Fall 2000

Perspectives in Gifted Education: Twice-Exceptional Children

Institute for the Development of Gifted Education, Ricks Center for Gifted Children, University of Denver

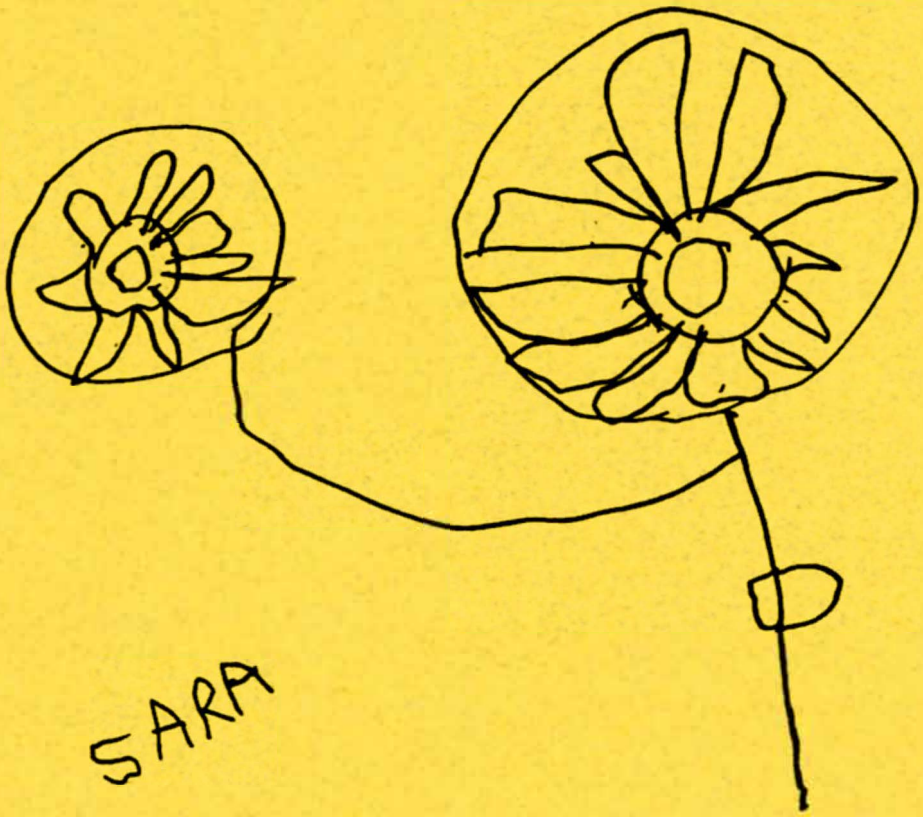
Norma Hafenstein
University of Denver

Frank Rainey
University of Denver

Susan Baum
The College of New Rochelle

Perspectives In Gifted Education: Twice-Exceptional Children

Institute for the Development of Gifted Education
Ricks Center for Gifted Children
University of Denver



vol. 2

Perspectives In Gifted Education: Twice Exceptional Children

Volume 2
Fall 2001

Editors
Norma Hafenstein
Frank Rainey
University of Denver

Guest Editor
Susan Baum
College of New Rochelle

Funded by
The Lynde and Harry Bradley Foundation
through the
Institute for the Development of Gifted Education
Ricks Center for Gifted Children
University of Denver

Institute for the Development of Gifted Education
Ricks Center for Gifted Children
University of Denver
2040 S. York Street
Denver, CO 80208

Contents

Preface

This is the second in a series of monographs funded by the Lynde and Harry Bradley Foundation through the Institute for the Development of Gifted Education at the University of Denver. The first monograph contained different perspectives on the growth and development of young gifted children. This monograph addresses the characteristics and needs of twice-exceptional students. These are students who are both gifted and have some type of disabling condition. These students constitute a major group of underserved gifted children as their gifts often mask their disabilities, or their disabilities mask their gifts.

The lead article by the monograph's editors and Dr. Betsy Kutrumbos, provides a framework for understanding some of the types of disabling conditions that can affect the gifted student. The article considers characteristics, identification methods, and programming for children with learning disabilities, attention deficit hyperactivity disorder (AD/HD), physical and sensory disabilities, and sensory integration dysfunction.

Dr. James Webb is the author of the second article, originally a presentation at the annual meeting of the American Psychological Association. His work considers common mis-diagnoses and dual diagnoses of gifted children. It also provides information about the internal and situational factors that can lead to interpersonal and psychological difficulties for gifted children, and subsequently lead to these mis-diagnoses.

Classroom adjustment difficulties are the focus of the third article, by Dr. Linda Silverman. This article draws upon case material from more than 3,000 children who have been assessed at the Gifted Child Development Center in Denver, Colorado. The article focuses on the visual-spatial gifted learner, a type of gifted learner who often has classroom adjustment difficulties. It provides some excellent suggestions for identifying and working with this population of students.

Dr. Sally M. Ries of the University of Connecticut, provides a report of research conducted on the reading and writing problems of high school gifted students with learning disabilities in the fourth article. This report provides information about the school experiences of gifted learning-disabled students, gives examples of strategies that are helpful in working with this population, and provides suggestions for professional development gleaned from this research.

The fifth article, by Dr. F. Richard Olenchak of the University of Houston, explains how gifted students who do not possess diagnosible disabilities can develop patterns of scholastic underachievement that produce behaviors and attitudes similar to those of gifted children who have multiple exceptionalities. It also discusses the fact that all gifted students are at risk of underachievement due to inadequate educational accommodations. Case study data are used to examine this dilemma and several interventions for reversing underachievement are explored.

Dr. Stuart Dansinger, provides information about academic coaching for the gifted student in the sixth article. Academic coaching is the process of providing a learning-disabled gifted student with strategies to improve academic performance. Besides helping a student develop mastery of subject matter, academic coaching can provide a student with achievement strategies including organizational skills, study skills, note taking, self-esteem development, and time management.

Asperger's Syndrome, a developmental disorder impacting social communication and behavior, is the topic of Dr. Maureen Neihart's informative review. Little information about this disorder or its treatment has been available until most recently and now a discussion of giftedness and clinical descriptions of Asperger's Syndrome are provided. Strategies for teaching gifted children with the unique exceptionality of Asperger's Syndrome are presented.

Twice-exceptional individuals, when given the opportunity to develop their potential, can make a significant impact on society. Franklin D. Roosevelt, Helen Keller, Vincent VanGogh, Albert Einstein, and Thomas Edison were all highly gifted individuals who had some type of disability. It is our hope that this monograph will be of assistance to educators and parents in providing these students with the appropriate educational opportunities.

Norma Hafenstein, PhD, Director
Frank Rainey, Associate Director
Institute for the Development of Gifted Education
Ricks Center for Gifted Children
University of Denver

Twice-Exceptional Children: An Overview

Brooke Walker, PhD
Betsy Kutrumbos, PhD
Norma Hafenstein, PhD
Frank Rainey, MA
University of Denver

Many teachers have known children who appear very bright - in classroom discussion, in their knowledge of specific topic areas, in their insight during problem solving, in their creativity - but who show only average performance, sometimes may even struggle in the basic classroom learning program, or who resist reading and writing assignments, who are physically hyperactive and very distractible, or have extreme difficulty with social relationships. These children are a real puzzle to teachers because their cognitive abilities and their actual performance seem quite incongruous.

In fact, these children may be among a sub-population of gifted children who are called "twice-exceptional," because they demonstrate characteristics of giftedness and also have some type of disability. Gifted children who have handicapping conditions or disabilities make up a major group of gifted students who have been and continue to be underserved (Cline, 1999) in that identification of their giftedness may be masked by their disability and, at the same time, their disabilities may be masked as they use their exceptional abilities in compensation behavior.

Twice-exceptional individuals can possess any one or more of the disabilities used to define the need for special education intervention (U.S. Congress, 1997) even though they may not meet the performance deficit necessary for services. Many twice-exceptional students may likewise not meet the performance criteria necessary to be identified for gifted programming (Cline, 1999). Indeed, twice-exceptional youngsters may fall through the cracks as schools try to address the special needs of both students with disabilities and students who are gifted.

In order to develop a broader picture of twice-exceptional learners and to understand what educators can do to recognize these students and program for their needs, it is helpful to consider gifted students from the perspective of four kinds of disabilities most often seen in schools: learning disabilities, attend deficit disorder, sensory motor

problems, and physical or sensory disabilities. The following overview will document the cases of four real students (fictitious names are used) who show one of the above conditions; describe the characteristics of the type of disability as it displays in a gifted individual; discuss identification issues; and suggest programming strategies appropriate for addressing the needs of the twice-exceptional child.

Oliver: A Gifted Child With Learning Disabilities

Oliver is nine years old and passionate about insects. He can classify all types into their different phyla and carry on a very detailed discussion about their characteristics, habitats, and development. His room at home is replete with fantastic structures in which his insects live. His parents have difficulty keeping up with his many interests and projects. At school, he contributes enthusiastically in a broad range of discussions using his keen visual memory and advanced vocabulary, although he sometimes stumbles in finding the right words to express himself. His teacher appreciates his insightful comments and enjoys his sophisticated sense of humor.

Oliver is a challenging child in the classroom, however, because he resists reading. He struggles with writing and opposes completing any assignment in which writing is a part. Spelling is a continuing struggle for Oliver. No matter how hard he studies the list of words, he cannot seem to retain the correct spelling of many words beyond his weekly spelling test. His teachers and parents are concerned by the discrepancy between his intellectual capacity and his performance.

In the hope of gaining insight into Oliver's learning style, his parents ask for a comprehensive assessment from an educational psychologist. The results of a complete battery of educational testing indicate that Oliver has dyslexia, a linguistic deficit affecting Oliver's ability to learn letter-sound correspondence and interfering with his progress in reading and spelling. The tests also show that Oliver's processing speed is slow, which inhibits his writing as it takes him longer to process visual/motor information.

The results of Oliver's testing show a pattern frequently seen in intellectually gifted, reading-disabled individuals with slow processing speed (Silverman, 2000). He has a very superior Full Scale IQ score of 154, based on the *Wechsler Intelligence Scale for Children,* 3rd Edition (Wechsler, 1974), which is higher than 99% of children his age, showing evidence of his strong learning potential. While this IQ is predictive of advanced academic achievement, Oliver's reading achievement scores do not match his potential. Further testing to diagnose phonological processing problems yield results more in line with Oliver's actual classroom performance, providing evidence of difficulty in spelling,

word decoding, and manipulating sounds within words. His oral reading is error prone and not fluent. Oliver's reading comprehension scores are lower than expected given his cognitive ability; he relies exclusively on sight vocabulary and contextual clues when reading passages, using his strong reasoning ability to figure out what the passage is likely saying. Oliver skips many unknown words, causing his reading comprehension to falter and become imprecise. He avoids handwriting because of his embarrassment over his poor spelling, his slow writing speed, and ill formed letters.

In Oliver's case, a team comprised of his parents, teachers at the school, and the educational psychologist recommend that Oliver receive remedial reading instruction, even though his reading achievement level is near grade level, to strengthen the development of independent word decoding and spelling skills. A multi-sensory systemic phonics program is recommended because such programs have been shown to be effective with dyslexic individuals (Kutrumbos & Masson, 1997). Meanwhile, classroom instruction will focus on Oliver's strengths, particularly capitalizing on his verbal abilities. Teachers will allow Oliver to do much of his work with a word processor to alleviate handwriting problems. Alternatives to written work will be provided on some occasions. When an assignment is to be written, Oliver will be allowed extra time to complete his work. To keep Oliver's vocabulary developing and to maintain his interests in print material, Oliver will also be provided with challenging content using books on tape.

Characteristics of the Learning Disabled/Gifted Child

The federal government defines learning disability as:

> "... a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, speak, read, write, spell, or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning disabilities which are primarily the result of visual, hearing or motor handicaps, or mental retardation, or emotional disturbance, or of environmental, cultural, or economic disadvantage" (U.S. Office of Education, 1977, p. 65083).

Although it is imprecise to list "typical" characteristics of a learning disabled/gifted child, since gifted children may have, singly or in combination, any of the types of learning disabilities specified above, some weaknesses that are observed frequently in these children include poor reading/decoding skills, poor math computation skills, poor

handwriting, poor spelling, lack of organizational ability, and lack of systematic strategies for solving problems. At the same time, gifted children with learning disabilities frequently show superior abilities in oral verbal communication, understanding and identifying relationships, use of advanced vocabulary, knowledge of information related to a wide variety of topics, and keen observational skills (Maker & Udall, 1996; Willard-Holt, 1999).

Identification of Learning Disabilities

Three key types of evidence, considered together, are important in identifying gifted children with learning disabilities: 1) evidence of an outstanding talent or ability; 2) evidence of a discrepancy between expected and actual achievement; and 3) evidence of a processing deficit (Brody & Mills, 1997). Processing deficits or disorders are problems with the processes of recognizing and interpreting information taken in through the senses. Although there are many types of processing disorders, the two most common areas of difficulty involved in learning disabilities are verbal and auditory perception (Brody & Mills, 1997). The identification of a processing disorder (obtained by examining subtest scores from an IQ test, such as the WISC-III, and/or specific processing tests) can help in making the distinction between the gifted child who is underachieving due to educational misplacement or to social/emotional issues, and the gifted child with a learning disability (Brody & Mills, 1997; Rimm, 1986; Whitmore & Maker, 1985). It is very important that the person who completes the educational assessment of the child be a professional who is familiar with giftedness as well as learning disabilities since a gifted child with a learning disability may be achieving at or above grade level and might not typically be identified for any kind of intervention services. A highly gifted child such as Oliver would be expected to be reading much above grade level.

To identify a child as learning disabled and gifted, a wide variety of information must be considered. A complete assessment battery should include a developmental history, an individual intelligence test, an achievement battery, indicators of cognitive processing, and behavioral observations (Baum, 1990; Brody & Mills, 1997; Kutrumbos & Masson, 1997). In addition, tests of perceptual ability, visual motor coordination, and expressive ability can be used to pinpoint specific difficulties (Maker & Udall, 1996).

Programming for Children with Learning Disabilities

Each of the various learning disabilities may require specific direct instruction using different strategies to help the child succeed to his or her optimal potential. Regardless of the program utilized, it is imperative to place the emphasis of the educational

curriculum on the strengths of the gifted student rather than on weaknesses related to the learning disabilities. Intervention to address the disabilities should be integrated into the learning processes for the child rather than become the primary objective of the child's learning activities. It is also widely acknowledged that the utilization of a variety of strategies, adaptations, and accommodations to help him or her succeed is very important (Baum, 1990; Brody & Mills, 1997; Fox, Tobin, & Schiffman, 1983; Kutrumbos & Masson, 1997; Maker & Udall, 1996; Silverman, 1989). A nurturing environment in which challenging and meaningful large tasks are divided into smaller tasks is another recommended strategy, as are the use of peer tutoring and cooperative learning (Baum, et. al., 1991: Brody & Mills, 1997). Making gifted children aware of successful gifted adults with disabilities can help to enhance self-esteem (Silverman, 1989). Counseling may also be warranted to help with self-esteem and other social-emotional needs (Baum, 1994; Brody & Mills, 1997; Hishinuma, 1993; Mendaglio, 1993; Olenchak, 1994).

Summary

Because there are so many different ways that gifted children may manifest learning disabilities, it is likely that there are many more children who are learning disabled and gifted than anyone realizes (Brody & Mills, 1997. In one study, 33% of students identified with learning disabilities had superior intellectual ability (Brody & Mills, 1997). There are equal numbers of boys and girls who have learning disabilities, though boys are more often referred for testing. Current practices for identifying gifted children often fail to include gifted children with learning disabilities. In identifying these students, one needs to consider a wide variety of information focusing on a discrepancy between potential and achievement (Brody & Mills, 1997; Maker & Udall, 1996). There is no single best solution for meeting the needs of these children. Individual decisions must be made based on numerous factors including the particular strengths and weaknesses of the child and the type of gifted programming and the type of gifted programming available (Maker & Udall, 1996). Broader definitions of giftedness and learning disabilities are needed to allow for the identification of children with both exceptionalities, and programming options need to be flexible to meet the needs of these children (Brody & Mills, 1997).

Sally: A Gifted Child With Attention Deficit Disorder

Sally is seven. Teachers report she is very caring and demonstrates high levels of empathy. She is extremely aware when one of her schoolmates is unhappy, sick, or hurt and is always among the first to help them. When Sally is paying attention in class, her understanding of subjects is phenomenal. She has a wonderful capacity for making connections and perceiving relationships.

The problem Sally is having in school is that she rarely seems to be paying attention. In whole-class instruction, she constantly gazes around, fidgets, plays with things around her, unbuttons and buttons her clothes, and generally has trouble concentrating on the subject or tasks at hand. During work time, she has difficulty completing her assignments and is often out of her seat, walking around the classroom and interacting with other children. In reading group, she is rarely able to keep her place in the story or follow the plot. However, in the instances when Sally does follow the plot of a story, she has exceptional comprehension of the more complex aspects of character, setting, and plot development..

Sally's parents know she is very bright. When she was given a cognitive abilities assessment at age five for admission to a school for gifted children, she obtained a full-scale IQ of 143, putting her above the 99th percentile for her age. Since entering school and experiencing difficulties from the beginning, Sally's teachers have tried different strategies to help her concentration, such as moving her to a quiet place to work, putting her near them during discussions, and breaking her assignments into smaller, short-term tasks. None of these strategies over time seem to have had much impact on her classroom performance, in spite of her advanced cognitive development.

All who work with Sally agree she is an advanced conceptual thinker and needs high-level material that challenges her intellectually. Even though, in terms of her cognitive ability, she is appropriately placed in a classroom for gifted children and her work is individualized to address her academic needs, she is unable to get her work done in almost any setting, even in art, which is her favorite school activity. She tries hard to concentrate and to finish her work, but rarely succeeds in doing so. She is unhappy about her unfinished assignments. Her parents see the same sorts of behavior at home.

Sally's parents and teachers agree that Sally should undergo an evaluation by an educational psychologist and a physical exam by a pediatrician. Having ruled out specific learning disabilities or metabolic reasons for her behavior, it is determined that Sally shows behaviors and characteristics associated with Attention Deficit Hyperactivity Disorder (AD/HD): difficulty with concentration; distractability; hyperactivity; poor organizational skills, and difficulty with task completion (ERIC, 1998). The fact that Sally's behaviors are seen at home and other places, as well as school, have been evident for some time, and have begun to affect her school work negatively, in spit of what she and her teachers try to do, lends greater probability that she has AD/HD (U.S. Department of Education, 1994a).

