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## What Is an Autism Spectrum Disorder (ASD)?

Carla is a new first grader in Mrs. Edwards's class. Everyone is excited to get to know the new student. About a week after Carla joined her class, Mrs. Edwards starts to observe some behaviors that cause her concern: Carla can never get started on an assignment, she has frequent childish outbursts of anger at her peers, and she often seems to prefer the adults' company over that of her peers. Carla has been recently diagnosed with autism.



Autism was identified almost simultaneously both in the United States and in Europe. In 1943 in the United States, Dr. Kanner, a psychiatrist, is credited with first introducing the term *early infantile autism* in his article, "Autistic Disturbances of Affective Contact," where he described 11 students with unique characteristics that set them apart from others he had seen in his clinic. This article is considered pivotal, as it identified for the first time a separate category of mental disorder that was distinguishable from other mental disorders known at that time, such as mental retardation or schizophrenia. Coincidentally, during the same period, another physician was researching the same phenomenon on another continent—Europe. In 1944 in Austria, Hans Asperger described a similar set of characteristics in four boys with normal intelligence, which he called *autistic psychopathy*. Because these children had normal intelligence and language development, it was originally considered to be a type of higher functioning autism (HFA) and then later thought of as a separate disorder and labeled Asperger syndrome (AS).

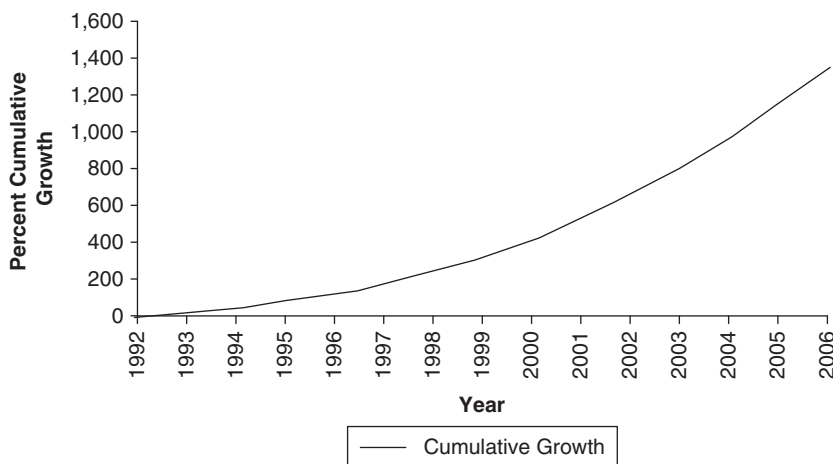
In the latter part of the 20th century, based on Kanner's (1943) and Asperger's (1944) insightful observations, the similarities and differences in those with autistic characteristics were all finally recognized and described by the academic community as separate developmental disorders.

## Prevalence and Prognosis

Various sources today report a dramatic increase in the autism prevalence in the general population such that it is believed that today autism is occurring at a rate of 6.7 in 1000 (Department of Health and Human Services Centers for Disease Control and Prevention [CDC], 2007). Furthermore, according to Individuals with Disabilities Education Act (IDEA) data published by United States Department of Education (DOE), from 1993 to 2006 there has been a 1,342% increase in the number of students aged 6–22 with ASD who have been served by IDEA (cited at *Fighting Autism*, n.d.; see Figure 1.1).

This statistic is further supported by the National Institutes of Health (NIH) which estimates that today approximately 400,000 people in the United States have autism, making it the third most common developmental disability (Morgan & Shoop, n.d.). The rise in the numbers of children diagnosed with ASD has led to an intense interest in the cause of the increase. Some speculate that better diagnosis of the condition, greater willingness to accept the diagnostic label, and a change in the social construct of autism are responsible for this upsurge while others believe it is due to environmental factors. Evidence continues to suggest that autism might have a strong genetic component. According to NIH (2004), at least 80% of the disorder is due to hereditary factors. In addition, an identical twin is more likely than a fraternal twin to have autism. Finally, studies on gender report that autism afflicts boys five times more than girls (National Research Council [NRC], 2001). Some researchers suggest that autism may be the result of a combination of factors such as a faulty immune system, metabolic disorders, viral agents, or some other combination of environmental hazards along with a genetic predisposition that triggers the disorder.

