Educators are increasingly challenged to work with a growing number of students with attention deficit disorder (ADD). As a result, they are required to be aware of the unique characteristics of students with ADD; to establish partnerships with families, other professionals, and medical personnel; and to adapt their assessment, instruction, and classroom management strategies to promote student learning and positive behavior. This article and this special journal issue are designed to help educators better understand and work more effectively with students with ADD and their families.
Max’s teachers were concerned about him. Max seemed to know a great deal about many things, but his performance in school was erratic. In particular, Max’s teachers noticed that he had difficulty starting and finishing assignments. Sometimes he would start an assignment before they finished giving the directions. At other times, he seemed to ignore their directions, squirmed in his seat, and played with objects at his desk. Teachers’ observations of Max in his classes revealed that he often called out answers to questions and frequently left his seat without permission to interact with his peers or to hang out by the window or near the pencil sharpener. When he worked on an assignment, he often would focus on it for a short time period and then switch to another activity.

Teachers were also puzzled by Mary, a quiet student who they thought was disorganized, unmotivated, and a bit lazy. They noticed that she seemed to spend a lot of time daydreaming. As a result, she often asked them to repeat directions. However, even after they explained the assignment to her, Mary dawdled at her desk, stared into space, and failed to complete her work.

Frustrated by Max and Mary’s behavior and its impact on their learning, the teachers referred Max and Mary to the school’s multidisciplinary team to determine if they needed special education.

Although Max and Mary differ in many ways, they have several behaviors in common. Whereas Max appears to be very active and impulsive, Mary appears withdrawn and lethargic. However, both exhibit behavioral patterns that are characterized by difficulty identifying and maintaining attention to relevant classroom directions, information, and stimuli, which may negatively affect their school performance and indicate that they have some type of attention deficit disorder (ADD). Both students also challenge their teachers to be knowledgeable of their unique characteristics so that an educational program that addresses their special needs is planned and implemented (Bussing, Gary, Leon, Garvan, & Reid, 2002).

This article presents information to assist educators in better understanding students with ADD—like Max and Mary—and the issues that educators encounter in teaching them.

American Psychiatric Association’s Definition

ADD is a psychiatric diagnosis rather than a separate disability category recognized by the Individuals with Disabilities Education Act (IDEA). It is defined by the American Psychiatric Association (1994) as “a persistent pattern of inattention, impulsivity, and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development” (p. 78). The persistent pattern consists of a cluster of behavioral symptoms that must occur for at least 6 months. These behavioral symptoms address such issues as

- being inattentive to work or play activities,
- not listening to others when spoken to,
- not following directions at home or school,
- having problems with organization and/or losing items,
- being distracted,
- moving or talking excessively,
- acting in an impulsive manner,
- interrupting, or
- failing to take turns in play or conversation.

A cluster of these behaviors must

- be evident prior to the age of 7;
- interfere with the individual’s social, educational, and occupational performance in two or more settings (e.g., home, school, work); and
- not be related to other medical or psychiatric conditions, such as schizophrenia or anxiety and mood disorders.

Types of ADD

There are three types of students with ADD, based on the unique characteristics that accompany their high levels...
of inattention (Tannock & Martinussen, 2001). The first type includes students, like Max, whose ADD is associated with constant motion. That is, their inattentiveness is accompanied by hyperactivity (ADHD-HI or ADHD), impulsivity, distractibility, and disorganization (Carbone, 2001). In the classroom, their high level of activity and impulsivity may lead these students to engage in such high-activity behaviors as fidgeting with hands and feet and objects, squirming, calling out, being out of seat, and interrupting others. Socially, they often engage in aggressive, intrusive, immature, impulsive, uncooperative, and bossy behaviors that may lead them to be rejected by their peers and adults (Henker & Whalen, 1999; Parker, 1996). For example, they may fail to wait their turn during social activities or in sharing with others, which can result in classmates avoiding or rejecting them.

Mary is an example of the second type of students with ADD, referred to as having an attention deficit disorder that is predominantly of the inattentive type (ADD/IA), without hyperactivity (ADD/WO), or undifferentiated (UADD). Like students with ADD with hyperactivity and impulsivity, these students engage in a variety of behaviors that reveal their inattention, distractibility, and disorganization. However, their inattentiveness appears to be related to their distractibility and preference for internal events rather than their frequent movements. These students tend not to be viewed as behavior problems; instead their classroom behavior may be characterized by paying attention to extraneous information and stimuli, appearing lethargic and shy, and daydreaming (Barkley, 1998; Carbone, 2001). Socially, while these students are less likely to exhibit behaviors that alienate their peers, they are often neglected and overlooked by peers.