After the evaluation and diagnosis of mild AD/HD, Sally is put on prescription medication to address her attention issues. Strategies such as providing a quiet workplace free from distractions and breaking assignments into smaller short term tasks with frequent feedback are continued at school. With these interventions, Sally is progressing in her class work more in line with what one would expect of a gifted child with her potential.

Characteristics of Gifted Children with Attention Deficit Hyperactivity Disorder

Not infrequently, very bright children are referred to psychologists or pediatricians because they exhibit certain characteristics that seem to be problematic in school situations, including restlessness, inattention, impulsivity, high activity level, and daydreaming (Webb & Latimer, 1993). These characteristics are commonly associated with the diagnosis of Attention Deficit Hyperactivity Disorder. Interestingly, research indicates that, in many cases a child may be suspected to be AD/HD when in fact that child is gifted and reacting to inappropriate curriculum (Webb & Latimer, 1993). Distinguishing between behaviors associated with giftedness but also symptomatic of AD/HD is sometimes difficult, as the comparison in Table 1 displays.

Table 1
Behaviors Associated with AD/HD and Giftedness

Behaviors Associated with AD/HD (Barkley, 1999)	Behaviors Associated with Giftedness (Webb, 1993)
Poorly sustained attention in almost all situations	Poor attention, boredom, daydreaming in specific situations
Diminished persistence on tasks not having immediate consequences	Diminished tolerance for persistence on tasks that seem irrelevant
Impulsivity, poor delay of gratification	Judgement lags behind development of intellect
Impaired adherence to commands to regulate or inhibit behavior in social contexts	Intensity sometimes leading to power struggles with authorities
More active, restless than normal children	High activity level; may need less sleep than other children
Difficulty adhering to rules and regulations	Questions rules, customs, regulations and traditions

Because the characteristics of AD/HD and giftedness are similarly displayed in classrooms, it is important to consider the situations in which the child is having difficulty (Webb & Latimer, 1993). Gifted children may actively question rules, customs, and traditions; sometimes creating complex rules which they expect others to obey. Children with AD/HD often have trouble following rules. The difference is that gifted children question the fairness of rules, but they don't have difficulty following rules they understand. AD/HD children tend to be highly inconsistent in the quality of their performance. Gifted children also perform inconsistently, but they tend to maintain high grades and effort in classes

where they have a teacher they like and are intellectually challenged (Webb & Latimer, 1993). If the poor attention and restlessness appear in only certain situations, it may likely be related to stimulation. If the behavior is consistent across all situations, it is more likely related to AD/HD (Willard-Holt, 1999).

There are several questions a parent or teachers should ask themselves before they consider having a gifted child evaluated for AD/HD:

> Could the behaviors be responses to inappropriate placement, insufficient challenge, or lack of intellectual peers?
> Is the child able to concentrate when interested in the activity?
> Have any curricular modifications been made in an attempt to change inappropriate behaviors?
> Has the child been interviewed? What are his/her feelings about the behaviors?
> Does the child feels out of control? Do the parents perceive the child as being out of control?
> Do the behaviors occur at certain times of the day, during certain activities, with certain teachers, or certain environments? (Willard-Holt, 1999, p. 4)

If a bright, creative, and intense child fits the characteristics of AD/HD and curricular modifications properly applied have not been successful, it is then appropriate to consider an evaluation for AD/HD (Webb & Latimer, 1993). A comprehensive evaluation of AD/HD would include a developmental history, a clinical interview, observation of the child, and completion of teacher and parent behavior rating scales. Often a physician will complete a medical exam to check for possible problems that might contribute to the child's behavior. An educational evaluation should be completed on the child as learning disabilities often accompany AD/HD. Appropriate evaluation of AD/HD should not only explore possible learning problems, but also rule out anxiety and/or depression, which can have similar symptoms.

Programming for the Child with ADHD

Once a child is evaluated and determined to have AD/HD, parents, doctors, and teachers should work as a team to devise appropriate intervention strategies. While such intervention often includes medication, medication alone should not be seen as a "cure"; other strategies should also be applied (U. S. Department of Education, 1994b). Programming should include appropriate curricular and instructional modifications that take into account the child's advanced abilities (Webb & Latimer, 1993). The child should also be taught strategies to help with following directions, completing work in a timely

fashion, and remaining on tasks. Classroom modifications that may help include placing the child with AD/HD near the teacher's desk in an area without distracting stimuli, making eye contact with the child during verbal instructions, simplifying complex directions, frequently monitoring of the child's progress, and modifying assignments as needed (ERIC, 1998). Parents and teachers will need to carefully structure homework and transition times, as these are often problem areas for children with AD/HD.

Summary

Attention Deficit Hyperactivity Disorder is a syndrome characterized by serious and persistent difficulties in the areas of attention and impulse control. Inattention, impulsiveness, hyperactivity, and disorganization can lead to unfinished assignments and behavior that is disruptive to one's self and others. Often, bright children are referred to psychologists or pediatricians because they exhibit disruptive characteristics in school. A gifted child's perceived inability to stay on task could be related to boredom with an under-challenging curriculum or program. Careful consideration and appropriate professional evaluation are necessary before determining that bright, creative, and intense children have AD/HD. Evaluation of environmental factors by a psychologist who understands gifted children is important when making this diagnosis. Gifted children with AD/HD should be placed in a program with appropriate developmental strategies for maintaining attention,developing organizational skills, and building self-directed, positive behavior while simultaneously providing content and processes for developing their intellectual abilities.

George: A Gifted Child with Sensory Integration Dysfunction

Everyone remarks on how bright George is. He taught himself to read by the age of three and now, at six, he reads at a fourth grade level. When he is able to complete a math paper, George answers all items correctly. However, it is very difficult for George to complete a paper. While interested in the task and motivated to complete his work, George also struggles with the physical tasks involved in recording his ideas. He has poor fine motor coordination for children his age and has difficulty tying his shoes, using a pencil, or cutting with a pair of scissors. His gross motor coordination is also not well developed. George is clumsy, awkward in his movements, and does not do well in sports activities.

When George is playing with other children, he has a tendency to get too rough. He seems unable to make judgements regarding his personal space and often bumps into others in line. He is in constant motion, has difficulty staying seated, falls off his chair, and regularly knocks things off his desk. He seems unaware that his behavior is bothering

others. This lack of awareness makes it difficult for his teacher to help him monitor his behavior in the classroom.

George's first grade teacher, who has a wealth of experience with children like George, has noticed many signs of possible sensory motor problems. George's difficulties with fine and gross motor control and his inability to stay in his own personal space suggest to his teacher that George may have problems integrating sensory information. The teacher discusses her concerns with George's parents, who decide to seek a neurological evaluation for George. While the evaluation shows no significant neurological problems, it is determined that George does have some issues of immature fine and gross motor development, as well as under-responsiveness to environmental stimuli, particularly of a kinesthetic nature. As a result, an occupational therapist develops an individual treatment plan to help remediate his deficits. George's parents are directly involved in his treatment so they can learn more about how to help George become aware of his behavior. In response to occupational therapy, George begins to have a better control of his need for sensory stimulation and is able to participate more completely in class. His occupational therapy also helps lessen George's fine and gross motor difficulties.

Sensory integration is the ability to take in sensory information (auditory, visual, tactile, kinesthetic, taste, and olfactory), to connect or assimilate this information with previous sensory input stored in the brain, and to use the sensory information in meaningful and adaptive ways (Stephens, 1997). When sensory integration does not function well for an individual, a variety of behavioral difficulties or symptoms can occur. this cluster of symptoms, collectively referred to as sensory integration dysfunction, usually presents as difficulty detecting, modulating, discriminating, or integrating sensory information. (SI Network, 2000). Children with sensory integration dysfunction will experience a variety of attention and regulatory problems (inattentiveness due to inability to screen out non-essential or irrelevant sensory information, background noises, or visual information; over-reaction to environmental stimuli), sensory defensiveness ("fight or flight" reactions to a variety of tactile, kinesthetic, auditory, and visual stimuli that most individuals would recognize as non-threatening; being fearful of sounds, hypersensitivity to light, fear of unstable surfaces like gravel or irregular surfaces like stairs), and discrepant activity levels (disorganized, purposeless activity; unwillingness to move around in or explore physical surroundings; clumsiness, poor balance; seeking excessive amounts of vigorous sensory input) (Stephens, 1997).

Children respond to sensory integration problems in two basic ways. Children who respond too easily to sensory input are said to be "hyper-responsive." Everything gets

through and the brain does not discriminate essential from non-essential or relevant from non-relevant stimuli. Such hyper-responsiveness to sensory data can be overwhelming (Ayers, 1979; Chan, 1995; SI Network, 2000) and cause the child to react defensively, including responding to being touched with aggression or withdrawal, becoming sick with movement and heights, being overly cautions and unwilling to take risks or try new things, becoming immobilized, experiencing discomfort in loud or busy environments, and extreme sensitivity to textures, food smells, and tastes (SI Network, 2000).

Children who under-respond to stimuli are termed "hypo-responsive." These children have nervous systems that do not always process the sensory input that is sent to the brain. Unable to receive adequate input, these children crave any type of sensory feedback in an attempt to satisfy their need for sensory stimulation (Chan, 1995; SI Network, 2000). George is an example of this type of child. Characteristics of hypo-responsive children include constant movement, unawareness of touch or pain, touching others too often or too hard, engaging in unsafe behaviors such as climbing too high, and enjoying sounds that are too loud (Chan, 1995; SI Network, 2000). These children can often be mislabeled as hyperactive and may be "a constant source of disruption to classroom activities" (Chan, 1995). When first noticed, these symptoms should be carefully evaluated by a neurologist to rule out possible associated or underlying neurological issues. Once determined to constitute sensory integration dysfunction, occupational therapy can positively impact the problematic behaviors and difficulties, especially if treatment occurs early in a child's development.

Identifying Children with Sensory Integration Dysfunction

Gifted children are often very sensitive, and react intensely to environmental stimuli. Dabrowski (1964, 1972) termed this intense reaction to sensory input as "overexcitabilities." The presence of such sensual and psychomotor overexcitabilities in gifted individuals has been characterized as perceiving the world as if through a microscope or a telescope (Meckstroth, 1998). Gifted children with sensual and psychomotor excitabilities tend to exhibit a high activity level and may often appear restless and constantly moving about. Parents of gifted children often report it is "exhausting" trying to keep pace with them (Meckstroth, 1998). Many gifted children are acutely sensitive to sound, texture, taste, and visual stimuli in their environments. But, unlike children with sensory integration dysfunction, a connection can generally be drawn between the child's psychomotor and sensual overexcitabilities and the way the gifted child thinks about things or to their deeper understanding and insight (Meckstroth, 1998). The child with sensory motor problems, by contrast, will exhibit many of the same behaviors but these behaviors will be unrelated to cognitive processing or heightened

perception leading to deeper understanding. It is necessary to distinguish between positive overexcitabilities associated with giftedness and sensory integration dysfunction. If negative behaviors or abnormal motor responses occur in response to sensory stimulation or in spite of sensory stimulation, and these behaviors are not clearly associated with the evolution of the gifted child's sense of his or her world (Silverman, 1993), then sensory motor problems are a possibility and a thorough evaluation is warranted.

Programming for Children with Sensory Integration Dysfunction

Occupational Therapy (OT) is commonly used to treat sensory motor problems. The goal of OT is to enable children to take part effectively in the normal activities of childhood, both at home and at school, with which they are having difficulty. Therapists can suggest ways that teachers can make learning easier for children with sensory motor problems. Chan (1995) suggests that structuring the classroom environment to minimize sensory distraction can help. For example, a child who has a hyper-responsive sensory system will become irritable and distracted when in close physical contact to other children. This child may benefit from being placed in a less congested, less frequently traveled area of the room. During group time, rug squares or a taped markings on the floor can delineate personal space for each child, making this routine less stressful for the child.

Teachers working with children who have sensory integration problems should modify the classroom environment in appropriate ways, such as providing an area in or near the classroom where a child may seek quiet refuge when feeling overwhelmed (Bissel, 1991; Chan, 1995). Teachers may equip this area with soft pillows, beanbag chairs, and cuddly blankets. Sometimes children may also seek comfort in the slow, soothing movements of a rocking chair. The hypo-responsive child can use headphones to provide auditory stimulation, while the hyper-responsive child can use headphones without auditory stimulation to block out noise (Chan, 1995). A desk and chair of the proper height is also very important for these children as it allows for secure positioning (Spyropulos, 1990).

Teachers can also make accommodations in their instruction that will enable a child with sensory integration problems to learn more effectively (Chan, 1995). Periods of intense work should be interrupted by an activity that allows for movement. Multi-sensory approaches to learning, can help children who need additional sensory stimulation. For students who experience disorganized sensory motor systems, a consistent daily classroom schedule can be a stabilizing element. Breaking down multifaceted tasks and lengthy, sequential directions into smaller tasks or individual steps can help the child accomplish complex activities since the sensory stimuli for each successive part can be monitored and managed.

Summary

Sensory integration dysfunction can be difficult to distinguish from psychomotor or sensual overexcitabilities in gifted children. Diagnosis of sensory integration dysfunction in a gifted child must, therefore, be undertaken with great care and discernment. Sensory motor problems include a number of complex neurological symptoms that may affect the way a child takes in and perceives sensory information. Problems in this area can manifest by either hypo-responsiveness or hyper-responsiveness to sensory data. The hypo-responsive child, who does not get enough sensory input, is constantly trying to provide his or her senses with more stimuli, while the hyper-responsive child is receiving too much sensory input and reacts strongly to touch, sound, visual stimuli, taste, odors, or movement. Gifted children with sensory integration dysfunction can be helped to be more effective and happy in their learning through occupational therapy as well as with modifications in the classroom environment and instructional program.

Joseph: A Gifted Children with Physical or Sensory Disabilities

Joseph has attended private schools for gifted children throughout his childhood. He was born with a congenital birth defect of spina bifida. By day ten of his life, he had developed hydrocephalus, resulting in cerebral palsy. He is confined to a wheel chair full-time. By his present age of 11, Joseph has had many surgeries to correct complications from his spina bifida. Nevertheless, he is very highly intellectually gifted based on a WISC-III Verbal IQ score of 157 at age five. He is interested in current events, reads the newspaper everyday, is intensely curious, and is involved in many altruistic causes.

Joseph thrives in a seminar approach to learning where he is among a small group of intellectually stimulating people discussing and writing about books, films, and ideas. His contributions to discussions are full of astute observations and well-conceived insights, which he readily supports with citations from sources under study. He is naturally scholarly in his approach to learning.

While he loves and excels in social studies and the humanities, other students want to be in Joseph's group in math and science because he is so advanced in his knowledge and understanding in these subjects, as well. Joseph is well liked and highly respected by his intellectual peers of all ages and is socially accepted and integrated. His fellow students think nothing of helping him with motor tasks that are beyond his capabilities so he can fully participate in all projects and school activities.

Joseph's teachers have had to increase their awareness of the physical arrangements of their classrooms so all essential materials and learning environments are accessible to

Joseph. The school has installed a stairway elevator to allow Joseph to get up and down stairs in the building. Joseph has a physical therapist that comes to the school daily for feeding and exercising. This happens during lunch hour and requires the use of a room for about an hour a day. Teachers have also helped to sensitize Joseph's classmates to his condition and have worked with the children in the school to help Joseph feel accepted.

Characteristics of Gifted Children with Sensory or Physical Disabilities

Physical and sensory disabilities are as prevalent among gifted children as in the larger population of children in schools. Gifted children who show exceptional abilities and high potential in one or more ways may also have physical or sensory handicapping conditions such as impaired hearing or vision, speech impairments, orthopedic handicaps, or have significant health impairment (Johnson & Corn, 1989). These children may even display their giftedness by being very creative in finding alternative ways of communicating and accomplishing tasks. They may be very adept at developing compensatory skills. Whitmore and Maker (1985) provide a case study of a hearing-impaired child who taught himself to read lips. He was so skilled at doing this that it was not discovered he was hearing-impaired until he was seven.

Similar to other gifted youngsters, these children often show the following characteristics: fast rate of learning; superior memory; advanced problem solving skills; persistence; motivation to know; development of compensatory skills; and sense of humor (Cline, 1999; Whitmore & Maker, 1985; Willard-Holt, 1994). Gifted children with sensory or physical disability will also likely display lagging development in some ways that are affected by their area of disability. For example, a hearing impaired gifted child will not show the same verbal abilities as a hearing gifted child. School success depends heavily on vocabulary development and reading ability. Therefore, children with a hearing loss may likely develop language, vocabulary, and reading skills at a slower pace than do hearing children (Whitmore & Maker, 1985). Children whose vision is impaired may use a high level of vocabulary in many instances but may not understand the full range of meaning of some of the words they use, such as color words. Gifted children with physical disabilities may display lagging achievement due to the pace at which they are able to complete their work (Willard-Holt, 1999).

Identification of Gifted Children with Sensory and Physical Disabilities

Identification of gifted children with sensory or physical disabilities is difficult, as their disabilities may mask their abilities in the classroom. Also, gifted children with disabilities tend to use their high abilities to compensate for their weaknesses. They may have mild handicaps and perform at "grade level," so they are perceived as not requiring any

special services. They may also have such severe handicaps that they are viewed erroneously as intellectually impaired (Whitmore & Maker, 1985).

Whitmore and Maker (1985) suggest some guidelines to use in identifying gifted sensory or physically disabled children:

> Information should be collected about the child's performance from a variety of areas and sources;
>
> Individuals collecting and providing information should be knowledgeable about the interactions of giftedness and specific disabilities;
>
> Checklists, tests, or observation forms used in identification should be adapted for the specific population and type of disability;
>
> Specific examples of children's characteristics should be elicited from individuals supplying the information;
>
> Decisions about giftedness and appropriate placement should be made on the basis of all information collected.

Programming for Gifted Children with Sensory or Physical Disabilities

The key in addressing the needs of children with disabilities lies in getting beyond the specific disability while allowing cognitive abilities and domain-specific talents to blossom (St. Jean, 1996). Provisions should include educating teachers about the child's disability and making the appropriate accommodations to allow schooling to go as smoothly as possible. For example, when the room is arranged for the year, the child's disability needs to be considered. If the child is in a wheelchair, desks and chairs need to be placed so the child can get around the room and access materials.

The educational environment should have high expectations for intellectual performance, in spite of the disabilities the students may possess. Though it is important to provide learning experiences that teach missing skills or develop areas of weakness, this must be balanced with opportunities for the child to develop his or her strengths. For example, if a blind child has very high verbal skills, he or she needs to have the opportunity to tape-record stories, essays, or reports (Whitmore & Maker, 1985). The program must be flexible enough to provide for the individual's needs with accommodations made for any needed therapy or medical attention. In Joseph's case, accommodations were made for his physical therapy during lunch because his therapy included self-feeding skills. Children with disabilities need to be taught how to use specialized materials and equipment that can enhance their learning. Technology can be used to promote the child's learning and productivity (Baum, 1990; Whitmore & Maker, 1985).

