

Educational Interventions for Individuals With Asperger Syndrome

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Children with Asperger syndrome may frequently exhibit problems in the areas of social, behavioral, academic, motor, and sensory skills. Interventions are most effective if they are consistently implemented, use concrete information and visual structures, and utilize the assistance of parents, teachers, peers, and therapists.

Identifying autism has become more prevalent during the past two decades, with the rate of autism spectrum disorders approaching one percent of school age children. Autism is three to four times more common in boys than in girls.

Research on autism has cut across racial, ethnic, and social boundaries (Souders, Freeman, DePaul, & Levy, 2002). Nash (2003) has reported that autism may affect 1 in 150 children age 10 or younger. If adults are included in prevalence data, more than one million people in the United States have autism or an autistic-related disorder (pervasive developmental disorder).

Many consider Asperger syndrome to be either at the higher functioning end of the autism spectrum or a separate autism-related disability. It was identified in 1944 by Hans Asperger and focused on children who were withdrawn and self-absorbed. The condition was rediscovered in 1980 by Dr. Lorna Wing who also coined the term "Asperger syndrome" (Kaufman, 2002). Myles and Simpson (2003) defined Asperger syndrome using the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* diagnostic criteria, and the criteria included

- an impairment in social interaction;
- repetitive and restrictive stereotyped patterns of behavior, activities, and interests;

- significant social, occupational, or other impairments in functioning;
- absence of significant delay in language; and
- absence of delays in cognitive development, self-help skills, curiosity about the environment, and adaptive behavior (other than social interaction).

The condition does not include schizophrenia or other pervasive developmental disorders (Myles & Simpson, 2003). Nash (2003) has reported that signs of Asperger's syndrome consist of

1. difficulty making friends,
2. difficulty using nonverbal social cues,
3. narrow area of interest,
4. poor motor skills,
5. inflexible in the process of routine change, and
6. inability to take another person's perspective.

Children with Asperger syndrome often exhibit no significant cognitive delays or impairments in language development and often speak and read during the early childhood years. They often have motor problems and are overstimulated by crowded rooms and cluttered or overwhelming visual situations (Kaufman, 2002). Individuals with Asperger syndrome have problems in social



interaction, communication, and thought flexibility. In addition, they may have narrow interests, lack imagination, and love routine. These individuals have few language problems and other learning difficulties, compared to individuals with autism (Thomas, Barratt, Clewly, Joy, Potter, & Whitaker, 1998).

Possible Causes of Asperger Syndrome

Klin, Volkmar, and Sparrow (2000) noted that genetics and neurobiology seem to play a causative role in Asperger syndrome, yet they concluded that few definitive studies explain the causes. Nash (2003) has indicated that genes regulating glutamate, serotonin, and gamma-aminobutyric acid and their interactions may relate to possible causative factors in autism. He has also reported a tendency for Asperger syndrome to occur in families and at times pass directly from father to son. Further, brothers and sisters of children with autism may exhibit autistic tendencies. Waltz (2002) has indicated that although the genetic component in autistic spectrum disorders is fairly strong, the inheritance pattern is not known. If one child

in a family has autism, there is a 3% to 4.5% chance of having a second child with autism. This is 50 times the normal risk.

Assessment of Children With Asperger Syndrome

Assessment of children with Asperger syndrome can be both formal and informal—drawn from the child's developmental history, use of rating scales, psychological evaluations, assessment of language and communication, and evaluation of social interactions. A developmental history might consist of information on early development of social, communication, and motor skills; the awareness of the presence of seizures and sensory deficits; a family history of developmental or psychiatric disorders (Freeman, Cronin, & Candela, 2002).

Specific rating scales that are helpful in diagnosing autism spectrum disorders include the *Checklist for Autism in Toddlers* (CHAT; Wheelwright, 1995), the *Autism Behavior Checklist* (Krug, Arick, & Almond, 2005), the *Childhood Autism Rating Scale* (CARS; Schopler, Reichler, & Renner, 1998), the *Autism Diagnostic Observation Scale* (ADOS; Lord, Rutter, & DiLavore, 1997), and the *Autism Diagnostic Interview—Revised* (ADI-R; Lord, Rutter, & LeCouteur, 1994). Measures related specifically to Asperger syndrome include the *Asperger Syndrome Diagnostic Scale* (ASDS; Myles, Bock, & Simpson, 2000) and the *Gilliam Asperger Disorder Scale* (Gilliam, 2001). The ASDS has the subscales of language, social, maladaptive behavior, cognition, and sensory motor. The *Gilliam Asperger Disorder Scale* is a normed assessment for individuals with Asperger syndrome who range in age from 3 to 22 years. The test is divided into four subscales that describe specific behavior, including stereotyped behaviors, social interaction, communication, and developmental differences. The test is frequently used to discriminate individuals with Asperger syndrome from those with autism and other behavioral disorders (Gilliam, 2001; Myles & Simpson, 2003).