Students with the third type of ADD exhibit multiple behaviors that are similar to those of both Max and Mary. These students, who make up the largest group of students with ADD, are referred to as students with a combination of hyperactivity and distractibility (ADHD-C).

All three types of students have several characteristics in common. Their inattentiveness, disorganization, and poor motivation interfere with their learning and academic performance, their social interactions and friendships with others, and their emotional development (Bender, 1997; Carlson, Booth, Shin, & Canu, 2002; Salend, 2001). For example, all three types of students with ADD tend to have organizational difficulties, which often result in their losing, forgetting, or misplacing their work and materials; having messy work areas and book bags; and failing to complete their assignments. Students with all three types of ADD also exhibit learning, behavioral, and social-emotional difficulties that resemble those of other students with high-incidence disabilities, such as those identified as having learning disabilities, emotional and behavioral disorders, and other health impairments.

### Developmental Impact of ADD

The developmental nature of conditions like ADD impacts individuals in different ways as they age (Amen, 2000; Parker, 1996). For example, in early childhood, even though children with ADD usually exhibit high levels of activity and inattention, they may not be viewed as different from other young children who typically engage in similar behaviors, albeit at lower rates (Parker, 1996). However, as they enter elementary school and academic and behavioral demands increase, their high level of inattentiveness and its negative impact on their school performance may start to cause frustration, social rejection, low self-esteem, and a dislike of school (Parker, 1996).

Some students with ADD outgrow their condition or some of the symptoms associated with it when they reach adolescence (Tilson & Bender, 1997). However, many do not, and the ADD interacts with the typical adolescent desire for independence, peer acceptance, and conformity to intensify their academic, organizational, and social discomfort. For example, students with ADD may feel embarrassed by specialized interventions, which make them feel different from their peers. As a result, they are particularly susceptible to failing classes, developing conduct disorders, engaging in oppositional behaviors (e.g., lying, frequently being absent, fighting), being suspended, abusing substances, and leaving school prior to graduation (Parker, 1996; Tilson & Bender, 1997). During the teenage years, students with ADD may also have many conflicts with their families related to completing homework and chores, interacting with other family members, and complying with their parents’ rules and expectations (Amen, 2000). As students with ADD exit high school, the typical pressures to make the transition to adulthood may interact with the behavioral symptoms of ADD and affect their ability to attend postsecondary education, participate in their community, live independently, obtain employment, and advance in their careers.

### Factors Contributing to ADD

Although there is no definitive cause of ADD, it is increasingly being viewed as a neurological condition.
Like many other conditions, several biological and sociocultural factors appear to interact to affect an individual’s ability to be attentive. Biological factors, such as temperament and neurological development, are thought to play an important role in making individuals more predisposed to inattentive behaviors (Tannock & Martinussen, 2001). Environmental factors (e.g., allergy-producing substances, lead poisoning, infection and diseases, birth trauma, perinatal care) also make some individuals more prone to engaging in inattentive behaviors (Amen, 2000). Finally, experiential factors, such as the nature of the child’s interactions with family members and educators; the child’s family life; and the child’s cultural, linguistic, and economic background, also appear to influence students’ levels of attention. For example, the failure of schools to provide students with motivating and developmentally appropriate instructional activities can cause students who are identified as gifted and talented to exhibit behaviors that resemble those of students with ADD.

Identification and Assessment of Students with ADD

Distinguishing ADD From Other Conditions

Identification of students with ADD is complicated by several factors. Because the learning and behavioral profiles exhibited by students with ADD are similar to those of students with learning disabilities, emotional and behavioral disorders, and reading difficulties, it is difficult to differentiate between the presence of ADD and one of these other conditions (Riccio & Jemison, 1998; Schwanz & Kamphaus, 1997). Further, it is difficult to distinguish the existence of ADD from the behavioral patterns found in children suffering from depression, residing in chaotic living conditions, and experiencing health and nutrition or auditory processing problems.