Summary

Gifted children with sensory or physical disabilities remain one of the underserved populations of gifted children (Johnsen & Corn, 1989). This happens because these children tend to use their strengths to compensate for their weaknesses and their disabilities can depress their scores on tests and observational forms. They are often overlooked for gifted programming (Hemmings, 1985). Identification methods need to be adapted for use with children who have sensory or physical disabilities. Once a child is identified, he or she will usually be served by a variety of agencies and individuals, inside and outside of school. In order for the program to achieve maximum effectiveness, all individuals connected with the education and development of the child need to work together. Programming needs to emphasize the child's strengths on the one hand, and, on the other, to help the child develop compensatory strategies for getting around aspects of his or her disability, including using specialized materials and equipment to enhance learning and productiveness as appropriate.

Conclusion

Oliver, Sally, George and Joseph are well served in their education and development because their schools and teachers, parents and medical practitioners are able to see beyond their disabilities without ignoring them and to also embrace their giftedness. When given as much opportunity to develop their potential as they might be given to remediate or compensate for their disabilities, twice-exceptional individuals can and will make a significant impact on society. Franklin D. Roosevelt, Helen Keller, Vincent VanGogh, Albert Einstein, and Thomas Edison - to name only a few - were all highly gifted individuals who had some type of disability but made huge and lasting contributions to the world (Johnson, Karnes, & Carr, 1997).

As the scenarios of the four students presented here suggest, twice-exceptional individuals are often not easy to discern and, therefore, may often be overlooked for appropriate special programming to address both their giftedness and their disabilities. Often, the very characteristics or symptoms that suggest a disability may be outward signs of lack of challenge for a gifted child, such as could be the case in confusing attention deficit hyperactivity disorder and giftedness. Therefore, the under-challenged gifted child may be misidentified as AD/HD. Similarly, the very strengths that would be observed to identify a child as gifted might be so taxingly used by the learning disabled/gifted child just to perform at grade level that the child's giftedness is hidden. Hence, there is the potential that neither the child's giftedness or disabilities are recognized or appropriately addressed.

By understanding the nature and needs of the variety of gifted individuals who also have disabilities or handicapping conditions, educators and parents are better able to overcome barriers to identification and programming, not the least of which are inappropriate identification procedures and instruments, stereotypic attitudes, and inadequate training of key personnel. By appreciating that individuals grow best through their strengths, however hidden those strengths may be behind the mask of disabilities, educators and parents are better able to emphasize the unique and priceless potential that twice-exceptional children possess.

References

Ayers, A. J. (1979). *Sensory integration and the child.* Los Angeles: *Western Psychological Services.*

Baum, S. (1990). *Gifted but learning disabled: A puzzling paradox. ERIC Digest #E479.* Reston, VA:ERIC Clearinghouse on Disabilities and Gifted Education.

Baum, S., Owen, S. V., & Dixon, J. (1991). *To be gifted and learning disabled: From identification to practical intervention strategies.* Mansfield Center, CT: Creative Learning Press.

Barkley, R. A. (1990). *Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment.* New York: Guilford Press.

Bissel, J. (1991). Coping in the classroom. *SI Special Interest Newsletter, 14(4),* 3-4.

Brody, L. E., and Mills, C. J. (1997). *Gifted children with learning disabilities: A review of the issues. Journal of Learning Disabilities,* 30, 282-286.

Chan, C. (1995). Dealing with sensory integrative dysfunction in the classroom: A guide for early elementary teachers. Paper presented at the American University College of Arts and Sciences Child Research Conference, Washington, DC, February. (ERIC Document Reproduction # ED 389 104).

Cline, S., & Schwartz, D. (1999). *Diverse populations of gifted children.* New Jersey: Merrill.

Dabrowski, K. (1964). *Positive Disintegration.* Boston: Little, Brown.

Dabrowski, K. (1972). *Psychoneurosis is not an illness.* London: Gryf.

ERIC (1998). Teaching Children with attention deficit/hyperactivity disorder: Update 1998.

ERIC Digest E569. Reston, VA. ERIC Clearinghouse on Disabilities and Gifted Education (online) Available:http://www.ldonline.org/ld_indepth/add_adhd/ericE569.html

Fox, L. H., & Brody, L, (1983). *Models for identifying giftedness: Issues related to the learning disabled child.* In L. H. Fox, L. Brody, & D. Tobin (Eds.), *Learning-disabled gifted children.* Baltimore: University Park Press.

Hemmings, B. C. (1985). *The gifted handicapped: some basic issues.* Exceptional Children 32, 57-62.

Hishinuma, E. S. (1993). Counseling gifted/at risk and gifted/dyslexic youngsters. *Gifted Child Today,* 16, 30-33.

Johnsen, S. K., & Corn, A. L. (1989). *The past, present and future of educational or gifted children with sensory and/or physical disabilities. Roeper Review,* 12, 13-22.

Johnson, L. J., Karnes, M. B., Carr, V. W. (1997) *Providing services to children with gifts and disabilities.* In Colangelo, N., & Davis, G.A. (Eds) *Handbook of Gifted Education (2nd Ed.),*. Needham Heights, MA: Allyn and Bacon.

Kutrumbos, B. & Masson,G. (1997). Reading disorders and the gifted child: Promising solutions in current reading research. *Understanding Our Gifted, 9*

Maker, C.J., & Udall, A.J. (1985). Giftedness and learning disabilities. ERIC EC Digest #E427. Arlington, VA: ERIC Clearinghouse on Disabilities and Gifted Education (online). Available: http://ericec.org/digests/e427.html

Meckstroth, E.A. (1998).Complexities of giftedness: Dabrowski's theory. In J. F. Smutney (Ed.), The young gifted child: Potential and promise, an anthology. Cresskill, New Jersey: Hampton Press.

Mendaglio, S. (1993). *Counseling the gifted and learning disabled: Individual and group counseling techniques.* In L. K. Silverman, (Ed.), *Counseling the gifted and talented* Denver: Love.

Olenchak, F. R. (1994). Talent development. *The Journal of Secondary Gifted Education,* 5(3), 40-52.

Rimm, S. (1986). *Underachievement syndrome: Causes and cures.* Watertown, WI: Apple.

SI Network (2000). *What is sensory integration dysfunction (DSI) and how can it be treated?* (online). Available: http://www.sinetwork.org/whatisdsi.htm.

Silverman, L. K. (1989). *Invisible gifts, invisible handicaps. Roeper Review,* 12, 37-41.

Silverman, L.K. (1993). A developmental model for counseling the gifted. In L.K. Silverman(Ed.), *Counseling the gifted and talented.* Denver: Love

Silverman, L.K. (2000). The two-edged sword of compensations: How the gifted cope with learning disabilities. In K.Kay (Ed.), *Uniquely gifted: Identifying and meeting the needs of twice-exceptional students.* 153-159. Gilsum, NH: Avocus Publishing

Sypropulos, P. (1990). *Classroom consultation: a team approach. SI Quarterly, 18,* 12

Stephens, L.C. (1997). Sensory integrative dysfunction in young children. *American Association for Home-Based Early Interventionists News Exchange, Quarterly 2.* (online). Available: http://www.tsbvi.edu/Outreach/seehear/fall97/sensory.htm.

Szatmari, P. (1995). *Identification and early intervention in pervasive developmental disorders. Recent Advances in Pediatrics,* 13, 123-136.

US Department of Education (1997). Amendments to the Individuals with Disabilities Education Act (20 U.S.C. 1400 *et seq.).* P.L. 105-17 (online).
Available: http://www.ideapractices.org/law/IDEAMAIN.HTM

US Department of Education. (1994a). *Attention deficit disorder: Adding up the facts.* Washington, DC: US Department of Education

U.S. Department of Education (1994b). *Attention deficit disorder: Beyond the myths* Washington, DC: U.S. Department of Education (online). Available: http://www.ldoline.org/ld_indepth/adhd/add_doe_myths.html

U.S. Department of Education. (1977). Definition and criteria for defining students as learning disabled. Federal Register, 42:250, p. 65083. Washington, DC: U.S. Government Printing Office.

Webb, J.T. (1993). Nuturing social-emotional development of gifted children. In K.A. Heller, F.J. Monks, & A.H. Passow (Eds.), *International handbook for research on giftedness and* talent., pp. 525-538. Oxford: Pergamon Press.

Wechsler, D. (1974).*The Weschsler intelligence scale for children – revised.* New York: The Psychological Corporation.

Whitmore, J. R., & Maker, C. J. (1985). *Intellectual giftedness in disabled persons.* Rockville, MD: Aspen.

Willard-Holt, C. (1994). *Recognizing talent: Cross-case study of two high potential children with cerebral palsy.* Storrs, CT: National Research Center on the Gifted and Talented.

Willard-Holt, C. (1999). *Dual exceptionalities.* (online). ERIC EC Digest #E54. Reston, VA: The Council for Exceptional Children. (online)
Available: www.ldonline.org/ld_indepth/gt_ld/ericE574.html.

Mis-Diagnosis and Dual Diagnosis of Gifted Children: Gifted and LD, ADHD, OCD, Oppositional Defiant Disorder

James T. Webb, PhD

Many gifted and talented children (and adults) are being mis-diagnosed by psychologists, psychiatrists, pediatricians, and other health care professionals. The most common mis-diagnoses are: Attention Deficit Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (OD), Obsessive Compulsive Disorder (OCD), and Mood Disorders such as Cyclothymic Disorder, Dysthymic Disorder, Depression, and Bi-Polar Disorder. These common mis-diagnoses stem from an ignorance among professionals about specific social and emotional characteristics of gifted children which are then mistakenly assumed by these professionals to be signs of pathology.

In some situations where gifted children have received a correct diagnosis, giftedness is still a factor that must be considered in treatment, and should really generate a dual diagnosis. For example, existential depression or learning disability, when present in gifted children or adults, requires a different approach because new dimensions are added by the giftedness component. Yet the giftedness component typically is overlooked due to the lack of training and understanding by health care professionals (Webb & Kleine, 1993).

Despite prevalent myths to the contrary, gifted children and adults are at particular psychological risk due to both internal characteristics and situational factors. These internal and situational factors can lead to interpersonal and psychological difficulties for gifted children, and subsequently to mis-diagnoses and inadequate treatment.

Symposium on "Cutting Edge Minds — What it Means to be Exceptional", paper presented at the American Psychological Association Annual Convention, Washington, D.C., August 7, 2000

Internal Factors

First, let me mention the internal aspects. Historically, nearly all of the research on gifted individuals has focused on the intellectual aspects, particularly in an academic sense. Until recently, little attention has been given to personality factors which accompany high intellect and creativity. Even less attention has been given to the observation that these personality factors intensify and have greater life effects when intelligence level increases beyond IQ 130 (Silverman, 1993; Webb, 1993; Winner, 2000).

Perhaps the most universal, yet most often overlooked, characteristic of gifted children and adults is their intensity (Silverman, 1993; Webb, 1993). One mother described it succinctly when she said, "My child's life motto is that anything worth doing is worth doing to excess." Gifted children — and gifted adults — often are extremely intense, whether in their emotional response, intellectual pursuits, sibling rivalry, or power struggles with an authority figure.

Impatience is also frequently present, both with oneself and others. The intensity also often manifests itself in heightened motor activity and physical restlessness.

Along with intensity, one typically finds in gifted individuals an extreme sensitivity — to emotions, sounds, touch, taste, etc. These children may burst into tears while watching a sad event on the evening news, keenly hear fluorescent lights, react strongly to smells, insist on having the tags removed from their shirts, must touch everything, or are overly reactive to touch in a tactile-defensive manner.

The gifted individual's drive to understand, to question, and to search for consistency is likewise intense, as is the inherent ability to see possibilities and alternatives. All of these characteristics together result in an intense idealism and concern with social and moral issues, which can create anxiety, depression, and a sharp challenging of others who do not share their concerns

Situational Factors

Situational factors are highly relevant to the problem of mis-diagnosis (Webb, 1993). Intensity, sensitivity, idealism, impatience, questioning the status quo — none of these alone necessarily constitutes a problem. In fact, we generally value these characteristics and behaviors — unless they happen to occur in a tightly structured classroom, or in a highly organized business setting, or if they happen to challenge some cherished tradition, and gifted children are the very ones who challenge traditions or the status quo. There is a substantial amount of research to indicate that gifted children spend at least one-fourth to one half of the regular classroom time waiting for others to catch up.

Boredom is rampant because of the age tracking in our public schools. Peer relations for gifted children are often difficult (Webb, Meckstroth and Tolan, 1982; Winner, 2000), all the more so because of the internal dysynchrony (asynchronous development) shown by so many gifted children where their development is uneven across various academic, social, and developmental areas, and where their judgment often lags behind their intellect.

Clearly, there are possible (or even likely) problems that are associated with the characteristic strengths of gifted children. Some of these typical strengths and related problems are shown in Table 1.

Table 1
Possible Problems That May Be Associated With Characteristic Strengths Of Gifted Children

Strengths	Possible Problems
Acquires and retains information quickly	Impatient with slowness of others; dislikes routine and drill; may resist mastering foundational skills; may resist mastering foundational skills,may make concepts unduly complex
Inquisitive attitude, intellectual curiosity; intrinsic motivation; searching for significance	Asks embarrassing questions; strong willed; resists direction; seems excessive in interests; expects same of others
Ability to conceptualize, abstract, synthesize; enjoys problem-solving and intellectual activity	Rejects or omits details; resists practice or drill; questions teaching procedures
Can see cause-effect relations	Difficulty accepting the illogical - such as feelings, traditions, or matters to be taken on faith
Love of truity, equity, and fair play	Difficulty in being practical, worry about humanitarian concerns
Enjoys organizing things and people into structure and order; seeks to systematize	Construct complicated rules or systems; may be seen as bossy, rude, or domineering

Large vocabulary and facile verbal broad information proficiency; areas	May use words to escape or avoid proficiency; situations; becomes bored with school and in advanced age-peers; seen by others as a "know it all"
Thinks critically; has high expectancies; is self-critical and evaluates others	Critical or intolerant toward others; may become discouraged or depressed; perfectionist
Keen observer; willing to consider the unusual; open to new experiences	Overly intense focus; occasional gullibility
Creative and inventive; likes new ways of doing things	May disrupt plans or reject what is already known; seen by others as different and out of step
Intense concentration; long attention span in areas of interest; goal-directed	Resists interruption; neglects duties or people during periods of focused behavior; persistence interests; stubbornness
Sensitivity, empathy for others; desire to be accepted by others	Sensitivity to criticism or peer rejection; expects others to have similar values; need for success and recognition; may feel different and alienated
High energy, alertness, eagerness; periods of intense efforts	Frustration with inactivity; eagerness may disrupt others' schedules; needs continual stimulation; may be seen as hyperactive
Independent; prefers individualized work; reliant on self	May reject parent or peer input; non conformity; may be unconventional
Diverse interests and abilities; versatility	May appear scattered and disorganized; frustrations over lack of time; others may expect continual competence
Strong sense of humor	Sees absurdities of situations; humor may be understood by peers; may become "Class Clown" to gain attention

Lack of understanding by parents, educators, and health professionals, combined with the problem situations (e.g., lack of appropriately differentiated education) leads to interpersonal problems which are then mis-labeled, and thus prompt the mis-diagnoses. The most common mis-diagnoses are as follows:

Common Mis-Diagnoses

AD/HD and Gifted

Many gifted children are being mis-diagnosed as having Attention Deficit Hyperactivity Disorder (AD/HD). The gifted child's characteristics of intensity, sensitivity, impatience, and major activity can easily be mistaken for AD/HD. Some gifted children surely do suffer from AD/HD, and thus have a dual diagnosis of gifted and AD/HD; but in my opinion, most are not. Few health care professionals give sufficient attention to the words about AD/HD in DSM-IV(1994) that say "...inconsistent with developmental level..." The gifted child's developmental level is different (asynchronous) when compared to other children, and health care professionals need to ask whether the child's inattentiveness or impulsivity behaviors occur only in some situations but not in others (e.g., at school but not at home, at church, but not at scouts, etc.). If the problem behaviors are situational only, the child is likely not suffering from ADHD.

To further complicate matters, my own clinical observation suggests that about three percent of highly gifted children suffer from a functional borderline hypoglycemic condition. Silverman (1993) has suggested that perhaps the same percentage also suffer from allergies of various kinds. Physical reactions to these conditions, when combined with the intensity and sensitivity, result in behaviors that can mimic AD/HD. However, the AD/HD-like symptoms in such cases will vary with the time of day, length of time since last meal, type of foods eaten, or exposure to other environmental agents.

Oppositional Defiant Disorder and Gifted

The intensity, sensitivity, and idealism of gifted children often lead others to view them as "strong-willed." Power struggles with parents and teachers are common, particularly when these children receive criticism, as they often do, for some of the very characteristics that make them gifted (e.g., why are you so sensitive?, always questioning me?, trying to do things a different way?, etc.).

Bi-Polar and other Mood Disorders and Gifted

Recently, I encountered a parent whose highly gifted child had been diagnosed with Bi-Polar Disorder. This intense child, whose parents were going through a bitter divorce, did indeed show extreme mood swings, but, in my view, the diagnosis of Bi-Polar disorder

was off the mark. In adolescence, or sometimes earlier, gifted children often go through periods of depression related to their disappointed idealism, and their feelings of aloneness and alienation culminate in an existential depression. However, it is not at all clear that this kind of depression warrants such a major diagnosis.

Obsessive-Compulsive Disorder and Gifted

Even as preschoolers, gifted children love to organize people and things into complex frameworks, and get quite upset when others don't follow their rules or don't understand their schema. Many gifted first graders are seen as perfectionistic and "bossy" because they try to organize the other children, and sometimes even try to organize their family or the teacher. As they grow up, they continue to search intensely for the "rules of life" and for consistency. Their intellectualizing, sense of urgency, perfectionism, idealism, and intolerance for mistakes may be misunderstood as signs of Obsessive-Compulsive Disorder or Obsessive-Compulsive Personality Disorder. In some sense, however, giftedness is a dual diagnosis with Obsessive-Compulsive Personality Disorder since intellectualization may be assumed to underlie many of the DSM-IV diagnostic criteria for this disorder.

Dual Diagnoses

Learning Disabilities and Giftedness

Giftedness is a coexisting factor, to be sure, in some diagnoses. One notable example is in diagnosis and treatment of learning disabilities. Few psychologists are aware that inter-subscale scatter on the Wechsler intelligence tests increases as a child's overall IQ score exceeds 130. In children with a Full Scale IQ score of 140 or greater, it is not uncommon to find a difference of 20 or more points between Verbal IQ and Performance IQ (Silverman, 1993; Webb & Kleine, 1993; Winner, 2000). Most clinical psychologists are taught that such a discrepancy is serious cause for concern regarding possible serious brain dysfunction, including learning disabilities. For highly gifted children, such discrepancy is far less likely to be an indication of pathological brain dysfunction, though it certainly would suggest an unusual learning style and perhaps a relative learning disability.

