skills. Teaching techniques based in the science of behavior analysis are effective in helping people with ASD acquire new skills and maintain existing ones (Rosenwasser & Axelrod, 2002). **Behavior analysts** are support personnel with expertise in applying behavioral principles to teach specific learning objectives. Increasingly, school systems are employing **Board Certified Behavior Analysts™ (BCBAs)**, nationally certified professionals who have fulfilled coursework and supervised experience requirements to demonstrate their expertise in applying behavioral techniques (Shook, 2005). For example, a special education teacher who wants to teach a child with ASD to initiate social interactions could work with a BCBA to **task analyze** social skills, develop appropriate prompting and error correction procedures, and implement data collection systems.

Collaborative Practices: Minimizing Conflict

It is critical for educators to acknowledge that developing a student's educational program is a team-based process (see Chapter 2 for a review of the IEP process). Therefore, disagreements can occur as the team selects a student's educational goals and interventions. Conflicts are more likely when team members have strong yet opposing feelings about which programs and strategies are most effective. For example, it is common for parents of children with ASD to advocate for a program primarily based on applied behavior analysis, like the YAP, while professional team members support a more eclectic approach (Etscheidt, 2003). Here are five steps for team members to follow in order to minimize conflicts during the teaming process (Tincani, 2007*):

1. Establish an evidence base for potential interventions.
2. Solicit input and evaluate the compatibility of potential interventions with team members' values.
3. Assess the capacity of team members to support interventions.
4. Assess the compatibility of the interventions with schoolwide programs and administrative supports.
5. Implement and evaluate the selected interventions.

Partnerships with Families and Communities

Having a child with ASD is a challenge, even for the most confident parents (Powell, Hecimovic, & Christensen, 1992). Many parents blame themselves for not being able to solve their children's problems. Others, like the parent discussed in this chapter's Considering Culture, may have difficulty coming to terms with their child's ASD. Clearly, the challenges the entire family faces when a family member has ASD can seem overwhelming. Having a brother or sister with ASD can also be challenging, leaving the sibling many times without understanding what to do when an inappropriate behavior occurs in public or when friends ask about their sibling. Children with ASD often lack independent play and leisure skills, which means that parents must spend more time providing direct care to their children. One result is that parents have less time to take care of other important activities of daily living, such as self-care and household chores.

Perhaps more frustrating are the struggles that families have in forming normal relationships with their children with ASD. Some parents report difficulties connecting with or relating to their child. This experience is common with children who do not like physical affection such as hugs or who are socially avoidant. Parents who believe they are in part responsible for their children's successful education often find it very frustrating when learning is not achieved or is achieved very slowly.

Nevertheless, ASD is not readily apparent to others—these children do not typically have physical features indicating a disability. Although this may seem fortunate, many families find it a source of concern. For example, one mother was worried that on shopping trips, strangers would say "Hi" to her child. The mother worried that her child would ignore the stranger's greeting and the stranger would assume that she was a bad mother because her child was rude. To prevent this from happening, the mother used signs with her child, even though the child did not understand them. The mother thought that her use of signs would cue others that her child had a disability. Another mother kept a letter from her son's pediatrician in



Kelly, who has autism, is the younger sister of Katani, one of the Beacon Street Girls, a popular series of books of the same name. Both autism and dyslexia are presented in these books.

* From *Intervention in School and Clinic. Online* by M. Tincani. Copyright 2007 by Sage Publications Inc. Journals. Reproduced with permission of Sage Publications, Inc. Journals in the formats Textbook and Other book via Copyright Clearance Center.

Considering Culture: *Coming to Terms*

Jin and Mei are the parents of a 3-year-old boy named Shen. Jin and Mei migrated to the United States 2 years before Shen was born. They were very active in their community before Shen's birth, attending church regularly and volunteering at a local charity. Shen is the only child in the family, has just turned 3 years old, and spends 8 hours of his day attending a preschool program while both of his parents work. Mei began to feel concerned about Shen's development when he was about a year old. Shen wasn't walking yet, didn't babble, and was most content when left alone in his crib. When Mei shared these concerns with her husband, Jin convinced her that everything was fine and that she need not worry. Shen's pediatrician agreed, so Mei stopped sharing her concerns with others.

As Shen grew older, he began to engage in long and intense tantrums several times a day. Shen would scream, cry, and throw objects for reasons his parents could not understand. Jin thought this was normal for a 2-year-old child. Soon the disruptive tantrums prevented Jin and Mei from attending church. They were embarrassed that their son could not behave like the other young children in church. While Mei sensed that something was different with their child, Jin always explained that Shen "was just being a boy" and that he would be fine once he got

a little older. Again, Shen's pediatrician tried to allay Mei's fears. The doctor told Mei that boys tend to develop slower than girls. "Let's just wait another 6 months and see how things go," he said.