Employing a Multifactored and Multimethod Assessment Process

The identification of students with ADD requires a multifactored and multimethod assessment conducted by a multidisciplinary team (Brown, 2000; Merrell & Boelter, 2001). The assessment process seeks to collect data to identify students’ academic, behavioral, and social behaviors and medical, family, experiential, and developmental history. These data are then analyzed to identify learning and behavioral patterns and to determine if students have an ADD that meets the diagnostic criteria specified by the American Psychiatric Association (1994). The data also may be examined to identify the extent to which other factors (e.g., experiential, cultural, and linguistic background; unsettling family events; instructional program; limited opportunity to attend school) that may explain the difficulties students are experiencing in schools (Dowdy et al., 1998). In developing these profiles and making these determinations, measurements are taken in a variety of areas, including students’ classroom and home behavior, medical and sensory conditions, educational performance, cognitive functioning, social relationships, learning preferences, emotional status, communication and language skills, and motor abilities. Data related to these areas are collected across a wide range of individuals (e.g., students, family members, educators, peers), settings (e.g., school, home), and areas (e.g., academic, behavioral, social) using a variety of assessment methods (Schwarz & Kamphaus, 1997).

In addition to educators, family members, students, and medical personnel should be members of the multidisciplinary team, playing integral parts in the assessment data collection and analysis process. The inclusion of these
individuals allows the multidisciplinary team to learn about the student's medical, developmental, social, and educational history and the family's experiential, cultural, and linguistic background and to determine subsequently the impact of these factors on the student's learning and behavior.

Because ADD is related to students' behaviors, behavioral patterns at home and in school should be examined. These data can be collected in a variety of ways (Dowdy et al., 1998). For example, direct observations of students in multiple settings conducted by different individuals can provide insights into their behavioral and academic skills, social relationships, and interactions with others. These measurements can then be compared to typical levels of behavior exhibited by classmates through peer referencing. For example, data on a student's on-task behavior can be compared to normative data on the on-task behavior of randomly selected classmates to determine if the student's behavior is significantly different from the behaviors of his or her classroom peers.

Measurements of behavioral and social skills can also be recorded by having family members, educators, and students complete checklists, rating scales, and questionnaires related to a range of behaviors in a variety of settings (see Brown, 2000; Dowdy et al., 1998; Merrell & Boelter, 2001; Parker, 1996; Schwanz & Kamphaus, 1997; Taylor, 2000, for a listing of these instruments). These data can be supplemented with interviews, sociograms, self-concept measures, and an examination of school records and documents revealing the number and types of discipline referrals, behavioral incidents, and interruptions caused (Montague, McKinney, & Hocutt, 1994; Salend, 2001).

An assessment of student behavior should also include functional behavioral assessments (FBA; Salend & Taylor, 2002). An FBA is a person-centered, problem-solving process that involves gathering information to measure student behavior, determining why students engage in specific behaviors, and identifying the instructional, social, affective, environmental, and contextual variables that appear to lead to and maintain a given behavior (Sugai, Horner, & Sprague, 1999). It also helps educators and family members design interventions and develop a plan to change the behavior of students like Max and Mary.

In addition to assessing students’ behavioral and social skills, students’ academic performance profiles can be developed via standardized criterion- and norm-referenced testing. The use of class-based assessment techniques such as performance-based and portfolio assessment, curriculum-based measurement, rubrics, dynamic assessment, learning logs, and self-evaluation techniques can help provide more complete profiles of students like Max and Mary, including their academic strengths and needs, learning styles, and the impact of the school environment on their learning and behavior (Salend, 2001).

Considering Cultural and Linguistic Factors

Cultural and linguistic factors also need to be carefully considered when identifying students with ADD. Because of the frequent mismatch between teachers and students in terms of cultural, linguistic, and socioeconomic backgrounds (Gay, 2002), many students from culturally diverse backgrounds display behaviors that are often misinterpreted as an ADD. Gilbert and Gay (1989) explained how the behaviors of some students of color may be misconstrued by their teachers:

*Stage setting behaviors may include such activities as looking over the assignment in its entirety, rearranging posture, elaborately checking pencils, paper, and writing space; asking teachers to repeat directions that have just been given; and checking perceptions of neighboring students. To the black student these are necessary maneuvers in preparing for performance; to the teacher they may appear as avoidance tactics, inattentiveness, disruptions, or evidence of not being prepared to do the assigned task.*

Learning a second language is a long-term, complex, and dynamic process that also has a great impact on students’ behaviors and educational performance (Collier, 1995). As a result, students who are in the process of learning English commonly exhibit behaviors such as inattentiveness, fidgeting, and withdrawal that may resemble those of students with ADD (Ortiz, 1997). For example, many second-language learners experience attention difficulties because they find it difficult to concentrate for long periods of time when instruction is delivered in their new language.