Similarly, the difference between the highest and lowest scores on individual subscales within intelligence and achievement tests is often quite notable in gifted children. On the *Wechsler Intelligence Scale for Children–III,* it is not uncommon to find subscale differences greater than seven scale score points for gifted children, particularly those who are highly gifted. These score discrepancies are taken by most psychologists to indicate learning disabilities, and in a functional sense they do represent that. That is, the

levels of ability do vary dramatically, though the range may be "only" from Very Superior to Average level of functioning. In this sense, gifted children may not "qualify" for a diagnosis of learning disability, and indeed some schools seem to have a policy of "only one label allowed per student," and since this student is gifted, he/she can not also be considered learning disabled. However, it is important for psychologists to understand the concept of "asynchronous development" (Silverman, 1993), and to appreciate that most gifted children show such an appreciable, and often significant, scatter of abilities.

Poor handwriting is often used as one indicator of learning disabilities. However, many, and perhaps most gifted children will show poor handwriting. Usually this simply represents that their thoughts go so much faster than their hands can move, and that they see little sense in making writing an art form when its primary purpose is to communicate (Webb & Kleine, 1993; Winner, 2000).

Psychologists must understand that, without intervention, self-esteem issues are almost a guarantee in gifted children with learning disabilities as well as those who simply have notable asynchronous development since they tend to evaluate themselves based more on what they cannot do rather than on what they are able to do. Sharing formal ability and achievement test results with gifted children about their particular abilities, combined with reassurance, can often help them develop a more appropriate sense of self-evaluation.

Sleep Disorders and Giftedness

Nightmare Disorder, Sleep Terror Disorder, and Sleepwalking Disorder appear to be more prevalent among gifted children, particularly boys. It is unclear whether this should be considered a mis-diagnosis or a dual diagnosis. Certainly, parents commonly report that their gifted children have dreams that are more vivid, intense, and more often in color, and that a substantial proportion of gifted boys are more prone to sleepwalking and bed wetting, apparently related to their dreams and to being more soundly (i.e., intensely) asleep. Such concordance would suggest that giftedness may need to be considered as a dual diagnosis in these cases, or at least a factor worthy of consideration since the child's intellect and sense of understanding often can be used to help the child cope with nightmares.

A little known observation concerning sleep in gifted individuals is that about twenty percent of gifted children seem to need significantly less sleep than other children, while another twenty percent appear to need significantly more sleep than other children. Parents report that these sleep patterns show themselves very early in the child's life, and

long-term follow up suggest that the pattern continues into adulthood (Webb & Kleine, 1993; Winner, 2000). Some highly gifted adults appear to average comfortably with as few as two or three hours sleep each night, and they have indicated to me that even in childhood they needed only four or five hours sleep.

Multiple Personality Disorders and Giftedness

Though there is little formal study of giftedness factors within MPD, there is anecdotal evidence that the two are related. The conclusion of professionals at the Menninger Foundation was that most MPD patients showed a history of childhood abuse, but also high intellectual abilities which allowed them to create and maintain their elaborate separate personalities (W.H. Smith personal communication, April 18, 1996).

Relational Problems and Giftedness

As one mother told me, "Having a gifted child in the family did not change our family's lifestyle; it simply destroyed it!" These children can be both exhilarating and exhausting. But because parents often lack information about characteristics of gifted children, the relationship between parent and child can suffer. The child's behaviors are seen as mischievous, impertinent, weird, or strong-willed. The child often is criticized or punished for behaviors that really represent curiosity, intensity, sensitivity, or the lag of judgement behind intellect. Thus, intensive power struggles, arguments, temper tantrums, sibling rivalry, withdrawal, underachievement, and open flaunting of family and societal traditions may occur within the family. "Impaired communication" and "inadequate discipline" are specifically listed in the DSM-IV (1994) as areas of concern to be considered in a diagnosis of Parent-Child Relational Problems, and a diagnosis of Sibling Relational Problems is associated with significant impairment of functioning within the family with one or more siblings. Not surprisingly, these are frequent concerns for parents of gifted children due to the intensity, impatience, asynchronous development, and lag of judgement behind the intellect of gifted children.

Health care professionals could benefit from increased knowledge concerning the effects of a gifted child's behaviors within a family, and thus often avoid mistaken notions about the causes of the problems. The characteristics inherent within gifted children have implications for diagnosis and treatment which could include therapy for the whole family, not in the sense of "treatment," but to develop coping mechanisms for dealing with the intensity, sensitivity, and the situations which otherwise may cause them problems later (Jacobsen, 1999).

Conclusion

Many of our brightest and most creative minds are not only going unrecognized, but they are also often given diagnoses that indicate pathology. For decades, psychologists and other health care professionals have given great emphasis to the functioning of persons in the lower range of the intellectual spectrum. It is time that we trained health care professionals to give similar attention to our most gifted, talented, and creative children and adults. At the very least, it is imperative that these professionals gain sufficient understanding so that they no longer conclude that certain inherent characteristics of giftedness represent pathology.

References

Clark, B. (1992). *Growing up gifted; Developing the potential of children at home and at school,* (4th ed.). New York: Macmillan.

Diagnostic and statistical manual of mental disorders, Fourth Edition. (1994). Washington, DC: American Psychiatric Association.

Jacobsen, M.E. (1999). *Liberating everyday genius: A revolutionary guide for identifying and mastering your exceptional gifts.* New York: Ballantine

Seagoe, M. (1974). Some learning characteristics of gifted children. In R. Martinson, (Ed.), The identification of the gifted and talented. Ventura, CA: Office of the Ventura County Superintendent of Schools.

Silverman, L.K. (1993). *Counseling the gifted and talented.* Denver: Love Publishing.

Webb, J.T. (1993). Nurturing social-emotional development of gifted children. In K.A. Heller, F.J. Monks, and A.H. Passow (Eds.), *International handbook of research and development of giftedness and talent* (pp. 525-538). Oxford: Pergamon Press.

Webb, J.T. & Klein, P.A. (1993). Assessing gifted and talented children. In J.L. Culbertson, and D.J. Willis (Eds.), *Testing young children* (pp. 383-407). Austin, TX: Pro-ed.

Webb, J.T., Meckstroth, E.A., and Tolan, S.S. (1982). *Guiding the gifted child: A practical source for parents and teachers.* Scottsdale, AZ: Gifted Psychology Press (formerly Ohio Psychology Press).

Winner, E. (2000). The origins and ends of giftedness. *American Psychologist* (55, No. 1), 159-169.

Gifted Visual-Spatial Learners: Bright but Misunderstood

Linda Kreger Silverman, PhD
The Gifted Development Center
Denver, CO

In this paper, I discuss gifted visual-spatial learners from a clinical perspective, relying on case material of 3,600 children who have been assessed at the Gifted Development Center in the last 22 years. The Center originated in June, 1979, on the campus of the University of Denver, and is completely supported by fees for service. Low-cost services are only available when we are training interns; therefore, most of the families represented are from Caucasian middle and upper-middle class Urban backgrounds. Parents seek assessment at the Center to determine if their children are eligible for acceptance in private schools for the gifted (there are six of these schools in Colorado), to help them cope with children who are not adjusting well in school, and to assist them in understanding their children so they can meet their needs at home and at school. The majority of the children assessed range in age from 4 to 16. As the purview of the agency has been service rather than research, the information in the case files has not as yet been entered into a computer database. Clinical observations presented are informed by 40 years of inquiry into both giftedness and learning disabilities. From these observations, it appears that underachievement in gifted children is often accompanied by a visual-spatial learning style.

A multitude of factors can cause bright students to have difficulty adjusting to school. Some are inherent in the school environment, some in the family dynamics, and some in the constitution of the child. The dramatic increase in the number of our clients choosing to homeschool their children suggests that adjustment to school is being seriously questioned as an appropriate goal for advanced children. All gifted children are at risk for adjustment problems if they are allowed to be fair game for derision by other students with no adult intervention. The best educational experiences are where the school has adapted to the unique social, emotional, and academic needs of the gifted as well as expecting these children to adapt to the classroom.

The children we have seen with the greatest school adjustment issues evidenced a consistent diagnostic learning profile, which I have termed, "The Visual-Spatial Learner" (Silverman, 1989b). This learning style undergirds creative talent and mathematical and

technical aptitude. The characteristics overlap with the symptoms of Attention Deficit/Hyperactivity Disorder (AD/HD), and can produce AD/HD-like behavior. Since most children with AD/HD are nonsequential learners (G. Dorry, personal communication, September 14, 1992), it is likely that the recommendations for the spatial learner would be applicable to children with AD/HD as well. However, not all nonsequential learners have the abstract reasoning, spatial strengths and ability to visualize that is typical of the visual-spatial learner, and not all spatial learners are impulsive, distractible, or hyperactive. Where children fit both sets of descriptors, they probably are spatial learners with AD/HD.

The visual-spatial learning style appears to be hereditary, but it may also originate as a compensation for auditory-sequential processing deficiencies associated with chronic *otitis media*. It is possible that recurrent ear infections are related to allergies or lactose intolerance; a substantial number of clients with *otitis media* also experienced colic in infancy and food sensitivities. These children appear to have an excessive amount of inner stimulation and internal or external reaction, which Dabrowski (1938, 1972) has called "overexcitability" (OE). The methods described for excitable visual-spatial learners also have applicability to culturally diverse students, particularly those from cultures that emphasize visual rather than verbal abilities. In the following pages, I discuss spatial vs. sequential processing, characteristics, strengths and weaknesses, and assessment of visual-spatial learners, as well as effective teaching strategies.

Spatial vs. Sequential Thought Processes

Visual-spatial learners think multi-dimensionally. Spatial and sequential preference are two different mental organizations that affect perception and apparently lead to different worldviews. Information deemed central to one viewpoint appears peripheral from the other perspective. The sequential audition system appears to be profoundly influenced by the audition, whereas the spatial system relies heavily on vision and visualization. Auditory-sequential learners, who comprise the majority of students (as well as teachers) in American schools, are extremely aware of time but may be less aware of space; visual-spatial learners are often preoccupied with space at the expense of time. Sequential learning involves analysis, orderly progression of knowledge from simple to complex; skillful categorization and organization of information, and linear, deductive reasoning. Spatial learning involves synthesis, intuitive grasp of complex systems (skipping many of the foundational "steps"), simultaneous processing of concepts, inductive reasoning, active use of imagery, and idea generation by combining disparate elements in new ways. These diverse ways of relating to the world have had powerful ramifications throughout history in the development of various philosophies, religions, cultures, branches of science, and psychological theories.

Western and Eastern philosophies and cultures provide dramatic examples of these differences. Western thought is sequential, temporal, analytic; Eastern thought is spatial and holistic (Bolen, 1979). Cause and effect sequences are stressed in Euro-American ideation, whereas synchronicity of unrelated events is appreciated from an Asian worldview. Western languages are constructed out of non-meaningful elements—letters of the alphabet; Eastern languages traditionally have been composed of pictorial representations. Perhaps the greater facility of Asian children in the visual-spatial domain can be traced at least in part to the emphasis on visualization in the linguistic system. Temporal, sequential, and analytical functions are thought to be left-hemispheric strengths, while spatial, holistic, and synthetic functions are considered right-hemispheric strengths (Dixon, 1983; Gazzaniga, 1992; Springer & Deutsch, 1998; West, 1991). However, most researchers agree that integration of both hemispheres is necessary for higher-Level thought processes.

> The view of the two hemispheres now commonly accepted is that certain skills and abilities are specialized in one hemisphere while other skills and abilities are specialized in the other. However, there is often complex interaction between the two hemispheres on any given task. Abilities such as logic, language, orderliness, sequential time, and arithmetic are seen to be largely specialized in the left hemisphere whereas the processing of visual images, spatial relationships, face and pattern recognition, gesture, and proportion are seen to be specialized in the right hemisphere. In general, one might say that the left thinks in words and numbers, while the right thinks visually, in pictures and images in three-dimensional space. (West, 1991, p. 14)

We all use both hemispheres, but not with equal facility. Highly gifted individuals show strong integration of sequential and spatial functions, but most of the gifted children we have assessed seem naturally to favor one or the other mode. These different mental organizations appear to be innate. Although one can gain more facility with one or the other mode through learning, it is unlikely that a person with sequential preference can learn to perceive the world in exactly the same way as an individual with spatial preference or vice versa. Instead of trying to remake one or the other style of learning, we need to *accept these inherent differences in perception* and appreciate their complementarity since we inhabit a spatial-temporal reality. When these differences are not understood, there is dissension; when they are honored, they enable an exchange of information that forms a more complete conception of reality than can be gained by either perspective in isolation.

What is a Visual-Spatial Learner?

A visual-spatial learner is a student who learns holistically rather than in a step-by-step fashion (Silverman, 1989b). He or she finds it far easier to comprehend complex patterns of relationships than to memorize unrelated facts. Visual imagery plays an important role in the student's learning process. Because the individual is processing primarily in images rather than words, ideas are interconnected (imagine a web). Linear sequential thinking—the norm in American education—is particularly difficult for this person and requires a *translation* of his or her usual thought processes, which often takes more time. With the exception of John Dixon's book, *The Spatial Child* (1983), and *Upside-Down Brilliance: The Visual-Spatial Learner* (Silverman, in press) little has been written to guide educators in working with children with this unique learning style.

Some visual-spatial learners are excellent at auditory-sequential processing as well. They have fairly equal access to both systems, so that if they do not get an immediate "Aha" when they are looking at a problem, they can resort to sequential, trial-and-error methods of problem solving. These students are often highly gifted with well-integrated abilities. However, the majority of visual-spatial learners have major discrepancies between these two processing systems (Silverman, 1989a). They are gifted in visual-spatial abilities but deficient in auditory-sequential skills. This leads to a complex set of problems often resulting in underachievement. In traditional learning environments, a mismatch usually exists between the student's learning style and the instructional methods employed by the student's teachers.

The major differences between sequential and spatial learners are displayed in the following chart:

Table 1

SEQUENTIAL LEARNER	SPATIAL LEARNER
Step-by-step learner	Whole-part learner
Learns by trial-and-error	Learns concepts all at once
Analytic thinker	Systems thinker—sees complex relationships
Excels at computation	Excels at mathematical reasoning
Follows oral directions well	May be inattentive in class; needs to be shown

SEQUENTIAL LEARNER	SPATIAL LEARNER
Learns phonics easily	Needs a sight/whole language approach
Good at spelling	Needs to visualize spelling words
Good at rote memorization	Hates rote memorization; excellent with abstractions
Rapid processor; good at timed tests	Slow processor; timed tests should be avoided
Good handwriting; neat	Handwriting difficult—may be illegible; should use a keyboard
Well organized	Organizationally impaired
Progresses sequentially from easy to difficult material	Learns complex systems easily; struggles with easy work
Learns from models	Prefers to develop own methods of problem solving
May need repetition to reinforce learning	Learning usually permanent; turned off by repetition
Can show work easily	Arrives at correct solutions without taking steps
Good at biology/foreign languages	Good at geometry and physics
Academically talented	Creatively or technologically gifted
Early bloomer	Late bloomer

Visual-spatial learners who are most asynchronous in the development of their spatial and sequential skills appear to have the most serious classroom adjustment problems. By way

of contrast, auditory-sequential learners who lack spatial skills often experience success in the traditional classroom. They may seem rigid, they may lack creativity, they may not appear "emotionally alive" or they may not be socially adept, but they are likely to absorb factual knowledge quickly and be able to retrieve large amounts of information rapidly. Most students are fairly synchronous in their development; that is, they do not have dramatic discrepancies between strengths and weaknesses. They are more in-sync internally and more in-sync with the instructional mode and expectations of the classroom. But visual-spatial learners often feel out-of-sync with everyone, as if they were placed on an alien planet.

Learning Characteristics of Visual-Spatial Learners

Visual-spatial learners perceive the interrelatedness of the parts of any situation. Their learning is holistic and occurs in an all-or-none fashion. They are most likely to experience the "Aha!" phenomenon, when all of a sudden they "see it." Many have a photographic visual memory: they can visually recall anywhere they have ever been and how to get there. This type of learning does not take place through a series of steps. Sequential skills are usually reserved as a back-up system when they cannot grasp a concept through their preferred mode of comprehending the entire gestalt. They may create visual models of reality that are multi-dimensional.

As toddlers, these children like to see how things work, and they tend to pull apart everything they can get their hands on. They may try to see if they can put the things back together correctly. But as often as not, they enjoy restructuring the elements into something new. Some of these children never see anything as it is, but only as a conglomeration of parts that were meant to be reconstructed into something else. When given an ordinary toy, they will play with it long enough to figure out how it works, and most likely never touch it again. They enjoy novelty and challenge.

These children may be fascinated with puzzles and mazes, and have expert facility with them. They will spend endless hours building with construction toys (blocks, Lego sets, K'nex, etc.) or other materials, and their constructions are often quite sophisticated and intricate in design. If they are interrupted, they will probably become "deaf," and if their buildings are destroyed, they become enraged. They get very attached to their creations.

Visualization is a key element in the mental processing of visual-spatial learners. They have vivid imaginations, and as preschoolers, they may have several imaginary playmates and a rich fantasy life. If they are introverted, which many of them are, they will rehearse everything mentally before they attempt it: walking, talking, reading, riding a bicycle, etc.

Some of these children never learn to walk one step at a time like most children: one day they just break into a run. Some begin talking much later than others do, but their first "word" might be, "Charlie, will you please pass the salt."

Given the opportunity, these children often begin quite young to have a lifelong love affair with numbers and numerical relations. Or they may be technical wizards, gravitating to the computer and mechanical objects. One such child we tested constructed an amplifier at the age of five. Or they may be creatively talented in any of the fine arts. Despite these strengths, visual-spatial learners often have a great deal of difficulty adjusting to school where they have to fit into time schedules, routines, and other children's games. They are likely to be elaborate doodlers, movie buffs, or computer fanatics, while regularly forgetting their homework.

The spatial style of learning is not well suited to scholastic success. The school curriculum is sequential; the textbooks are sequential; the teaching methods are sequential; and most of the teachers are sequential. Time is important in school: being on time, turning in work on time, finishing activities in a timely fashion, and moving on to new activities in a set schedule. Lecture, rote memorization, drill and practice, all designed for the incremental learning style of the sequential learner, seem quite foreign to spatial children, and they often retreat into their own worlds. Teachers perceive them as "spacey," inattentive, or uncooperative. They are often late for school, behind in their work, or reluctant to move on from one activity to another.