**Figure 1.1** Number of Students With Autism—Percentage of Cumulative Growth



Source: [www.ideadata.org](http://www.ideadata.org) and [www.cdc.gov/nchs](http://www.cdc.gov/nchs), retrieved March 20, 2008, from <http://www.fightingautism.org/idea/autism.php>. Data is based on the number of students served under IDEA in U.S. schools from 1992–2006.

Although autism is generally regarded as a lifelong disability, the variability and the severity of symptoms make it impossible to determine the progression of the disability over time. However, experts generally concur that IQ, language skills prior to the age of five, degree of disability, early intervention, the emergence of theory of mind, and the level of therapy available to individuals with autism are indicators of long-term prognosis (Happé, 1991; NRC, 2001; Simpson, Myles, & LaCava, 2008). Other predictors of long-term outcome include joint attention, symbolic play, and receptive language (Sigman, et al., 1999).

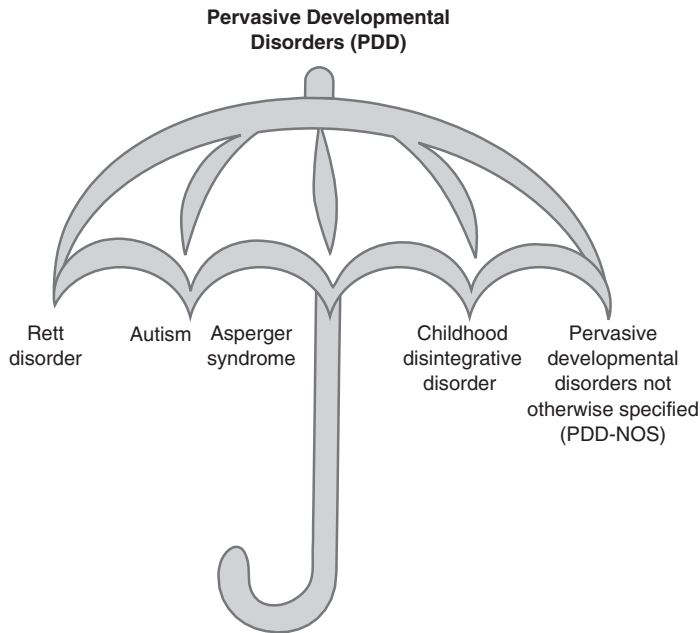
The prognosis for children in the spectrum becomes more encouraging than it was in the past. Today, with appropriate education, many are able to live with their families or in the community. In fact, many individuals with ASD perform well in jobs that require repetition and accuracy, although some may need mentors at the work location. When provided with intensive and appropriate early intervention, many students are then able to stay abreast of their peers in school and go on to complete high school programs or pursue advanced academic careers. Because the amount and the pace of progress are unique for each person, it is important for teachers to use research-based interventions that have been proven effective with many individuals on the spectrum. These interventions need, of course, to be tailored to the specific and unique needs of the student with whom you work.

## Characteristics of Students With ASD

The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV;* American Psychiatric Association [APA], 2000) classifies autism as a subcategory of pervasive developmental disorders (PDD). In fact, PDD is viewed as an umbrella that encompasses Rett disorder, childhood disintegrative disorder (CDD), autistic disorder, pervasive developmental disorder not otherwise specified (PDD-NOS), and Asperger syndrome (AS) (Figure 1.2). The common thread to these exceptionalities is a pervasive impairment in several areas of development, such as social interaction skills, communication skills, the presence of stereotyped behavior, narrow interests, and an insistence on sameness.