To avoid inappropriate diagnosis and placement and to teach these students effectively, the assessment process should provide data to determine how cultural and linguistic factors influence students’ learning and behavior (Damico, 1991; Pennsylvania Department of Education, 1997). Such data can guide the delivery of prereferral services by providing information to inform the design and implementation of a range of culturally responsive interventions that more appropriately address students’ cultural, linguistic, and experiential backgrounds and learning and behavioral needs (Baca & de Valenzuela, 1998). For example, if Mary was a second-language learner, the prereferral intervention team, which includes personnel knowledgeable in second-language acquisition and the effects of cultural factors on students’ learning, may recognize that her withdrawal and her lack of participation in class are due to the standard process of second-language acquisition. The team might suggest that her teachers use gestures, facial expressions, voice changes, pantomimes, demonstrations, rephrasing, visuals, manipulatives, and other cues to provide Mary with a context that conveys the meaning of new terms and concepts and to examine the impact of these interventions on Mary’s learning and behavior.
Determining IDEA or Section 504 Eligibility

Identification and assessment of students with ADD also can guide the multidisciplinary team in determining if a student with ADD qualifies for services under IDEA or Section 504 of the Rehabilitation Act of 1973. IDEA is a federal law that governs the education of students with disabilities. It is based on six principles:

1. **Zero Reject.** School districts must locate and educate all students with disabilities, regardless of the nature of their disability.
2. **Nondiscriminatory Evaluation.** School districts must evaluate students fairly to determine if they have a disability.
3. **Free and Appropriate Education.** School districts must provide an individually designed education for students with disabilities that is outlined in students' Individualized Education Programs (IEPs) at no cost to students' families.
4. **Least Restrictive Environment.** Schools must educate students with disabilities with their peers without disabilities to the maximum extent possible.
5. **Procedural Due Process.** School districts must provide families with a process for contesting decisions and actions made by schools concerning the education of students with disabilities.
6. **Family and Student Participation.** Schools must take steps to involve families and students in designing and delivering special education programs and IEPs (Turnbull, Turnbull, Shank, & Leal, 1999).

Although ADD is not recognized as a separate disability category under IDEA, students with ADD may qualify for services if they are also identified as having another health impairment, a learning disability, or an emotional disturbance. Students with ADD who do not qualify for services under IDEA are eligible for services under Section 504, a civil rights law that has a broader definition of disability and shares similarities with but also differs from IDEA (deBettencourt, 2002; Smith, 2001). Section 504, like IDEA, requires schools to offer eligible students a free and appropriate education within the least restrictive environment. Both laws also require that students' families be informed and involved in the identification, evaluation, and service delivery process; however, Section 504 does not require parental permission. Although students who qualify for 504 services are not required to have an IEP, they must receive accommodations to meet their educational needs, which are often outlined in an individualized accommodation plan.

Interventions for Students with ADD

Whether students with ADD qualify for services under IDEA or Section 504, they will probably be educated in the general education classroom and may need to receive behavioral, educational, pharmacological, and social interventions to address their unique needs (Salend, 2001). The use of effective interventions helps students with ADD develop appropriate academic and behavioral skills, which in turn helps them become successful and confident learners who are integral and contributing members of their classrooms, schools, and communities.

Behavioral and Social Interventions

For students to be successful in school, their classroom behavior must foster learning and interactions with others. The behavior of students with ADD often interferes with their academic performance and socialization, requiring their teachers to use a range of interventions to promote positive behavior and socialization. In this special issue of Intervention in School and Clinic, Garrick Duhaney offers behavior management strategies for creating a classroom environment that supports student learning. In addition, Church, Gottschalk, and Leddy offer 20 ways to teach social and friendship skills to students with ADD to help facilitate their social interactions.