Characteristics

Children and adults with Asperger syndrome exhibit severe social interaction deficits, such as impaired social interactions, repetitive patterns of behavior, and restricted interests and activities. Also, children and adults with Asperger syndrome may have extreme difficulty understanding or interpreting the nonverbal behavior of others. This is associated with little to no understanding that other people may not think the same as they do (Kaufman, 2002). Characteristics of children with Asperger syndrome may be classified into various categories. Myles and Simpson (2003) have suggested categorical classifications of

social, behavioral/emotional, intellectual/cognitive, academic, and sensory characteristics.

Social/Behavioral

A major characteristic of Asperger syndrome is social interaction problems. This behavior can be caused by a lack of social understanding and can be manifested in many ways. Such behavior is characterized as awkward, inflexible, self-centered, and as having poor understanding of social cues (Myles & Simpson, 2002). Some children with Asperger syndrome feel uncomfortable if they come close to others. Further, they frequently have difficulty differentiating between formal and informal social situations (Thomas et al., 1998) such as violating personal space, focusing on one topic at the exclusion of others, and making off-task statements (Myles & Simpson, 2002; Safran, Safran, & Ellis, 2003).

Individuals with Asperger syndrome have impairments in understanding what social communication is about. Some of the problems include difficulties in asking for help, poor control of volume, and monotonous voice. Further, they frequently exhibit a lack of facial expression and poor judgment of people's body language (Thomas et al., 1998). They also frequently wish to have social interactions (Myles & Simpson, 2002); however, the interactions may be inept and non-age appropriate (Myles & Simpson, 2003). They may experience problems with aggression, hyperactivity, conduct, and depression. In response to these problems, individuals with Asperger syndrome often develop learned helplessness and blame themselves for their socially inappropriate behavior. Another aspect of social behavior is having a restricted range of interest. These children may be socially self-centered, not able to understand social cues, and lack empathy and understanding.

Cognitive/Academic

Children in the Asperger syndrome population often have average intelligence and are placed in a regular classroom (Little, 2002). Kaufman (2002) found that they struggle in the classroom because they are frustrated with novel learning situations and have trouble understanding complex social interactions, which affects reading comprehension skills. Asperger (1944) reported that children with this syndrome were uneven in academic performance. Their academic problems arise because of literal thinking styles, inflexibility, poor problem-solving skills, poor organizational skills, and difficulty discriminating important information. Myles, Hilgenfeld, Barnhill, Griswold, Hagiwara, and Simpson (2002) reported on the academic profiles of children with Asperger syndrome: strengths in oral expression and reading recognition, weaknesses in written expression, and low math scores that involved problem solving and critical thinking. These authors note

that advanced vocabularies and word-calling abilities may mask deficits in critical thinking and comprehension.

Sensory/Motor

Children with Asperger syndrome have specific responses to sensory stimuli that are similar to children with autism. Some of these problems include difficulty with endurance or tone, oral sensitivity, attention, and recognizing sensations. Many of these children favor certain foods or textures. Frequently, behavior problems are associated with sensory integration deficits. Behaviors may be repetitive or stereotypical and seen most frequently when the children are under stress (Myles, Cook, Miller, Rinner, & Robbins, 2000).

Poor balance and motor coordination often are associated with Asperger syndrome. These deficits affect academic skills related to writing, social, art, and vocational skills (Myles, Cook, Miller, Rinner, & Robbins, 2000). In addition, involvement in games involving motor skills is affected. Such involvement impacts social interactions with other children (Myles & Simpson, 2003).

Intervention Strategies

Social Skills

Children with Asperger syndrome can benefit from educational programming and related services. Kaufman (2002) reported that the most effective school-based programming stresses

1. a highly consistent and well-structured school day,
2. systematic social skill and language training,
3. social mentoring, and
4. modified instruction and assignments.