Lectures are more appropriate for auditory-sequential learners unless visual aids are used generously. Rote memorization and drill are effective strategies for concrete auditory-sequential learners, but they are counterproductive to the learning style of visual-spatial learners, whether gifted or not. Learning, for visual-spatial learners, takes place all at once with large chunks of information grasped in intuitive leaps, rather than in the gradual accretion of isolated facts, small steps, or habit patterns gained through practice. For example, they can learn all of the multiplication facts as a related set in a chart much easier and faster than memorizing each fact independently (Silverman, in press). Once learning takes place, it creates a *permanent* change in the child's awareness and understanding. Practice does not make perfect; it is completely unnecessary for gifted students and deadens their natural interest in a subject. In addition, the gifted visual-spatial learner may be incapable of retaining and retrieving nonmeaningful material, regardless of the amount of drill and repetition. The information needs to be related in some way to a previously acquired concept or a visual image. A spatial learner either grasps the concept or needs alternative presentations, such as a diagram, a picture, or a

vivid example. Unless there is sufficient stimulation of their powerful abstract visual reasoning abilities, visual-spatial learners have serious difficulty paying attention. In traditional classrooms, they often feel out-of-step with the other children and with the expectations of their teachers.

The following strengths and weaknesses are typical of gifted visual-spatial learners who are struggling in school.

Table 2

STRENGTHS	WEAKNESSES
• thrives on complexity	• struggles with easy material
• loves difficult puzzles	• hates drill and repetition
• fascinated by computers	• has illegible handwriting
• great at geometry, physics	• poor at phonics, spelling
• keen visual memory	• poor auditory memory
• creative, imaginative	• inattentive in class
• a systems thinker	• disorganized, forgets details
• high abstract reasoning	• difficulty memorizing facts
• excels at math analysis	• poor at calculation
• high reading comprehension	• low word recognition
• excellent sense of humor	• performs poorly on timed tests

Spatial learners may suffer from a form of "six-hour retardation" that disappears after school hours or when they are placed in gifted programs. Their learning style is best suited to the instructional techniques, pace, and complexity characteristic of classes for the gifted. Gifted spatial learners, like other gifted children, thrive on abstract concepts, complex ideas, inductive learning strategies, multidisciplinary studies, holistic methods, and activities requiring synthesis; they are natural pattern finders and problem solvers.

Spatial abilities underlie both mathematical talent and creativity, and are essential in a number of fields: mathematics, science, computer science, technological fields, architecture, mechanics, aeronautics, engineering, and most creative endeavors (visual arts, music, etc.). Yet, visual-spatial learners are least likely to be placed in gifted programs because they often do not get teacher recommendations or high grades in all subjects. When achievement in the rote learning of sequential material is used as the basis for selecting children for gifted programs, these children are most likely to be overlooked. But when educated according to their learning style, they excel at original, creative production.

Overexcitabilities

Gifted children, particularly creatively gifted children, tend to experience life with great intensity. It is this intensity that makes them exciting to teach; it also can be their greatest obstacle to successful adjustment. Observing a group of creatively gifted children and youth in Warsaw in 1962, Kazimierz Dabrowski (1972) concluded that creative individuals have an innate capacity to respond with greater neural activity to various stimuli. He used the term "nadpobudliwosc" to describe this phenomenon, which has been translated into English as "overexcitability" (OE); however, a more precise translation is "superstimulatability." Dabrowski (1938) posited five types of "increased psychic excitability": *psychomotor, sensual, imaginational, intellectual,* and *emotional.* The overexcitabilities can be thought of as an abundance of physical, sensual, creative, intellectual and emotional energy which can result in creative endeavors as well as advanced emotional and ethical development in adulthood (Lysy & Piechowski, 1983; Piechowski, 1979).

The capacity for greater stimulation has positive and negative effects. On the positive side, the individual may be born with endless energy, heightened auditory acuity, vivid imagination, an insatiable love of learning, and an unusual capacity to care. The downside, however, is the possibility of excessive energy, hyperacuity, overactive imagination, intense interests that hinder adaptation to school schedules, and extreme sensitivity. It is a difficult balancing act to harness all that energy wisely. Gifted students who are successful in the classroom may have less of this stimulation to cope with (i.e., fewer OEs or OEs of less intensity) or may have developed more ability to manage their overexcitabilities than those who experience problems in school. Some children need years of practice and maturation before they learn to regulate this continuous bombardment of stimuli.

Other researchers also have theorized that the gifted come equipped with

supersensitive nervous systems which enable them to assimilate extraordinary amounts of sensory stimuli (Blackburn & Erickson, 1986; Cruickshank, 1963; Whitmore, 1980). "By its very intensity, a high kind of creativity may cause nervous strain and tension, and a supersensitivity of the nervous system may be conducive to both inner conflict and creative expression" (Cruickshank, 1963, p. 494). Whitmore (1980) notes that supersensitivity enables the gifted to be acutely perceptive and sensitive, more discriminating of the details of stimuli, and more critical of themselves and others; it also requires greater concentration since they have more stimuli to screen out.

> This physiological characteristic of the gifted child accounts for the tendency of young gifted children to be described frequently as "hyperactive" and highly "distractible." The supersensitive nervous system requires much activity, and the child needs help to learn how to screen out some stimuli and to focus on a selected few in order to increase concentration and effective assimilation of input without undue fatigue (Whitmore, 1980, p. 147).

While Dabrowski's model has been applied to all types of gifted adolescents and adults quite successfully (Piechowski, 1979; Silverman, 1993), it is especially applicable to creatively gifted individuals (Gallagher, 1985; Piechowski & Colangelo, 1984; Piechowski & Cunningham, 1985; Piechowski, Silverman & Falk, 1985; Schiever, 1985). And since there is a strong correlation between creativity and visual-spatial thinking (West, 1991), *the visual-spatial learner is most likely to exhibit the overexcitabilities.* When these overexcitabilities are extremely strong and difficult to channel, the child exhibits symptoms reminiscent of AD/HD. However, with maturation, the young person is likely to develop greater impulse control and the ability to manage the excessive stimulation.

A Typical Case Study

The following composite profile of the gifted child who struggles in school comes from the case files of hundreds of children who have come to the Center for assessment and counseling:

> Kevin was the first born-child of a university art professor and her husband, an engineer and supervisor in a computer technology firm. He began life as a highly active infant prone to colic. Nursing Kevin for the first six months, his mother noticed that when she ate certain foods her son would experience greater gastro-intestinal distress. Later, it was determined that Kevin had lactose intolerance and several food sensitivities. It was difficult to get him to sleep at night, and he did not sleep through the night until he was three years old. Kevin appeared to be in a

highly excited state, even in early childhood. It was hard for him to turn his mind off to get to sleep at night, and while he seemed distractible and obstinate when asked to do things he didn't want to do, he was capable of intense concentration for hours at a time when he chose an activity in which he was interested.

Kevin's postnatal development was advanced: walking, talking in complete sentences, counting, and writing words all were well before age norms. Kevin began to suffer from otitis media at six months of age. When asked how many ear infections he had had, his mother replied, "Countless. It seemed like he had one continuous ear infection from the time he was a baby until he was past three." She estimated that there were at least 15 ear infections during his first three years. The doctors considered placing tubes in his ears, but decided to treat the infections with various antibiotics instead. With constant irritation from the middle ear effusion that continued for weeks or months after each ear infection, Kevin tended to be quite irritable during his toddlerhood. He was difficult to manage, extremely active, and emotionally liable.

Kevin thought in images and had difficulty translating those pictures into words. He was excellent with meaningful material, but showed weak performance in areas that were not meaningful for him. Acutely aware of everything and everyone in his environment, he was easily distracted by noises and other children. He was artistic, creative, inventive, perceptive, excited about new ideas, highly verbal with an advanced vocabulary, but he did very poorly in rote learning and memorization. His spelling was atrocious, his handwriting was illegible, he had difficulty understanding sequential material, he showed poor time management skills, and he was disorganized. It was clear to his teachers that Kevin was a very bright child, but he clearly wasn't "working up to his potential." As time went on, Kevin was seen as "lazy," "unmotivated," "inattentive," distractible," and school became a nightmare for him.

Kevin's high activity level, colic, food allergies and sensitivities, his capacity for intense concentration and difficulties sleeping, may all be connected to overexcitabilities of the nervous system. His allergies and lactose intolerance may have led to chronic otitis media. More than nine ear infections in the first three years can lead to a number of difficulties in school performance, such as inattention, distractibility, impaired listening skills, lack of comprehension, and non-participation (Feagans, 1986). With 15 ear infections, Kevin actually experienced a mild conductive hearing loss in the first three years of life (Downs, 1985), which had residual effects on his adjustment to school. Since

Kevin was unable to hear very well during the critical learning period of the first three years, he learned to depend on his eyes for most of his information. This probably magnified his natural propensity to be a visual learner. Both of Kevin's parents considered themselves visual learners and both demonstrated excellent spatial abilities in their work.

Visual-spatial learners like Kevin, manifest most or all of the overexcitabilities. Heightened sensory awareness makes it difficult for them to focus their attention. They are physically irritated by clothing labels or sock seams; distracted by the nearly imperceptible flickering of fluorescent lights or the whispering of their classmates; carried off in flights of fantasy by their active imaginations; overstimulated by their own intellectual curiosity and understimulated by the pace of classroom instruction; and intensely affected by the emotional climate of the classroom and their relationships with classmates. A history of *otitis media* appears to exacerbate these overexcitabilities and make it even harder for these children to concentrate. They are asynchronous in the development of their skills: they exhibit enormous discrepancies between their strengths and weaknesses (e.g., high math reasoning ability coupled with low computation skills; excellent reading comprehension coupled with poor word attack skills). They are hard for teachers to understand and to reach. Many times teachers label them AD/HD, and recommend that parents put them on medication.

Creativity or AD/HD?

It is difficult to distinguish between highly creative children bursting with overexcitabilities and gifted children with AD/HD. Hallowell and Ratey (1994) have found a tendency toward creativity in people with AD/HD, and they consider the creative person with AD/HD a "separate subtype" (p. 176) of attentional disorders. Their description of the "*hyperreactivity*" of the person with AD/HD sounds remarkably like a description of overexcitabilities:

> ...[B]ombarded by stimuli from every direction...people with ADD live with chaos all the time. For all the problems this might pose, it can assist the creative process. In order to rearrange life, in order to create, one must get comfortable with disarrangement for awhile (pp. 176-177).
>
> A third element that favors creativity among people with ADD is the ability to intensely focus or hyperfocus at times... [T]he term "attention deficit" is a misnomer. It is a matter of attention inconsistency. While it is true that the ADD mind wanders when not engaged, it is also the case that the ADD mind fastens on to its subject fiercely when it is engaged. A child with ADD may sit for hours meticulously putting

> together a model airplane. An adult may work with amazing concentration when faced with a deadline (pp. 177).
>
> This ability to hyperfocus heats up the furnace in the brain, so to speak, and melts down rigid elements so they may easily flow and commingle, allowing for new products to be formed once they hit the cool light of day. The intensity of the furnace when it heats up may help explain why it needs to cool down, to be distracted, when it is not heated up.
>
> A fourth element contributing to creativity is what Russell Barkley has called the "hyperreactivity" of the ADD mind. Cousin to the traditional symptom of hyperactivity, hyperreactivity is more common among people with ADD than hyperactivity is. People with ADD are always reacting. Even when they look calm and sedate, they are usually churning inside, taking this piece of data and moving it there, pushing this thought through their emotional network, putting that idea on the fire to burn, exploding or subsiding, but always in motion. Such hyperreactivity enhances creativity because it increases the number of collisions in the brain. Each collision has the potential to emit new light, new matter, as when subatomic particles collide (p. 178).

A thorough diagnosis by a specialist in the area of AD/HD who also understands the characteristics of giftedness is necessary to sort through the overlap of symptoms and determine when a young person should be diagnosed as having AD/HD or should be placed on medication. According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV), the main factors to be considered are the presence of uncontrollable impulsivity, distractibility, or hyperactivity; whether the symptoms appeared before the age of seven and if the behaviors are seriously interfering with the student's ability to function (finish thoughts, interact in socially appropriate ways, remain seated when necessary, etc.) both at school and at home (American Psychiatric Association, 1994). If medication is initiated, it is essential that it be carefully monitored to assure that it is the appropriate type and dosage; changes are often needed over time.

The most accurate means of identifying a visual-spatial learner is also through comprehensive psychological assessment. The evaluation should be conducted by a professional who is aware of the distinctive pattern of this learning style.

Identifying and Assessing Visual-Spatial Learners

The *Visual-Spatial Identifier* has been developed to enable teachers to spot these children in the classroom and to allow parents to recognize this learning style in their children. There is also a self-report version for 10 to 14 year olds. The *Identifier* has been used to discriminate between auditory-sequential and visual-spatial learners in a middle school with 447 students (44% Hispanic). Both the observer and self-report forms have been translated into Spanish. Over 37% of the student body was identified as visual-spatial. The characteristics differentiating sequential from spatial (see Table 1) and the list of strengths and weaknesses of visual-spatial learners (see Table 2) can also be used for self-evaluation or to help parents and teachers identify spatial learners.

Formal diagnosis of children who are visual-spatial learners rests on the discrepancy between visual-spatial strengths and auditory-sequential weaknesses. Visual-spatial learners do extraordinarily well on tasks with spatial components: solving puzzles, tracing mazes, duplicating block designs, counting three-dimensional arrays of blocks, visual transformations, mental rotations, envisioning how a folded and cut piece of paper would appear opened up, and similar items. However, they have problems repeating digits in order, repeating sentences, telling the days of the week in order, solving sequential computation problems, spelling, remembering a three-step direction, organizing their ideas sequentially in essays, planning a series of steps to accomplish a task, and even mastering the sequential-motor task of handwriting.

The Block Design subtest of the *Wechsler Intelligence Scale for Children* (WISC) is one of the strongest indicators of the visual-spatial learning style. The Abstract Visual Reasoning section of the *Stanford-Binet Fourth Edition*, the Raven's *Progressive Matrices* and the *Mental Rotations Test* also assess spatial abilities. The Digit Span subtest of the WISC or the Repeating Digits sections of the *Stanford-Binet* are strong indicators of auditory-sequential weaknesses. They may also indicate attentional problems, short-term memory loss, or anxiety, so these need to be ruled out in diagnosing the syndrome.

On the WISC-III, gifted visual-spatial learners usually attain 16 or higher on the Block Design subtest and a Digit Span score at least 7 points lower. In the norm sample, a 4-point scatter on the WISC-III was statistically significant at the .05 level (Sattler, 1992).

Other portions of the WISC can also serve a diagnostic role. Coding is a visual sequencing task that requires motor speed; and arithmetic requires short-term memory of auditory sequences. These two subtests can be used to provide confirmation of sequential deficits (Bannatyne, 1971,1974). In addition, the Picture Arrangement subtest is sequential,

although it is usually easier for gifted students because it contains meaningful material. The Verbal Comprehension Index—Similarities, Vocabulary, Comprehension, and Information—is a strong indicator of abstract reasoning (Kaufman, 1994) and scores of 16 or higher on these subtests can provide additional confirming evidence of the student's giftedness. Perceptual Organization, Block Design, Object Assembly, and Mazes can all serve as gauges of the student's visual-spatial proficiency.

While gifted children's Verbal scores usually exceed their Performance scores, visual-spatial learners sometimes have the opposite pattern: Performance scores exceed Verbal scores. However, on the *WISC-III* and the *WPPSI-R*, even the strongest spatial learner is likely to have a higher Verbal score, due to the increase in bonus points for speed in these revisions (Kaufman, 1992). Also, gifted spatial learners tend to be very proficient in abstract verbal reasoning, and there are more measures of verbal than of spatial reasoning in IQ tests (e.g., Mazes is rarely administered, and Object Assembly is more loaded on visual perception than abstract spatial reasoning). Therefore, even if a student has a very high score in the Verbal Comprehension Index, she or he could still be a visual-spatial learner. The most telling sign is performance on Block Design.

Strategies for Teaching Visual-Spatial Learners

Visualization is the key to reaching visual-spatial learners. Their imaginational OE provides them with excellent visualization skills. Children can be taught to spell by having them concentrate on a word until they can create a strong visual image of it. Have them do something wild and crazy with the word in their imagination and then place the word in space around them where they will be able to access it again when they need it. Then have them spell the word backwards. If they can spell the word backwards, then a clear visual image has been created. Next, the word should be spelled forwards and written once to bring in the psychomotor modality. Visualization can be used as an aid in other subject areas as well.

Children with many overexcitabilities learn best when they are allowed to use several modalities at once. Present information visually as well as auditorially, and involve psychomotor activity whenever possible: acting out a concept, manipulating objects, drawing a picture, etc.

They are whole-part learners, so give them the big picture first. Gifted visual-spatial learners are more likely to succeed at difficult, complex tasks than at simple, sequential tasks (e.g., they may grasp algebra before their times tables). When they have trouble understanding a simple idea, try making the concept more complicated! If they grasp

complex concepts, but have difficulty with easy sequential tasks, give them *advanced work* even if they have not mastered the easier work.

They are not step-by-step learners, so allow them to construct methods and solutions to problems in their own way, and don't insist that they "show their work." Teach to their strengths and teach them ways to compensate for their weaknesses. If they have difficulty with eye-hand coordination and speed, allow them to complete their written work on a computer and reduce the amount of writing, stressing quality over quantity. Tape recorders can assist children who have difficulty attending to lectures.

Avoid timed tests. It takes visual-spatial learners longer to translate their images into words, and motor sequencing and speed may be impaired in sequential tasks. If they must take timed tests, have them compete against their own past record rather than against other, more sequential students. Students who have pronounced weaknesses in processing or motor speed should be assessed within three years of their College Board examinations so that arrangements can be made for them to take these examinations untimed.

Visual-spatial learners learn best with teachers who show that they really care about them, who are willing to adapt their teaching styles, who have a good sense of humor, and who get the students emotionally involved in the subject matter. Many gifted visual-spatial learners become smarter as they get older; they are late bloomers (Silverman, 1989a). They need the most support during elementary school where the focus is often on rote learning and sequential instruction. These children are often better equipped to deal with the greater cognitive demands of high school than with the simple, sequential learning of the earlier grades.

The following list provides additional suggestions for stimulating gifted visual-spatial learners:

1) Use visual aids, such as overhead projectors, and visual imagery in lectures.

2) Use manipulative materials to allow hands-on experience.

3) Use a sight approach to reading rather than phonics.

4) Use a visualization approach to spelling.

5) Teach them to use a visual method of note taking (Goertz, 1991).