Educational Interventions

The educational performance of students with ADD is often hindered by their learning difficulties and their failure to use effective learning strategies (Zentall, Moon, Hall, & Grskovic, 2001). Therefore, educators working with students with ADD need to use a variety of instructional strategies to support their learning (Zentall, 1993). In this special issue, Salend, Elhoweris, and van Garderen present educational interventions that can be used to accommodate the individual learning needs, strengths, preferences, and styles of students with ADD.
Pharmacological Interventions
When appropriate teaching and classroom management techniques have been implemented correctly for a reasonable length of time and have been proven ineffective, families and physicians of students may decide to employ pharmacological interventions to improve students’ school performance (Howell, Evans, & Gardiner, 1997). However, as Austin (this issue) notes, the use of pharmacological interventions is highly controversial, and the decision to use them must be made deliberately. When the decision to use them has been made, Austin provides guidelines for collaborating and communicating with family members, medical personnel, and other professionals to develop a plan that employs classroom- and family-based methods and that monitors and evaluates students’ responses to medications. The decision to use pharmacological interventions should therefore continually be examined in light of the medication’s impact on learning and behavior, the development of side effects, and the warning signs of drug abuse (Brown, 2000).

Home–School Partnerships with Families of Students with ADD
The effectiveness of educational, behavioral, and pharmacological interventions for students with ADD can be enhanced by establishing home–school partnerships consistent with best practices and the mandates of IDEA and Section 504. Successful home–school partnerships are largely based on gaining the trust of families; addressing their diverse needs, backgrounds, and experiences; and offering a broad range of usable and flexible services that relate to the changing needs of families (Salend, 2001). Steve Chamberlain (this issue) interviews Evelyn Green, who discusses how she has dealt with school personnel on behalf of her son, who has ADD. Mathur and Smith (this issue) offer 20 ways to work with families based on collaboration, ongoing communication, mutual trust and respect, and recognition of the unique strengths and needs of each family.

Summary
Educators are being challenged to work with a growing number of students with ADD. This challenge requires educators to be aware of the unique characteristics of students with ADD and to adapt their assessment, instruction, and classroom management strategies to address the diverse strengths and needs of students with ADD in order to promote learning and positive behavior. In addition, educators must establish partnerships with families, other professionals, and medical personnel to carefully and collaboratively plan, deliver, and monitor the effectiveness of a range of interventions and services. This special issue presents information to help educators to better understand and work more effectively with students with ADD and their families. Additional information and resources related to ADD to supplement the content of this special issue can be obtained by visiting some of the Web sites presented in the appendix.

ABOUT THE AUTHORS
Spencer J. Salend, EdD, is a professor of special education in the Department of Educational Studies at the State University of New York at New Paltz. His research interests include educating students with disabilities in general education classrooms and meeting the educational needs of students from culturally and linguistically diverse backgrounds, including migrant students with disabilities. Elha Rohena, EdD, is an assistant professor of special education in the Department of Special Education at Millersville University, Millersville, PA. Her research interests are in bilingual special education and families. Address: Spencer J. Salend, Department of Educational Studies, SUNY at New Paltz, 75 South Manheim Blvd., New Paltz, NY 12561; e-mail: salends@newpaltz.edu

REFERENCES


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**Appendix: Web Sites on ADD**

http://www.chadd.org/index.htm

The Web site of the Children and Adults with Attention Deficit Disorder (CHADD) provides links to information and resources related to individuals with ADD, including how to find local support groups.

http://www.add.org/

The Web site of the National Attention Deficit Disorder Association offers information and resources for families, individuals with ADD, and educators, as well as links to other Web sites.

http://idarline.org/id_indepth/add_adhd/add-school.html

Designed by the U.S. Department of Education, this Web site provides educators with information and resources addressing information about ADD, identification of students with ADD, suggestions for designing successful programs, and strategies for fostering the learning and behavior of students with ADD.

http://ericc.org/digests/e569.html

The Web site of the Educational Resources Information Center (ERIC) Clearinghouse on Disabilities and Gifted Education includes a report on students with ADD that includes useful information about ADD and instructional strategies that can be used in the classroom.

http://www.kidsource.com/kidsource/content2/add.html

This Web site provides information and recommendations to assist educators in understanding and addressing the needs of students with ADD.

http://www.familyvillage.wisc.edu/lib_adhd.htm

This Web site offers information, resources, and links to other Web sites to learn more about ADD. It also allows users to chat with others related to these issues.