PDD is generally viewed as a spectrum which, at the one extreme, includes individuals with normal to high IQ who may also have mild characteristics of autism to those at the other extreme who in addition to mental retardation may suffer from severe symptoms. One of the major factors contributing to the complexities of ASD is that each individual on this spectrum displays a unique combination of deficits and strengths, depending on the degree of the disability, cognitive ability, and comorbidity with other impairments. Other factors contributing to diversity in this population include each person's personality, interests, approach to solving problems, and learning styles (Janzen, 2003). Still, it is well documented that ASD results in abnormal functioning in several of the following areas: communication, socialization, behavior, cognition, and sensory integration. In the following paragraphs, we will describe the unique characteristics exhibited by individuals on the autism spectrum in each domain.

**Figure 1.2** The Umbrella of Pervasive Developmental Disorders (PDD)



## Communication

A predominant characteristic of ASD is a lack of understanding how we communicate with each other through turn taking with words and the nonverbal means, such as eye gaze, eye contact, and pointing. These deficits in joint attention may also be accompanied by profound delays in language acquisition. These skills can vary dramatically between students on the spectrum; the achievement of functional expressive language by the age of five years is considered one of the most important predictors of a positive outcome in autism. As with other characteristics, we can outline them on a continuum from most severe to least severe while remembering that anything that interferes with communication skills will have repercussions in many areas but particularly in that of social and academic functioning.

The most severe characteristics are

- no functional expressive language;
- no apparent understanding of language;
- lack of nonverbal communicative interactions (e.g., eye contact, eye gaze, distal point, turn taking with smiles and laughter);
- no response when name is called.

The less severe characteristics are

- language characterized by repetitiveness (e.g., asking the same question over and over again);

- echolalia—(a) immediate (e.g., responding with “what’s your name?” when asked “what’s your name?”) or (b) delayed (e.g., reciting a conversation heard the day before);
- pronoun reversal (e.g., responding with “you want a drink” when the student actually means “I want a drink”).

The least severe characteristics are

- difficulty in starting a conversation, maintaining a topic, or making what we call small talk;
- lack of awareness of some conversational conventions (e.g., maintaining eye contact, how close to stand to the person you talk to, speaking volume, and so forth);
- failure to understand figurative language and metaphors (e.g., “be careful not to step on somebody’s toes”);
- difficulty comprehending and expressing abstract concepts; limited by a concrete understanding of language;
- lack of reciprocity and not perceiving that the listener may have a different perspective.

The course of early language development is generally seen as one of the crucial elements that distinguish students with AS from those with autism. According to the *DSM-IV*, the language development of two- and three-year-olds with AS is typical, while those with autism have marked deficits and delays in language development before the age of three.



*Remember: Students with ASD will take what you say literally, so if you ask them politely, “Are you ready to get started on your spelling?” they may well tell you, “No!”*

## Socialization

Many regard impairments in social competence as the core feature of this disability. As with the area of communication, the extent of the deficits in socialization varies greatly from student to student and correlates with the student’s developmental level. Here are some of the characteristics common to students with ASD in the area of socialization.

The most severe characteristics are

- lack of social and emotional reciprocity;
- limited or abnormal facial expressions, body posture, eye contact, and other nonverbal forms of communication;
- not sharing an interest or enjoyment in objects, people, or events through facial expressions or by pointing them out to others;
- lack of play skills including turn taking and imaginative play.


The less severe characteristics are

- difficulty recognizing and responding to emotions, communicative gestures, and expressions;
- difficulty initiating and maintaining a conversation;
- difficulty intuitively tracking other people's beliefs and intentions during personal interactions;
- difficulty formulating and initiating questions to show interest in other people;
- difficulty interacting collaboratively in a group setting both in the classroom and during unstructured times (e.g., recess).

The least severe characteristics are

- difficulty with organization;
- difficulty in planning and prioritizing tasks;
- poor personal problem-solving skills.

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*Remember: Not all students with ASD display all these characteristics.*

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These features seriously impede our students' ability to enter into and maintain peer and adult relationships. They also affect a student's ability to function appropriately in the school environment.