Social interaction problems can be helped through protecting the child from bullying and teasing, teaching peers about Asperger syndrome, and creating cooperative learning groups. Other suggestions in this area stress using a buddy system and limiting time spent in isolated activities. A highly consistent school day provides predictability and minimizes schedule deviation. Systematic social skills training can stress using communication skills in social situations, as well as assist in the development of social problem-solving skills. Kaufman (2002) reported that social skills training is most helpful when provided in a school setting because this setting requires the most frequent social interactions with peers. Social mentoring assists in the social skill development process. The mentor (adult or older child) can cue the child with Asperger syndrome concerning the implementation of social skills in new environments. Modified instruction can include preteaching skills before they are introduced to the entire



class; providing individual instructions concerning assignments to reduce anxiety; and modifying written assignments using dictation, graphic organizers, and computer technology (Kaufman, 2002). Waltz (2002) reviewed several social skills that may be critical for individuals with autism spectrum disorders, including Asperger syndrome:

- maintaining eye contact,
- being aware of body space,
- empathizing with others,
- giving and receiving complements,
- understanding and using body language,
- learning strategies related to initiating and ending conversations,
- developing table manners, and
- understanding community expectations (including such activities as travel and entertainment).

Behavioral/Emotional Interventions

Children with Asperger syndrome often need help coping within the learning setting. They often experience anxiety, depression, aggression, and hyperactivity as a response to frustration with the learning setting. Some intervention strategies include listing a familiar behavior pattern on a card so the student will feel comforted by reading it, using consistency throughout the day, being

patient in interactions with the child, and using social stories to assist students in knowing the flow and expectations of social interactions (Williams, 1995). Other specific interventions focus on the problems of sameness, social interaction impairments, restricted range of interests, poor concentration, poor motor coordination, academic problems, and lack of ability to cope with emotional demands. Insistence on sameness can be helped through providing a predictable environment, avoiding surprises, and telling students about changes as soon as possible.

Individuals with Asperger syndrome often exhibit a limited range of interests. Intervening in this area may involve limiting the time that a specific topic can be discussed, giving positive reinforcement for appropriate behavior, and using the area of interest to broaden the student's knowledge by incorporating other related areas into the student's awareness (Williams, 1995). Limited range of interests also can be manifested in interactive play skills. Play skills can be broadened through the use of activities that include assembling and dismantling objects, as well as participating in concrete and predictable events (Thomas et al., 1998).

Academic/Cognitive Interventions

Williams (1995) pointed out that children with Asperger syndrome often have above-average intelligence. They, however, frequently lack skills in comprehension and abstract thinking. Some interventions involve using rewards and motivation to help keep children involved in the learning process, providing graphic organizers to help in organizing and sequencing writing, and providing additional explanations in simpler terms in discussing concepts of a lesson (Williams, 1995). Children with Asperger syndrome frequently need assignments broken into small amounts of information, less total assigned work, and non-verbal signals to help them refocus.

Myles and Simpson (2003) discussed a number of instructional strategies that are used with children with Asperger syndrome: (a) priming, (b) assignment modifications as well as enrichment, and (c) structural strategies. *Priming* is an advanced organization intervention strategy that consists of familiarizing students with Asperger syndrome with academic material before a lesson is taught. This helps establish predictability, reduce stress, and increase the chances of success.

Another type of intervention is modifying assignments by allowing more time for completion; limiting the number of problems presented at one time; creating alternatives to traditional assignments, such as using multiple choice or verbal responses; and providing highlighted information in texts as well as study guides (Myles & Adreon, 2001). Enrichment activities also help students in the Asperger population. Many of these children have higher levels of intelligence and can benefit from specialized assignments within the classroom structure.

Myles and Simpson (2003) reported that various structural strategies also can help students learn:

- visual supports,
- graphic organizers,
- outlines,
- assignment notebooks,
- timelines, and
- travel cards.

Visual structures present an abstract concept in a more concrete fashion. They can vary in levels of abstract representation. These levels of representation range from using the full-size object at the lowest end of abstraction to a written phrase or sentence at the highest level of abstraction. Such objects can be presented in a variety of ways and can vary from left to right or top to bottom (Myles & Simpson, 2003).