Carla, Shen's preschool teacher, had a nephew with autism and knew about the importance of early intervention. She recognized several characteristics that resembled autism, immediately spoke with her supervisor, and after a few weeks she approached Jin about her concerns. Carla was surprised at the defensive reaction Jin had. Jin accused her of picking on his son, stated that the other kids were causing his son to get upset at school, and threatened to stop bringing Shen to school. Carla felt embarrassed about the whole incident but still wanted to help Shen and his family.

Questions to Consider

1. What could Carla have done before approaching Jin about Shen's apparent disability?
2. Knowing that early intervention is the key to better outcomes, if you were Carla how could you approach the family again in order to get Shen the services he could benefit from?

—By Jason Travers

her purse, describing her son's ASD diagnosis. Her son was nonverbal but screamed when in noisy situations or when unpredictable changes occurred. This screaming had happened several times in public, resulting in the police being called on more than one occasion. This mother was afraid of being arrested for child abuse.

The behaviors that define the ASD umbrella make being a parent challenging. Many programs recognize these difficulties and provide supports for families. Some programs offer support groups and information on how to access community services such as respite care. Other programs help parents develop skills they need to raise their child more effectively. For example, the TEACCH program in North Carolina offers an 8-week course for parents. These teaching sessions provide information about the nature of ASD, as well as presenting techniques whereby parents can "co-treat" their child with ASD. Regardless of the model, support from professionals, support from other parents of children with ASD, access to information, and access to high-quality comprehensive services are paramount.

Summary

As a group, autism, Asperger syndrome, and PDD-NOS comprise the autism spectrum disorders (ASD). Although most experts no longer consider them to be ASD, Rett syndrome and CDD are also pervasive developmental disorders and are described in the DSM-IV-TR. ASD is a complex set of conditions, which present common problems in the areas of: communication, social interaction, and repetitive behaviors/interests. Early intervention is important, but while current diagnostic approaches allow for identification of ASD in children as young as 2 years of age, the diagnosis is not often made until 5 years of age. Data-based practices for individuals with autism exist and rely largely on behavior analysis approaches, but other effective strategies, such as TEACCH, also have been developed. Effective approaches for individuals with ASD, regardless of the person's age, all share certain features, including sufficient structure, supports for functional communication, use of behavior analysis techniques, and supports for social interactions. ASD is a lifelong disorder, and most persons require support into adulthood. If such supports are provided, people with ASD can lead fulfilling and successful lives as adults.

Answering the Chapter Objectives

1. What is the relation between autism and other autism spectrum disorders (ASD)?
 - Autism is one of three types of conditions included under the umbrella of ASD.
 - The three ASD conditions are autism, Asperger syndrome, and PDD-NOS.
 - Rett syndrome and CCD are related syndromes considered to be pervasive developmental disorders.
2. What core characteristics identify individuals within the autism spectrum?
 - Problems with communication
 - Limited social interaction
 - Repetitive behaviors or unusual interests
3. What is known about the causes of autism spectrum disorders?
 - ASD has a neurobiological basis that effects brain development and probably has some genetic basis.
4. The degree to which brain development, genes, and the environment interact has yet to be determined.
4. How can learning environments be structured so that individuals with autism spectrum disorders will maximally benefit from instruction?
 - Provide sufficient structure
 - Support functional communication
 - Use behavior analysis techniques
 - Support social interactions
5. What are data-based instructional strategies for students with ASD?
 - Positive behavior support
 - Functional communication training
 - Visual supports and activity schedules
 - Social stories
 - AAC systems such as PECS.



Now go to MyEducationLab at www.myeducationlab.com and take the Self-Assessment to gauge your initial comprehension of chapter content. Once you have taken the Self-Assessment, use your individualized Study Plan for Chapter 12 to enhance your understanding of the concepts discussed in the chapter.



ADDRESSING THE PROFESSIONAL STANDARDS

Council for Exceptional Children (CEC) knowledge standards addressed in this chapter.

IC1K2, IC1K1, IC2K4, IC2K3, IC8K1, IC4S3, IC4K4, IC10K2, IC10K1

Appendix A: CEC Knowledge and Skill Standards Common Core has a full listing of the standards listed here.

Appendix B: CEC Knowledge and Skill Common Core Standards and Associated Subcategories are broken down by chapter.