6) Have them discover their own methods of problem solving. For example, instead of teaching division step-by-step, give them a simple division problem, with a divisor, dividend, and quotient. Have them figure out how to get the answer in their own way. When they succeed, give them a harder problem with the solution already worked out and see if their system works.

7) Avoid rote memorization. Use more conceptual or inductive approaches.

8) Avoid drill and repetition. Instead, have them perform the hardest tasks in the unit.

9) Find out what they have already mastered before teaching them.

10) Give them advanced, abstract, complex material at a faster pace.

11) Allow them to accelerate in school—even underachievers (Rimm & Lovance, 1992).

12) Emphasize mastery of higher level concepts rather than perfection of simpler concepts where they compete with other students.

13) Emphasize creativity, imagination, new insights, and new approaches rather than acquisition of knowledge. Creativity should be encouraged in all subject areas.

14) Group gifted visual-spatial learners together for instruction.

15) Engage students in independent studies or group projects, which involve problem-finding as well as problem-solving.

16) Allow them to construct, draw, or otherwise create visual representations of concepts.

17) Use computers so that material is presented visually.

18) Have the students discuss the ethical, moral, and global implications of their learning and involve them in service-oriented projects.

Visual-spatial learners are more attentive if they understand the goals of instruction. They are more cooperative at home and at school if they are allowed some input into the

decision-making process and some legitimate choices. Discipline must be private, as these children are highly sensitive and easily humiliated. If they are respected, they will learn to treat others with respect.

The visual-spatial learning style is best suited to the types of experiences in gifted education programs. These children thrive on complex, abstract ideas; they are natural pattern finders and problem solvers. Therefore, they should not be discriminated against in selection processes for gifted education. Subtest scores in abstract reasoning (e.g., the Verbal Comprehension Index and Block Design) should be used for selection rather than Full-Scale scores. Achievement in the regular classroom should not be a requisite; gifted education is not a reward for high achievement but a special education provision for children with special learning needs. Many times these children fail in the regular classroom but blossom in gifted education. Visual-spatial learners may be the students most in need of provisions for the gifted. When they are placed in the right learning environment, where there is a good match between their learning style and the way they are taught, visual-spatial learners can actualize their potential to become innovative leaders.

References

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Bannatyne, A. (1971). *Language, reading, and learning disabilities.* Springfield, Il: Charles C. Thomas.

Bannatyne, A. (1974). Diagnosis: A note on recategorization of the WISC scaled scores. *Journal of Learning Disabilities,* 7, 272-274.

Blackburn, A. C., & Erickson, D. B. (1986). Predictable crises of the gifted student. *Journal of Counseling and Development,* 9, 552-555.

Bolen, J.S. (1979). *The Tao of psychology.* New York: Harper &Row.

Cruickshank, W. M. (1963). *Psychology of exceptional children and youth* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Dabrowski, K. (1938). *Typy wzmozonej pobudliwosci: psychicnej* (Types of increased psychic excitability). *Biul. Inst. Hig. Psychicznej,* 1(3-4), 3-26.

Dabrowski, K. (1972). *Psychoneurosis is not an illness.* London: Gryf.

Dixon, J. P. (1983). *The spatial child.* Springfield, IL: Charles C. Thomas.

Downs, M. P. (1985). Effects of mild hearing loss on auditory processing. *Otolaryngologic Clinics of North America, 18,* 337-343.

Feagans, L. (1986). Otitis media: A model for long term effects with implications for intervention. In J. Kavanaugh (Ed.). *Otitis media and child development* (pp. 2-22). Parkton, MD: York Press.

Gallagher, S. A. (1985). A comparison of the concept of overexcitabilities with measures of creativity and school achievement in sixth grade students. *Roeper Review, 8,* 115-119.

Gazzaniga, M. (1992). *Nature's mind: The biological roots of thinking, emotions, sexuality, language, and intelligence.* New York: Basic Books.

Goertz, J. (1991). Drawing: A visual approach to learning. *Understanding Our Gifted, 35 (1),* 11-13.

Hallowell, E. M., & Ratey, J. J. (1994). *Driven to distraction.* New York: Pantheon.

Kaufman, A. S. (1994). *Intelligent testing with the WISC-R.* New York: John Wiley.

Kaufman, A. S. (1992). Evaluation of the WISC III and WPPSI-R for gifted children. *Roeper Review, 14,* 154-158.

Lysy, K. Z., & Piechowski, M. M. (1983). Personal growth: An empirical study using Jungian and Dabrowskian measures. *Genetic Psychology Monographs, 108,* 267-320.

Piechowski, M. M. (1979). Developmental potential. In N. Colangelo & R T. Zaffran (Eds.), *New voices in counseling the gifted* (pp. 25-57). Dubuque, IA: Kendall/Hunt.

Piechowski, M. M., & Colangelo, N. (1984). Developmental potential of the gifted. *Gifted Child Quarterly, 28,* 80-88.

Piechowski, M. M., & Cunningham, K (1985). Patterns of overexcitability in a group of artists. *Journal of Creative Behavior, 19 (3)* 153-174.

Piechowski, M. M., Silverman, L.K. & Falk, R.F. (1985). Comparison of intellectually and artistically gifted on five dimensions of mental functioning. *Perceptual and Motor Skills, 60,* 539-549

Rimm, S.B., & Lovance, K.J. (1992). How acceleration may prevent underachievement syndrome. *Gifted Child Quarterly, 36 (2),* 100-105.

Sattler, J.M. (1992) Assessment of children's intelligence (3rd ed, revised). San Diego: Jerome M. Sattler.

Schiever, S.W. (1985). Creative personality characteristics and dimensions of mental functioning in gifted adolescents. *Roeper Review, 7,* 223-226

Silverman, L.K. (1989a). Invisible gifts, invisible handicaps. *Roeper Review, 12(1),* 37-42.

Silverman, L.K. (1989b). The visual-spatial learner. *Preventing School Failure, 34(1),* 15-20.

Silverman, L.K. (1993). The gifted individual. In L.K. Silverman (Ed.), *Counseling the gifted and talented* (pp. 3-28), Denver: Love

Silverman, L.K. (in press). *Upside-down brilliance: The visual-spatial learner.*

Springer, S.P., & Deutsch, G. (1998). *Left brain, right brain* (5th ed.). New York: W.H. Freeman.

West, T.G. (1991). *In the mind's eye.* Buffalo, NY: Prometheus.

Whitmore, J.R. (1980). *Giftedness, conflict, and underachievement.* Boston: Allyn & Bacon.

Reading and Writing Problems of High School Gifted Students With Learning Disabilities

Sally M. Reis, PhD
University of Connecticut

Joe is a tall, heavy set, intense looking young man with dark curly hair, a beard, and glasses. A college junior, who was a physics major when this study was conducted, Joe had many problems in school because of his learning disability. His father is an attorney and his mother, who has a bachelor's degree in English, conducts title searches for a law firm. She stayed home when Joe was in school. Joe has one older brother who is pursuing a doctorate.

Joe never really had to work in school because he learned quickly. His verbal IQ is over 140 and yet his problems in school began at a very early age. In fact, he had so many learning problems in the primary grades that he was placed in a self-contained, special education classroom for students in grades two through six. During his time in this self-contained classroom, Joe was instructed along with students with mental retardation, emotional or behavioral disorders, or who had specific learning disabilities. He became severely depressed. About this time in his education, he recalled: "It was degrading. I was very resentful of it. I don't really remember that part of my life that well. I've blocked it out. I knew I was different than the other kids." Joe was retained in fifth grade while in the self-contained special education class. He described this by saying that he had become a disciplinary problem while he was in the classroom. Joe's memories of the class were very negative: "They used to send us out to recess with the mainstream kids. I remember being sort of alone and being made fun of. They called me retarded."

Research for this report was supported under the Javits Act Program (Grant No. R206R00001) as administered by the Office of Educational Research and Improvement, U.S. Department of Education. Grantees undertaking such projects are encouraged to express freely their professional judgement. This report, therefore, does not necessarily represent positions or policies of the Government, and no official endorsement should be inferred.

Joe recalled that school personnel released him from the special education class in sixth grade because they considered him "cured." "I was the first student to be completely mainstreamed out of the program in its history. The principal used to come down and observe me and they would bring visitors from here or there to talk to me."

These were not the only negative experiences that occurred in Joe's education. On a questionnaire for our study, when asked if he was ever identified as gifted, Joe wrote, "I was told that I should have been placed in a talented and gifted class in 6th grade. After taking the entrance exam I was told that I only failed by a few points." Although very involved in a university learning disabilities program, it is now questionable whether Joe will finish college as he was on academic probation due to required liberal arts courses he had to take outside of his major area. At the current time Joe has dropped out of his university program. He carries a great deal of anger about what happened to him in school, particularly his elementary school years, which impeded his educational performance.

This article describes a study that investigated factors that enable some high ability students with learning disabilities, like Joe, who had consistent problems with reading and writing to succeed in an academic setting. Educational research has expanded in recent years with the study of various special populations, and new theories of intelligence (Gardner, 1983; Sternberg, 1981) have revealed that the potentiality of some students may not be measured accurately by current measurement instruments. High ability students with learning difficulties have been studied for many years. In 1937, Samuel Orton found wide ranges of intelligence among non-readers. His extensive work with a specific reading and writing disability known as dyslexia indicated many high ability students had learning problems. Additionally, some of the nonachieving high IQ students in Terman and Oden's (1947) study exhibited feelings of inferiority, an inability to persevere in the accomplishment of goals, and a general lack of self-confidence. According to current theorists and researchers, these characteristics are common among high ability students with learning disabilities (Baum, Owen, & Dixon, 1991; Daniels, 1983; Whitmore & Maker, 1985).

The examination of the lives of highly accomplished individuals who lived in the past is often used as a rationale for various educational interventions or practices. Eminent individuals, in particular, often experienced difficulty with the educational system. Goertzel and Goertzel (1962), in studying the lives of prominent individuals, found that many avoided school, had different learning styles from those used for instruction, and utilized unique compensation styles to overcome learning problems. More recently, West

(1991, 1992) discussed the phenomenon of individuals such as Albert Einstein, Michael Faraday, and James Maxwell who exhibited superior talents in visualization, yet who were, by recent standards, also dyslexic.

The specific research concerning high ability students with learning disabilities began following the passage of PL 94-142, when the expanding emphasis on the education of students with disabilities created an interest in students who were both gifted and demonstrated learning disabilities. Hokanson and Jospe (1976) found that, among all disabilities, the largest population of high ability students were identified as having learning disabilities. Project SEARCH (Hokanson & Jospe, 1976) focused on the identification of high cognitive ability in students with disabilities. In this study, Hokanson and Jospe discovered that creative ability was demonstrated by high ability students with learning disabilities were only considered for educational services to remediate their disabilities.

Sporadic case studies also have indicated the presence of artistic talent among students with learning disabilities. For example, Vantour (1976) described gifted students with learning disabilities in the classroom and placed the instructional emphasis on students' artistic abilities rather than their scholastic disabilities. Two years after the passage of PL 94-142, Maker (1977) examined the strengths and weaknesses of gifted students with handicapping conditions and provided initial suggestions for programs and services for such students. A major concern expressed by Maker (1977) was the difficulty in identifying this population, specifically because of the reliance on IQ cut-off scores. The existence of this population was further supported when Educational Resources Information Center (ERIC) listed the heading "gifted handicapped" in their national retrieval system and when The Council for Exceptional Children (CEC) held two major conferences on this special population.

Research on high ability students with learning disabilities continues to be difficult because of problems in defining each population. The fields of gifted education and education of students with learning disabilities have long been separated by their own definitions for the population to be served, as well as by their separate professional organizations, journals, and recommended educational practices. Practitioners in both fields have indicated that their respective federal definitions are inadequate (Boodoo, Bradley, Frontera, Pitts, & Wright, 1989; Renzulli, 1978; Taylor, 1989; Vaughn, 1989; Ysseldyke & Algozzine, 1983).

Students who exhibit characteristics of both the gifted and learning disabled pose quandaries for educators. The misconceptions, definitions, and expected outcomes for these types of students further complicate the issues facing appropriate programming for this population (Baum et al., 1991; Olenchak, 1985; Whitmore, 1986). Awareness of these students' needs is becoming more common with both the teachers of the gifted and the teachers of students with learning disabilities, yet most school districts have no provision for intervention programs for this group (Boodoo et al., 1989). Additionally, according to statistics gathered in 1991, only 2.2% of all college students entering institutions across the country had learning disabilities (Henderson, 1992).

Study Design

Qualitative case study methodology was used in this study to investigate subjects' perceptions and experiences, which were in turn related to the individual's external behavior, specifically, overcoming the obstacle of the learning disability. Accordingly, the individual's perceptions were of primary importance. In order to obtain the most accurate image of the subjects' experiences and perceptions, open-ended questionnaires and in-depth interviews were used with both study participants and their parents. Miles and Huberman (1994) and Yin (1989) have suggested the case study approach as appropriate methodology for in-depth study of a small number of cases in order to make analytical generalizations.

Twelve currently enrolled college or university students or recent graduates who were identified as having a learning disability comprised the sample for this research (see Table 1). These individuals either were identified as having a high IQ or high ability in elementary or secondary school but were not identified as gifted and included in the district gifted program. Information such as IQ and/or achievement tests, outstanding performance in one or more academic areas, teacher nomination, and product information from an academic portfolio were used to assign the label of giftedness to the participants in this study.

Data Collection

Data for this study were collected using three methods: records and testing information, written responses to an open-ended questionnaire, and in-depth interviews with each subject and with one of his or her parents. The number of interviews conducted was determined by the occurrence of data saturation. Data saturation occurs when the subject can only provide information that is redundant and does not offer useful reinforcement of information previously collected (Spradley, 1979). The open-ended questionnaire served as a preliminary identifier of issues to be investigated further during the interviews as well as an additional source of information.

Prior to the initial interview, each subject was provided with a biographical questionnaire and written information about the study and his or her anticipated role in it. Parents and/or teachers were asked to complete a brief written summary of their perceptions of each subject's academic history and the effects of his or her learning disability and label of giftedness. Each interview session was used to clarify, verify, and expand upon the subject's responses. All interviews were tape-recorded and transcribed and the field notes and observations made by the researcher during the interviews were added to the transcriptions. Interviews and other data collection procedures followed guidelines suggested by Spradley (1979), Strauss (1987), and Strauss and Corbin (1990).

Table 1
Summary of Self-Report Questionnaire Data

	Condition			
Participant	Strength area	Nature of the LD	Time period when identified as LD	Time period when identified as gifted
Arthur	Generally a "B" student	Slow processing of information	4th semester of college	No
Colin	Computer, math, science	Spelling, handwriting, poor short-term memory, reading, decoding	7th grade	Yes, 7th grade
Diane	Sports	Dyslexia, language	college	No
Evan	[None reported]	Spelling, abstract math problems	11th grade	No
Forrest	Not great, but does well in many areas	Dyslexia, concentrating	7th grade	No
Fred	Considered bright, astronomy	math, spelling, social problems	8th grade	No
Jake	Considered self average	Dyslexia, motor skills	6th grade	No
Joe	[None reported]	Verbal and written expression, auditory	3rd grade	Recommended in 6th grade—not identified
Kate	Not really	Language, spelling, reading	2nd grade	No
Mike	[None reported]	Language, spelling Attention Deficit Disorder	10th grade	No
Martin	Deeper insights to life	Dyslexia	1st grade	No

		Condition		
Participant	Strength area	Nature of the LD	Time period when identified as LD	Time period when identified as gifted
Peggy	Standardized tests, yet "stupid" on homework	Slow thought processes, spelling, penmanship, reading comprehension	5th grade	No

Data Analysis

Data analysis was conducted using techniques designed by Strauss (1987) and Strauss and Corbin (1990). As suggested by these researchers, data analysis coincided with data collection and affected the collection of additional data. Data analysis techniques included the use of a coding paradigm described by Strauss (1987) and Strauss and Corbin (1990) which included three levels: open coding, axial coding, and selective coding. The use of this coding paradigm resulted in the formulation of core categories of results.

Results

The findings in this study revolve around the core categories for both participants and parents. The major core category found for participants was their negative experiences in school, with a particular focus on reading and writing problems. All of the participants recalled negative, and in many cases painful, memories of situations that had occurred during their elementary and secondary school years. It is important to note that these negative school experiences occurred within the context of many positive outside-of-school experiences, which provided participants of this study with an opportunity to distinguish between positive life experiences and negative school experiences. All of the participants in this study had positive out-of-school experiences that may have enabled them to survive and even constructively adapt their negative school experiences, resulting in positive personal attitudes that may have contributed to their later successes. Many of these students excelled in athletics or sports; many had hobbies or passionate interests outside of school; many had spatial strengths that were not recognized, rewarded, or nurtured in the schools they attended that emphasized reading, writing, and verbal skills. For many of these students, the discussion of these school memories was troubling, and several indicated that they tried never "to think about what happened to them in school." In some cases, they admitted to "blocking out" memories of painful events that they would rather forget, but each was able to "dredge up" these incidents during the course of the interviews. As Joe eloquently summarized:

> "I still have a lot of emotion about it. I had a lot of mistreatment. It [this interview] conjures up memories of things that I don't like to meet."

The negative school experiences that these students encountered included repeated punishment for not completing work on time; retention (repetition) of a grade, which was attributed to the participants' learning disability; placement in a self-contained special education class in which the majority of students were developmentally delayed or had been identified as mentally retarded; and cruel treatment by peers and teachers. If these and other school experiences were not related over and over by many respondents, one might consider them to be rare, almost accidental happenings. But they were not rare, and indeed, similar experiences were remembered by all of the students in this study, and in almost half the cases painful memories still remain.

Late Identification of a Learning Disability

The majority of the participants were not identified as having a learning disability until middle or high school, even though most were referred by teachers or parents for testing or various types of assistance because of difficulties encountered in reading or writing in primary or elementary school. The late identification was problematic for the participants in this study in many ways. First, although they were not identified until their later years in school, academic difficulties began much earlier. Accordingly, because they had difficulty reading, writing, spelling, or with handwriting, they were often criticized, punished, or told to work harder. Most of their teachers realized they were bright and many of the participants had superior oral skills that were not matched by their writing or reading skills. This resulted in several teachers urging these students to "shape up" and "work harder." Because of this pressure, some learned to work hard. For example, Arthur described himself as a student in this way:

> Diligent, I cared about my grades, I have always been very persistent. I work slow. It's a good thing with me, working slow. Through high school before I knew anything was wrong, I thought I just wasn't working hard enough and I could get the As, if I really just put my time in it.

Unfortunately, the criticism and the constant urging to work harder quite adversely affected others. Diane always believed her learning problems were her fault.