Graphic organizers can be used to assist in learning new concepts by offering visual supports to children with sensory integration problems. They can be used to show the relationship of key concepts in an organized framework. Graphic organizers are helpful because they are presented visually, provide time for processing information, and use a concrete presentation to present abstract information (Myles, & Simpson, 2003). Some examples of graphic organizers are semantic webs, timelines, and written visual supports (Safran, Safran, & Ellis, 2003).

Using outlines helps students grasp the main idea as well as the major points of information. Depending on the amount of teacher assistance provided, consider using complete outlines, skeletal outlines, direct verbal cues, and subtle verbal cues. Also, peers taking notes with carbon paper and outlining software can be helpful in assisting children in obtaining information from class discussions (Myles & Simpson, 2003; Safran et al., 2003).

Other structural strategies include using assignment notebooks, timelines, and travel cards. An assignment notebook can show homework tasks and due dates. It also can indicate to parents the important ideas or events that may have happened during the day. The assignment book can be used to develop conversations at home. A personal extension of an assignment book that can promote independence is a to-do list. Time lines can be used to assist students in budgeting their time. Individuals in the Asperger population often have difficulty budgeting time or estimating how long a task will take. Finally, a travel card assists students in transitioning between environments and being more productive academically. A travel card is carried by the student with Asperger syndrome, signed by each teacher, and contains questions related to following teacher instructions, bringing materials to class, and completing home and in-class assignments (Myles & Simpson, 2003).

Sensory/Motor Interventions

Problems also may exist in the areas of sensory processing and poor motor coordination. Interventions in motor coordination can stress participation in activities and motor skill development. Motor activities should include health and fitness programs rather than competitive sports. Children with Asperger syndrome can benefit from occupational therapy. Such therapy can be used to enhance fine motor development used in the areas of writing, self-help, and vocational skill development. Thomas et al. (1998) have suggested intervention strategies in the areas of sensory stimulation, overactive reactions to touch, and hypersensitivity to visual stimuli. In the area of reducing sensory stimulation, strategies consist of reducing the sources of noise, developing social stories to forecast what will happen in a noisy situation, and gradually increasing the variety of sounds so children will get use to them.

In reacting to touch, try the following: Give the student a warning that you are approaching; model appropriate responses; discuss, with parent permission, the needs of children with Asperger syndrome with the rest of the class; and allow children to sit at the end of a row or a table so they can have their own space. To teach interventions in visual hypersensitivity, develop a distraction-free work area, develop structured areas of the classroom that limit visual distractions, provide clear directions on work sheets that indicate where to start and end, and assist students in focusing on specific areas of the classroom to the exclusion of other stimuli (Thomas et al., 1998). Dunn, Saiter, and Rinner (2002) suggested five strategies to assist children with Asperger syndrome in the area of sensory processing:

- priming,
- working independently,
- visual supports,
- home base, and
- social stories.

Priming, previously reviewed as an academic intervention, allows individuals to become familiar with settings or tasks through exploration. It presents elements of a task in a nondemanding manner to increase exposure to a task, decrease anxiety, and facilitate exploration (Dunn et al., 2002). Working independently focuses on using personal and environmental cues to complete a task without relying on another person. Visual supports help in organizing space so individuals with Asperger syndrome can understand expectations, predict upcoming events, and more easily make transitions. A home base is a place where a person can go to plan or recover composure. It is a positive area of the classroom and not one that is associated with punishment. Social stories help model be-

haviors and social responses in a nonthreatening manner (Dunn et al., 2002).

Dunn et al. (2002) provided specific interventions in sensory input using the previously described strategies of priming, working independently, visual supports, home base, and social stories. Teaching strategies in the areas of priming and social stories might include a social story that provides directions concerning how to complete homework. This social story could be recorded and have sounds and songs to gain the attention of children with Asperger syndrome (Dunn et al., 2002). Visual support interventions can use a color-coded system to help organize and sequence tasks to facilitate independent work assignments. A home base intervention strategy involves designating a portion of the classroom as a quiet area.

Conclusion

Myles and Simpson (2002) reported that children with Asperger syndrome present a wide variety of disabilities, which makes service delivery extremely difficult. Problems are frequently seen in the areas of social, behavioral, academic, motor, and sensory skills. Support from teachers, therapists, and parents, as well as appropriate interventions, can help children with Asperger syndrome to cope more effectively with these difficulties and function more independently in home, school, and community settings.

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