## Behavior

Another area greatly impacted by ASD is behavior. Expect students to display some of the following characteristics:

- Preference for solitude
- Preference for sameness and difficulty with changes of any sort
- Inflexible insistence on nonfunctional routines or rituals
- Use of objects in an unconventional way (e.g., spinning a car's wheels over and over again)
- Preoccupation with one or more stereotyped and restricted topics of interest (e.g., an intense interest in trains)
- Inability to participate in pretend games
- Stereotyped and repetitive motor movements (e.g., hand or finger flapping)
- Severe tantrums which might include aggressive or self-injurious behaviors (e.g., biting one's self or others and head banging)
- Excessive concern with doing the right thing
- Socially unacceptable behaviors (e.g., nose picking)
- Delays in the development of age-appropriate adaptive behavior self-help skills (e.g., dressing, toileting, grooming, and so forth)

In conclusion, the behavior of individuals with autism is marked by both excesses and deficits that greatly interfere with their ability to function in their environment and to effectively benefit from interactions with the social world around them.

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*Remember: Behaviors fulfill a communicative function for the student. Therefore our goal is never to simply eliminate an inappropriate behavior but to replace it with another more socially appropriate one.*

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## Cognition

In the cognition area, students with ASD display unique features that impact how they process new information. These characteristics may include the following:

- Uneven repertoire of skills (splinter skills), such as, a special facility for calculating math facts but lack of comprehension of simple stories.
- An ability to focus on a seemingly trivial or irrelevant item of interest (stimulus overselectivity) while displaying an extremely short attention span for topics of less interest.
- May have a short attention span for topics of little interest while hyperfocusing on topics of high interest and thus often lose track of time.
- Diminished motivation to learn new material. (Often our students are not reinforced by social praise or tangible items used with typically developing peers, such as stickers.)
- Generalization difficulties. (Students with ASD tend to either overgeneralize or undergeneralize concepts. A student, for example, can learn to match the word *pen* with the relevant object in a classroom but fail to generalize the word to *pens* they see in other places.)
- Difficulties processing multiple cues at the same time (e.g., a verbal message, voice intonation, and facial expression).

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*Remember: Awareness of the unique cognitive difficulties your student has will help you devise strategies to overcome them.*

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These characteristics make integrating students with ASD in the general curriculum particularly challenging. Fortunately, many strategies have already been developed, and they are discussed in Chapter 5.

## Sensory

It has been well documented that students with ASD struggle with sensory processing issues to various degrees (Anzalone & Williamson, 2000; Dunn, 2008) and can experience either oversensitivity or undersensitivity in one or more of the sensory modalities—visual, tactile, auditory, olfactory, vestibular (the system found in the inner ear that is responsible for balance

and movement), and proprioceptive (the system responsible for providing the nervous system with information about the location of a body part through movements of muscles and joints) domains. Some abnormal sensory stimulation issues experienced by our students with ASD include the following:

- Sensitivity to touch that cause a student to wear only certain types of clothing, to refuse to eat a certain food because of its texture, or to react strongly to a light touch on his shoulder
- Sensitivity to odors that cause a student to react negatively to smells from the cafeteria or the smell of shampoo or lotion used by teachers or peers
- Lack of responsiveness to specific sounds and oversensitivity to others of a certain pitch
- Sensitivity to the hum and flicker of florescent lighting
- Insensitivity to pain
- Hyperarousal or hypoarousal
- Difficulty with activities that require eye-hand coordination
- Clumsiness and unusual posture
- Toe walking
- Self-stimulating behaviors, such as rocking or flicking fingers in front of the eyes



*Remember: It is helpful to keep in mind that some inappropriate behaviors can be triggered by abnormal sensory processing difficulties.*

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In conclusion, it is important to realize that our students' sensory needs might prevent them from functioning appropriately in their environment. Ideas for treatment and interventions are discussed in Chapter 5.

The description of autism provided in this chapter was not meant to be exhaustive but to provide you with basic information of this intriguing exceptionality and, consequently, to help you understand the interventions suggested in the following chapters. Remember our student Carla described in the vignette at the beginning of the chapter? Thanks to Mrs. Edwards's understanding of autism, she was able to implement some interventions that have helped Carla cope better in her class. In the next chapters, we will share with you these strategies that we have also found extremely helpful for our students.