> Diane: I never talked about my work to anybody because I knew it was my fault that I couldn't learn. I just had to work harder. Even my father, when he saw my IQ score said, "You need to try harder."
>
> Researcher: You never thought that you had a problem?

Diane: No! It was always me. I didn't get it or I didn't work hard enough or I didn't try hard enough. I still think that sometimes...

Arthur's mother had suspected for years that he had a learning disability, but he was not formally identified until he was a teenager.

> My mother was very disappointed, she also felt guilty. Because I had been evaluated in seventh grade because of my seeming intelligence and problems in school. I scored super high on the cognitive and the logic. My mother had me taken to a psychologist for that and then she met with the people in the school and they said they couldn't put me in the learning disability program because I was too smart. They had nothing for me.

Similar problems existed for other participants as well. The duality of being talented often allowed the student to do well on standardized IQ assessments, which often masked their learning disabilities and produced confusing and intensely difficult times for the persons in this study. Peggy explained:

> The school psychologist said it was obvious that I was not truly learning disabled because I tested so well on the standardized achievement tests. He went on to tell me that I had an "anxiety-induced learning problem" and I would grow out of it.

In the assessment process, several students were told they had scored highly on IQ tests, and two were either nominated for a gifted program or actually identified as gifted. That produced interesting reactions. Explained Jake:

> "In high school, they said I was really intelligent, but I was like well, you know it doesn't mean that much if I can't do the work."

Mike had a similar experience:

> "Everybody always told my parents I was bright and I was hyperactive. They just thought I was smart and had a discipline problem."

Negative Interaction With Certain Teachers

All of the subjects recalled negative experiences with some of their teachers. All could specifically remember at least one teacher and most could remember more than one

teacher who had been a negative influence on their schooling. Some teachers denied students the right to special education services guaranteed to them because of their learning disabilities. Other teachers constantly told the participants of this study that they were lazy and could achieve if they worked harder.

Arthur remembered one secondary English teacher:

> Some of my teachers were awful to me. I remember one English teacher. To this day, I hate her. She would just have the idea that if I couldn't do it, if I couldn't get an essay exam done in the time, then I just didn't deserve extra time...That was the hardest English course I'd ever had, you know, because I couldn't do the work in the allotted time. Because of the essays...

Several other participants mentioned problems with high school English teachers, who often gave writing or reading assignments that could not be completed in the allotted time. This was demonstrated in an interview with Kate:

> Kate: I've always had Bs and Cs. I had Ds, but not too many. Not a lot. I know in my senior year I got a D. I just had a really hard time with my English teacher in my senior year. I know I got Ds in her class, but not too many.
>
> Researcher: When you say a hard time, what do you mean by that?
>
> Kate: She didn't understand learning disabled, and she was a difficult teacher with everyone, it wasn't just me, but with me, she thought I used my learning disability as a crutch, and she gave me a very hard time. I tried to get help with her but she wouldn't. She'd make me feel like an idiot. I had a very bad time with her.

The negative experiences with teachers often caused anger and resulted in retrospective insights about what teachers might have done to improve the school experiences of these participants. Diane recalled:

> I remember being so angry at the kids who would get the As and stuff, because I actually knew more than they did, but nobody would let me say anything. If they had given me oral tests, I could tell them anything that they wanted to know about, but they always gave me the written stuff. I would be on question 3 or 4, and the time

would be gone, because it took me so long to figure out what the questions were.

Some of the participants in this study simply accepted what happened to them during their school years, but they retained impressions or deep beliefs that they were not as intelligent as many of their peers because of their learning disability. Martin comments on this in the following interview excerpt:

Martin: I am not as smart as everybody else. I think that when that came out more is when I went on in school, I was held back in first grade.

Researcher: You stayed back because of the learning disability?

Martin: Yeah.

Researcher: And they told you it was because of the learning disability, or they said that you didn't have the skills to go on?

Martin: No, they told me, because it was the learning disability.

Problems With Peers

Most of the respondents cited incidents of problems with their peers that almost always began in the elementary grades and continued throughout school. Peggy explained that by fourth grade the kids had picked up on the fact that she couldn't do her work and she stated:

> They made up songs about me. At the end of doing all of the times tables, you had to take a thing called "The Review." It was flash cards, and it mixed up all the different times tables, and you had to do a certain number of them, and pass the review, and there would be a big thing about, "so and so has already gotten to the review and so and so did it today." I never got the review, and there was this song about that "Peggy will never take the review" made up about halfway through the school year.

Some passively accepted the type of treatment they received from their peers and some fought back. Kate cried while recalling several incidents related to peer pressure:

> I remember an instance when I wanted to die. My girlfriend sat next to me in a high school history class. I don't think she even knew what she did. My history teacher

was tough on us. He was an older man, always giving these pop quizzes. He asked me to read out loud, so I had to read. I only read like one paragraph and I stopped, and he picked someone else in class and my girlfriend turned to me and said "What's wrong with you, you can't even read?" And I thought, "You're my friend. Why did you have to embarrass me like this?" It was so hard.

Tracked Classes and Lack of Effort in School

Ten of the twelve high ability students in this study had negative opinions about the tracking system used in most of their high schools and, in particular, their placement in low-track classes in their high schools, despite their high IQ test scores and apparent ability in some areas. In some instances, their placement in low skill classes resulted in a lack of effort and in negative opinions about themselves. In Mike's words:

> I couldn't do certain things and the teachers were always hounding me and also I kind of got it into my head that I wasn't that smart. Sort of, I don't know, I think I was kept down. Because I think I could have done a lot more, but they would always put me in low groups and things. I was never in the highest reading groups.

Because of the high potential of many of the students in the class, being placed in low-skill classes produced considerable anxiety, frustration, and boredom. Some of the subjects asked their mothers to intercede for them in order to get them placed in more challenging classes. Fred explains his reaction being placed in low-track classes:

> No, I wasn't being challenged. I mentioned to my mother that I felt that I could handle more than I was doing. The reading groups that I was in, I felt that they were still too simple, and so she requested that I have testing, and I found out that [reading group] was really way too slow with what I could handle, and so that worked out pretty well after that.

Martin's parents were so frustrated with the school's inability to challenge their son that they found a summer camp with a stimulating and challenging academic program for students with learning disabilities. Martin's frustration about never being able to move to a higher track class during the regular school year was evident in his comments. His high school used a three track system in which track one was the highest track and track three the lowest. Each year Martin was led to believe that he would be able to move from the lowest track with special services into a higher track in which he would be "mainstreamed."

Martin: I was ready to go out. Ready to... when they were telling me you are going to be mainstreamed, total mainstream, I was ready for it. I wanted to go bad.

Researcher: And so you weren't able?

Martin: It was a slow process, because they put an expectation in my mind saying that I was ready, and then the next year would come, and I would schedule for classes but it never happened, and I was always in that low tracked class.

Commenting on these classes, Martin continued:

> I was in English level three, and in English level three they only teach you at a certain pace. They only require so much. They only give you so much of a workload, but in a level one class, they give you so much more of a workload, and a higher level of understanding required, and since I was always in level three classes, I was never stimulated.

As a junior in high school, Martin was finally able to take an advanced class:

> I think I could have been in a higher level, but because I had [a] learning disability, I was put in these low levels. I wasn't pushed to excel, or do better, or even try to achieve at higher levels. I was never like that until 11th grade. So in 11th grade I was put in English one, the top level English class, and I passed, and then [in my] senior year I was also in there and I passed, but all the way up through there I was in level three.

Several other participants mentioned the lack of effort required in classes that were not challenging for them. Joe and several of the other participants indicated that they never worked, never did homework, and drew or daydreamed during most of their classes. When any of the subjects in the study were able to move into higher tracked classes, changes occurred. Kate explained about her high school experience:

> I was in the lower classes, I was getting As and Bs, I mean it was just way too easy. I had this teacher for general bio and she said, "I think you could get into biology." So I could still have her. I switched into it. It was difficult, but it was a challenge for me then. Like I was getting As all the way through. Everyone copied off of me in general classes, but in college biology, it was more of a challenge, which I liked. I struggled to get a B, maybe even B-, but it was *challenging*.

Several of the respondents also commented on their ability to learn how to work in the higher track classes when they had never had to work before.

Martin summarizes most succinctly his disappointment and the feelings described by several other respondents:

> It seemed like I never, as I look back, because of my learning disability, I never got opportunities for learning in my high school.

Difficulty in Reading and Writing

In this study, every subject identified a learning disability that was related in some way to verbal ability, which they perceived as having a detrimental effect on every aspect of their schooling. All of the subjects mentioned problems with reading, handwriting, and spelling. Diane explained:

> I have a problem with lots of reading. That's always gonna be a problem. I don't have trouble reading, I mean I can read through stuff. It's just running through pages. I mean I can read. I can sit there and read 2 pages or 3 pages and realize that I had no concept of what I put my eyes over in the last 3 or 4 pages so I have to start over. I can do the same pages a long time before I understand what's happening. I can read through math texts, complicated math texts, just as quick as I could read a cheap novel or something. It's just the process of going through the same way in a text with lots of language in it.

The following quotes from four different participants in the study are representative of the problems experienced with written language:

Mike: I started using the word processor that helped with my penmanship, because I was terrible in spelling and penmanship. Those factors were diverting my mind from concentrating on what I wanted to say rather than worrying about the penmanship and my spelling, so that was a big factor. Reading loads were higher, and I found that I had help with I had tapes [books on tape].

Diane: I have a language disability. Whether it is written. Whether it is input or output. I just have a real hard time with any kind of words.

Peggy: No, I had to... I don't know what I had to do. I had to... just like sometimes I can write and sometimes I can't. It was just a matter of learning how to do it. I am very bad at spelling, technical writing, and my handwriting is atrocious. I think it will always be.

Jake: Hum, I don't think he [one of his teachers] particularly wanted to deal with me. He didn't want to deal with my handwriting. My handwriting was very poor.

Problems with reading were also discussed at some length by the respondents. Kate explained:

> My learning disability is language oriented. I have a hard time spelling. I can't spell. I even have a hard time reading. I have a very hard time sounding out words. Written expressions, I am very bad. I have a very hard time getting my thoughts down to paper. Basically, that's it but that's very difficult since languages vary. How I compensate, like say with reading is, since I am visual I'd learn the word, and I learn how to say it and I just remember it, but that's it. I think that's how I learned how to read, cause I had a very hard time sounding words.

Diane was able to recall exactly in one interview with the researchers when she realized what reading was and that she couldn't do it:

Diane: Actually, they didn't know that I couldn't read until I got into the second grade, and what I used to do is take notebooks home and my mother would read them to me. And then in the middle of the second grade after Christmas vacation, I was in the top reading group, and she said "OK, Diane, It's your turn to stand up," and I thought "God! How am I supposed to read this, because no one told me the story." I guess I never made the connection about the little things under the pictures, because I always just memorized the pictures, and you could turn the page, and I would just tell you the story.

Researcher: And how did you feel?

Diane: At that point, I guess that was the first time that I really realized that something was different, and that the other kids were doing other things that I couldn't do.

Some of the participants also mentioned their inability to process and apply certain types of information and concepts. Peggy explained:

> I feel like my brain shorted out. I would understand the concept and if someone would walk me through the process and I could understand every step of the way, and then I would get home, and I would look at it, and I couldn't apply it. It was very frustrating, and it is very frustrating, because I think at that level, especially [when] teachers say, "do it my way!" And I couldn't, and I would say, "Well, I can't do it her way, so I am not gonna do it at all."

Discussion

It is clear from the data collected in this study that some high ability students with learning disabilities have negative experiences in school, and that many of these negative experiences revolve around reading, writing and verbal expression. It is also apparent that some students in this population succeed in an academic setting despite these negative experiences.

The Combination of the Students' Learning Disability and Giftedness

The participants in this study were able to resolve the conflict between their abilities and their disabilities in one of three ways. First, some participants struggled to gain the compensation strategies needed to address directly their learning disability and become successful in an area that may have initially appeared difficult if not impossible. This enabled their talents to emerge as they used strategies to overcome or at least compensate for their learning disability. Evan, for example, became a political science major despite a learning disability, which hindered his skills in writing and reading. Second, a smaller number of participants selected an academic direction in which they had strengths and which was not dependent upon the acquisition of compensation strategies or the mastery of an academic discipline that was affected by their specific learning disability. It is clear that this was only possible because these students were in college and could select a major area in which their specific talents could emerge. For example, Peggy's musical talents caused her to pursue a major in voice, thus enabling her to avoid the continued struggle to compensate for her numerous learning difficulties in other academic areas. These options are not available to the elementary or secondary student who has limited academic choices in school. Third, the majority of participants in this study combined the two options mentioned above as they attempted to both compensate for their learning disability and also select a major area of concentration in which their specific learning disability did not affect academic performance. Colin

pursued a major in electrical/systems engineering thereby enabling him to focus on his strengths. He had to learn compensation strategies in order to be successful but he did not have to use them to the extent he would have if he majored in an area that required him to primarily use reading and writing skills.

Implications

Several implications emerged from this qualitative study of twelve participants with learning disabilities who succeeded in an academic setting. The implications drawn from this study parallel findings by others who have studied this phenomenon (Baum, 1984, 1988; Torrance, 1982, 1992). Some implications of this research, however, have not been noted in other research studies and may signify the need for additional research.

The Need for the Development of Student Talents

Most of the participants in this study had special talents and abilities outside of school that were identified, nurtured, and developed by their parents possibly more than they might have been if school problems did not exist. Because these problems did exist, parents often looked for other areas in which their child could excel and spent considerable resources in helping to develop these talents. It was the development of these talents that often provided these students with the belief that they could excel in an area outside of school if they worked hard at it. Then, many realized that if they could do that well, perhaps they could do better in school if they applied themselves and worked harder. This belief in themselves often caused them to work much harder at their academic work. Ironically, the hard work was necessary because of their learning disabilities, but it was the acquisition of this work ethic that caused many of these students to persevere and become extremely successful in college. Many other gifted students seldom have to work to excel in elementary or secondary school and consequently, never learn a work ethic, and may not achieve the same levels of success as some of the participants in this study. This is not to infer that having a learning disability is a positive experience, for as has been stated earlier, several of these students were in need of counseling and had emotional difficulties to overcome. It is, rather, that in response to their learning disability, many of these participants learned the value of hard work and effort, which later translated into academic success. And many of them first learned about work and effort through the development of talents not necessarily associated with academic success in school that were identified and nurtured by their parents.

It is clear that participants in this study would have benefited from the advice and input that could have been provided by a teacher with training and background in gifted

education. Offering enrichment programs based on students' strengths and interests would have provided the students in this study with more positive educational experiences than the continued emphasis on remedial techniques. Providing information to teachers about the need for appropriate challenges for all high potential students, may have helped to avoid the placement of these students in classes or tracks that were not matched to their instructional needs.

Programs designed for high ability students with learning disabilities may help to improve self-concept and self-esteem of students as well as develop the potential talent that each student possesses (Baum, 1988; Olenchak, 1995). Programs for this population of students have been successfully developed using Renzulli's Schoolwide Enrichment Triad Model (Renzulli, 1977; Renzulli & Reis, 1985; Renzulli, 1994), which focuses on students' strengths and interests.

The modifications listed in Table 2 may help to address the unique needs of talented students with learning disabilities. Most of these modifications can be made with minimal funds and minimal investments of teacher time.

Table 2
Possible Modifications in Reading and Writing for Talented Students With Learning Disabilities in These Areas

Reading	Writing
Identify talent areas in reading and encourage student in these areas.	Change the format of the materials from which the student copies (i.e., larger print).
Use a scanner and available technology to enable computer reading of content.	Dictate writing assignments to someone who will type for the student with the learning disability.
Modify the student's reading material (select shorter books for book reports or books with larger print).	Use a frame or window to cover all material except what is to be copied.
Outline reading material for the student.	Make sure student proofreads his/her work.
Tape record reading material for the student to listen to while reading the printed text (Including commercially available books on tape and those which are taped specifically for the student.)	State clearly the expectations between a first draft and revisions.
Provide assignments a month in advance to enable student to chunk assignments Into reasonable reading assignments.	Tape record writing assignments.

Reading	Writing
Have the student paraphrase material orally.	Have student use current technology to dictate writing into the computer.
Give the student time to read a selection more than once.	In proofreading, encourage student to use peer conferencing with someone who is sensitive to the problems associated with learning disabilities.
Supplement books with multimedia materials if available. (ex: Have students watch the film Johnny Tremaine while they are reading the novel.)	Have student keep a daily journal in which writing and spelling is not corrected.
Make a reading window for textbook use. Student moves window down and across page while reading.	Have student learn to use available strategies for spell checking.
Include high interest selections from magazines and newspapers in students' reading assignments.	Encourage the use of concept mapping.
Identify a talented peer to whom the student may turn for help.	Encourage student to be a self-advocate and to monitor the use of compensation strategies as specified in his or her special education plan.
Assess student's interest in order to identify high-interest reading material.	
Avoid reading situations that might make a student uncomfortable (reading aloud in a group, etc.)	

The Need for Professional Development

Classroom and content-area teachers, counselors, and special education teachers need to be provided with opportunities for training in identification strategies and programming necessary to meet the needs of this population. Effective training could help alert educators to situations that may indicate a learning disability in high ability students. Students with excellent verbal skills who experience problems learning to read, or who seem very bright but who cannot express themselves orally, should be watched carefully. Unfortunately, data from this study suggests that the wrong types of teacher assistance is often provided. Considerable efforts were made, for example, to remediate the study participants skills in areas that they may never master, but which might be replaced by

the use of technology, such as word processors. Staff development in how to identify and nurture talents, as well as compensation strategies for weak areas would help to address this concern. Professional development might also help to provide teachers with ideas for enabling this population to work in a style that is more appealing to these students while simultaneously developing compensation strategies. Some examples of these are projects; oral and untimed tests; collaboration in notetaking by allowing a peer's notes to be copied for the student with learning disabilities; activities with alternatives to long writing assignments such as short answer or others; longer time for assignments; enabling students to use pictures, illustrations, drawings, and diagrams as part of written products; taped or live oral reports with a brief outline instead of written reports; and many other suggested alternatives as listed in Table 2.

Participants in this study were seldom given opportunities to choose topics to investigate or modes of learning that were uniquely suited to their own styles, preferences, or strengths, and which took into account their learning disabilities. If these types of opportunities had been provided, these students may have had vastly different experiences in school.

References

Bandura, A. (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice-Hall.

Baum, S. (1988). An enrichment program for gifted learning disabled students. *Gifted Child Quarterly, 32(1),* 226-230.

Baum, S., & Owen, S.V. (1988). High ability/learning disabled students: How are they different? *Gifted Child Quarterly, 32,* 321-326.

Baum, S., Owen, S.V. & Dixon, J. (1991). *To be gifted and learning disabled: From definitions to practical intervention strategies.* Mansfield Center, CT: Creative Learning Press.

Boodoo, G.M., Bradley, C.L., Frontera, R.L., Pitts, J.R., & Wright, L.P. (1989). A survey of procedures used for identifying gifted learning disabled children. *Gifted Child Quarterly, 33(3),* 110-114.

Daniels, P.R. (1983). *Teaching the learning-disabled/gifted child.* Rockville, MD: Aspen.

Davis, G.A. & Rimm, S.B. (1985). *Education of the gifted and talented.* Englewood Cliffs, NJ: Prentice Hall.

Denckla, M.B. (1989). Executive function, the overlap zone between attention deficit hyperactivity disorder and learning disability. *International Pediatrics, 4(2),* 155-160.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Goertzel, V. & Goertzel, M.G. (1962). *Cradles of eminence.* Boston: Little Brown.

Guba, E.G. (1978). *Toward a methodology of naturalistic inquiry in educational evaluation.* Los Angeles,CA: University of California Press.

Hallahan, D.P. , & Bryan, T. (1981). Learning disabilities. In J.M. Kauffman & D.P. Hallahan (Eds.), *Handbook of special education* (pp. 141-164). Englewood Cliffs, NJ: Prentice Hall.

Hammill, D.D. (1990). On defining learning disabilities: An emerging consensus. *Journal of Learning Disabilities, 23(2),* 74-84.

Henderson, C. (1992). *College freshmen with disabilities: A statistical profile.* Washington,DC: HEATH Resource Center.

Hokanson, D. T., & Jospe, M. (1976). *The search for cognitive giftedness in exceptional children.* New Haven, CT: Project SEARCH

Jick, T. D. (1983). Mixing qualitative and quantitative methods: Triangulation in action. In J. Van Maanen, (Ed.), *Qualitative methodology* (pp. 135-148). Beverly Hills, CA: Sage Publications.

Kirk, S. A. (1963). Behavioral diagnosis and remediation of learning disabilities. In *Proceedings of the Annual Conference on Exploration in the Problems of the Perceptually Handicapped Child* (pp. 1-7). Evanston, IL: Fund for Perceptually Handicapped Children.

Maker, C. J. (1977). *Providing programs for the gifted handicapped.* Reston, VA: The Council for Exceptional Children.

Miles, M.B.,& Huberman, A.M. (1984). Drawing valid meaning from qualitative data: Toward a shared craft. *Educational Researcher,* 13(5), 20-30.

Minner, S. (1990). Teacher evaluations of case descriptions of LD gifted children. *Gifted Child Quarterly,* 34, 37-39.

National Joint Committee on Learning Disabilities. (1988). [Letter to NJCLD member organizations]. Towson, MD: Author.

Olenchak, F. R. (1995). Effects of enrichment on gifted/learning-disabled students. *Journal for the Education of the Gifted,* 18(4), 385-399.

Piers, E. V. (1984). Piers-Harris children's self-concept scale: Revised manual. Los Angeles: Western Psychological Services.

Prater, G., & Minner, S. (1986). *Identification of atypical gifted children* (Technical Report. No. 2). Murray, KY: Murray State University, Department of Special Education.

Renzulli, J. S. (1977). *The enrichment triad model: A guide for developing defensible programs for the gifted and talented.* Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S. (1978). What makes giftedness? *Phi Delta Kappan,* 60(3), 180-184, 261.

Renzulli , J. S. (1994). *Schools for talent development: A practical plan for total school improvement.* Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S., & Reis, S. M. (1985). *The schoolwide enrichment model: A comprehensive plan for educational excellence.* Mansfield Center, CT: Creative Learning Press.

Spradley, J. P. (1979). *The ethnographic interview.* New York: Holt, Rinehart, and Winston.

Sternberg, R. J. (1981). A componential theory of intellectual giftedness. *Gifted Child Quarterly,* 25(2), 86-93.

Strauss, A. L. (1987). *Qualitative analysis for social scientists.* New York: Cambridge University Press.

Strauss, A. L., & Corbin, J. (1990). *Basics of qualitative research.* Newbury Park, CA: Sage Publications.

Strauss, A., & Lehtinen, L. (1947). *Psychopathology of the brain injured child.* New York: Grune & Stratton.

Taylor, H. G. (1989). Learning disabilities. In E. J. Mash & R. Barkley (Eds.), *Treatment of childhood disorders* (pp. 347-380). New York: Guilford Press.

Terman, L. M., & Oden, M. H. (1947). *The gifted child grows up.* Stanford, CA: Stanford University Press.

Van Maanen, J. (1983). Reclaiming qualitative research methods for organizational research. In J. Van Maanen (Ed.), *Qualitative methodology* (pp. 9-18). Beverly Hills, CA: Sage Publications.

Vantour, J. A. C. (1976). Discovering and motivating the artistically gifted LD child. *Teaching Exceptional Children,* 8(2), 92-96.

Vaughn, S. (1989). Gifted learning disabilities: Is it such a bright idea? *Learning Disabilities Focus,* 4(2), 123-126.

West, T. G. (1991). *In the mind's eye: Visual thinkers, gifted people with learning difficulties, computer images, and the ironies of creativity.* Buffalo, NY: Prometheus Books.

West, T. G. (1992). A future of reversals: Dyslexic talents in a world of computer visualization. *Annals of Dyslexia,* 42, 124-139.

Whitmore, J. (1986). Conceptualizing the issue of underserved populations of gifted students. *Journal for the Education of the Gifted,* 10(3), 141-153.

Whitmore, J. R., & Maker, J. (1985). *Intellectual giftedness in disabled persons.* Rockville, MD: Aspen Publications.

Yin, R.K. (1989). Case study research (2nd. ed.).Newbury,CA: Sage.

Underachievement Knows No Labels

F. Richard Olenchak, PhD
University of Houston

Virtually all professionals ascribe exceptionality to children whose talents and gifts exist in conjunction with other unique aspects of human condition: learning disabilities, behavior disorders, and attention problems. Such students, due to the apparent contradiction between extreme ability on one hand and disability on the other, are placed in particular danger for school failure as well as for the manifestation of a variety of social and emotional problems. However, many gifted students who do not possess diagnosible disabilities develop patterns of scholastic underachievement that produce behaviors and attitudes similar to those of gifted children who have multiple exceptionalities. More critically, all gifted students, due to inadequate educational accommodations, risk underachievement of a variety that can be much more damaging than academic failure: underachievement, occasionally to the point of denial, *within* their domain of talent potential. Case study data are used to examine this dilemma and its potentially negative effects on individual students. Included are explorations of several interventions for reversing underachievement in a fashion likely to instill optimistic, hopeful perspectives in students.

Although perspectives about underachievement continue to be as heterogeneous as people themselves, there is general agreement among educators, counselors, and psychologists involved with gifted youth that underachievement represents a significant discrepancy between a student's school performance and some index of ability (Rimm, 1986). Typically, underachievement among school-aged youth is defined academically, but there is ample reason to believe that, in keeping with Rimm's widely accepted definition, youngsters demonstrate underachievement whenever they fail to operate at a level at least somewhat commensurate with indicators of superior ability of any kind. Heretofore, largely restricted to academic performance among gifted students, the construct of underachievement probably has been limited by the fact that school programming efforts for the gifted often focus on academic talents and seldom provide for the range of gifts and talents possible (Purcell, 1994). Moreover, based on the theory of Multiple Intelligences, recently updated by Gardner (1999), there is cause to believe that as giftedness can occur within any of the realms of intelligence, underachievement — performance discrepant from indicators of ability—can likewise appear throughout all aspects of human potential. Educational services that are out of alignment with individual gifted student's needs at least contribute to

underachievement (Baum & Olenchak, in press; Baum, Olenchak, & Owen, 1998, 1995; Olenchak, 1994, 1995; Rimm, 1997). Hence, otherwise gifted students who have been diagnosed with learning disabilities, attention deficit hyperactivity disorder, social and emotional problems, and other attendant concerns that require the attention of Federal educational accommodations (e.g., IDEA or Rehabilitation Act Section 504), are more like than unlike all other gifted students. Gifted students, whether or not formally identified disabilities are present, are highly susceptible to the same pitfalls of underachievement that epitomize giftedness with disabilities; largely inappropriate, inadequate educational provisions prevail for all gifted students and place them at special risk for both generalized and specific talent domain underachievement. The concern for gifted students with disabilities is the same concern for the totality of gifted students: achievement that is not commensurate with ability.

The Enigma of Underachievement

Considerations of underachievement are further confounded by the numerous methods through which professionals attempt to address the problems related to this incongruity between potential and actual performance. As with issues of definition, most paths toward reversing underachievement have been theorized and tested in cases of academic problems among students otherwise judged to be capable of consistently superior academic performance (Seeley, 1993). Other than considerations of stress factors among artistically gifted young people (Kogan, 1995) and "blocks" inhibiting productivity among the creatively talented (Davis, 1992), little regard has been paid underachievement aside from that which is scholastic.

The purpose of this article is to provide insight about underachievement and appropriate programs for reversing it regardless of its causes or how it is manifested. Excerpts from a series of case studies are included as illustration for intervention strategies useful for attacking underachievement in gifted students, as well as for developing conclusions applicable to the breadth of underachievement issues in gifted youth.

Clarifying the Meaning of "Underachievement"

With a full scale WISC-R (Wechsler, 1974) score of 177, Sara had been identified as possessing great academic promise in first grade; equally superior creativity potential had been assessed using the *Torrance Tests of Creative Thinking* (both *Figural and Verbal* forms) (Torrance, 1966) as well as observational data collected during her preschool and kindergarten years. Those data included several instances in which Sara demonstrated remarkable creative talent. At age three, she directed and staged a "parade of dolls" play starring her stuffed animal collection. Later, she designed and constructed a bridge of

common building blocks, rocks, and nails to ford a creek behind her house to allow her to get to a fellow kindergartner's home to avoid having to cross streets.

Now, a nine-year-old fifth-grader, Sara was enrolled in a magnet school for academically and creatively gifted students. Having performed extremely well scholastically, including a double promotion from second to fourth grade, Sara began fifth-grade with an announcement to the school principal: "I have decided to take a sabbatical this year." When asked to explain, she told the principal that she had "worked hard enough and needed a vacation longer than the summer" had provided.

As the school year progressed, Sara proved she was a girl of her words; her grades were average at best, and she was not involved in the array of projects and activities that had previously been her choice. However, after returning from the mid-year break, she again approached the principal and told him her sabbatical had been long enough; her school and extracurricular performance quickly returned to the level known before Sara's original announcement.

In the interim, both Sara's parents and teachers were concerned that she had become an underachiever, and all expressed fears that, for whatever reasons, Sara may have adopted a set of school behaviors likely to overshadow her significant strengths. Though several professionals involved with the school also cautioned that this bright, young girl may well require special intervention aimed at curbing her underachievement, a few others felt the nature of her underachievement—self-described as a "sabbatical"— was transitory. While it was the latter view that proved correct, this excerpt from Sara's schooling prompts a question critical to considering underachievement among gifted youth: is real underachievement ever knowingly self-selected? Without equivocation, the answer is affirmative. Ponder the case of Walton. Walton was a 13-year-old, eighth-grader in a typical public school. Although identified for participation in a specialized program for students with significant talent in the fine arts, he was no longer allowed to participate in the program because he had lagged seriously in all of his performance, including the music he had previously loved so dearly. Through some intensive individualized counseling at school that took place after a referral for emotional/behavioral disabilities, it was discerned that Walton had *elected* to perform poorly in all aspects of school. It was his way to gain attention from his parents whom he felt had grown overly preoccupied with their careers. Academically having fallen from customarily attaining grades of A in virtually all school subjects, placing first-chair trumpet in the school orchestra, and winning awards for his original musical compositions, Walton clearly looked like a real underachiever.

Perhaps the only difference between Walton and gifted youngsters who underachieve without any cognitive awareness as to the reasons prompting their poor performance was Walton's degree of control. He knew he could again achieve at high levels, but like Sara, he knowingly chose not to do so. Still, the level of underachievement and its effects were no different from those experienced by underachieving gifted students who are unclear about themselves, their roles, and their needs. The main distinction, of course, is that Sara and Walton could reverse their poor performance when they decided. Most other gifted students who experience underachievement, including those with formally diagnosed disabilities, do not have this luxury of control, their underachievement is linked to unidentified sources seemingly *beyond* their direct command.

Regardless, underachievement, whether self-selected or adventitious, eventually produces the same outcomes for gifted youth experiencing it. A sense of pessimism eventually envelopes all underachievers who otherwise possess superior potential, and feelings of frustration replace those of fulfillment. Even those gifted youngsters with histories of excellent performances and profiles of tremendous talent are placed at risk of a continuing cycle of failure due to the pervasive attitudes of negativism that develop due to their underachievement; truly, one might say that underachievement begets underachievement. Snyder (1994, p. 24), using statistical analysis to factor away the effects of previous accomplishment and high ability, describes the predictive ability of his construct of hope — the converse of pessimism — in a manner that clarifies the state of gifted youth who underachieve:

> "...high hope may assure people of some success in reaching goals; high intelligence or a record of achievement only gives them a chance."

What Is Known about Underachievement among Gifted Youth

As aforementioned, traditional definitions of underachievement among gifted students have been directed toward the academic realm largely due to the scholastic orientation of most school-based gifted programs. However, when a broader conception of underachievement — one that allows for incongruent performance and ability to be demonstrated in a wide range of gifts and talents — is considered, the tidiness of previously held beliefs regarding identification of underachieving gifted students all but disappears. In the academic domain, typical identification systems compare student academic ability (usually IQ tests) with academic achievement (usually standardized achievement tests); where significant discrepancies are noted, it has been felt that

underachievement prevails despite the limitations of such a simplistic definition (Delisle, 1992). While the causes for such discrepancies remain undetermined pending further investigation, the key to the traditional identification process lies in academic test results.

Yet, due to increasing research accentuation on the identification of and programming for a multiplicity of abilities (Gardner, 1999; Sternberg, 1995), with those in the academic realm being but one type, the diagnosis of underachievement has been forced to become more complex than simply comparing intelligence with achievement test scores. To identify underachievement using test discrepancy formulae among students enrolled in a program designed for those with gifts in the artistic realm or for young people with talents in leadership would be as inappropriate as use of IQ cut scores for placement of students in such programs. In the few locations where schools have progressed to create programs aimed at gifts and talents camouflaged by disabilities, poverty, gender, or talents other than those that schools serve, effort has been instigated to develop comprehensive microethnographic studies of pupils. These studies, not unlike the comprehensive assessments required by Federal special education legislation, determine not only whether underachievement exists but its possible causes as well. In fact, even in academic-only gifted programs, school attempts have increased in the collection of more detailed data than tests results alone, as diverse, qualitative data have proven useful not only for identification of needs but also for personalized placement and programming. Despite their utility, professionals are then confronted with the unseemly task of making judgments based largely on behaviors that can often only be observed and are not measurable empirically. The ultimate dilemma arises when professionals attempt to isolate behaviors and collections of behaviors in order to arrive at diagnoses. Simply put, while giftedness and superior talent potential tend to center around a set of identifying behaviors, underachievement does not look significantly different than a number of other disorders that cause young people to perform at levels below those which have been, in some way, pre-indicated. The complexities of behavioral identification, on which giftedness and virtually all other human exceptionalities rely, confound diagnoses and may well result in inappropriate educational interventions (American Psychiatric Association, 2000; Baum & Olenchak, in press; Baum et al., 1995, 1998;).

For example, a significant controversy has emerged that pertains to the discrimination of Attention Deficit Hyperactivity Disorder (AD/HD) from high levels of giftedness and from creativity (Baum & Olenchak, in press; Baum et al., 1995, 1998; Cramond, 1994). Although the *Diagnostic and Statistical Manual of Mental Disorders-IV-TR* delineates precise circumstances and conditions for determining AD/HD, these same descriptors are

often characteristic of several other human conditions. The behavioral characteristics ascribed to AD/HD also embrace many other groups:

- highly able youth who are unchallenged in school (Kearney, 1988; Silverman, 1989);
- creative students who find few outlets in which to demonstrate their creative bent (Cramond, 1994);
- otherwise academically talented pupils who have concomitant learning disabilities (Baum & Owen, 1988; Baum, Owen, & Dixon, 1991; Olenchak, 1994, 1995);
- gifted and talented youngsters who are culturally diverse and/or those from low socioeconomic situations (Ford & Harris, 1991; Griffin, 1992); and
- young people whose talents are of a genre that remain unserved or underserved by the schools in which they are enrolled (Olenchak, 1999; Vaughn, Feldhusen, & Asher, 1991).

In a study completed by Kardaras (1996), a list of 18 social and emotional, 5 physical, and 10 academic characteristics was distributed to 285 teachers, counselors, and psychologists. Participants were asked to attribute each characteristic to either AD/HD, giftedness, both, or neither. It was found that a small number of characteristics (11 of 33) could be isolated and attributed only to AD/HD or to giftedness or to neither. Two-thirds of the characteristics were identified with both AD/HD and giftedness, and she found no significant differences between professions in how they attributed characteristics. More critically, the researcher concluded that significant training is critical for educators and other professionals before they can discriminate characteristics and attribute them accurately.

If professionals have difficulty discerning characteristics of giftedness from those of AD/HD, imagine the quandary when underachievement is introduced as yet another variable to be considered concomitantly with giftedness! Though Kardaras' study did not examine underachievement specifically, all of the 33 characteristics included in her survey have been previously ascribed to underachievers and particularly to underachievers who are also gifted (Rimm, 1986). Such descriptors as "low self-esteem and unhealthy self-concept," "inferiority feelings," "unrealistic standards and goals," "inability to sit still when situations demand," "somatic complaints," "lack of academic initiative," "disinterest in competitive activities," and "schoolwork consistently incomplete" all appear in lists of characteristics often employed in the identification of underachieving gifted students.

Consequently, underachievement among gifted students, like giftedness and underachievement separately, is not a clearly defined construct. Although research results have shown that various intervention approaches are successful for transforming underachievement into appropriate levels of performance, few generalizations can be drawn (Delisle, 1992; Emerick, 1989; Rimm, 1986). One of the few that appears generalizable is rooted in the need for underachieving gifted youth to adjust their skepticism about their own abilities so that a more optimistic, hopeful attitude prevails (Silverman, 1991).

Related literature has indicated that it is best if students mired in underachievement can be assisted to overcome their plight by assuming some control themselves and, thereby, will help to improve self-esteem (Whitmore, 1980). In other words, strategies employed by teachers, counselors, psychologists, and other professionals should focus definitively on empowering underachievers to assess situations and to begin resolution of problems in a safe, caring environment that is likely to enhance feelings of self-worth. By strengthening bright underachievers' degree of personal authority over their lives through carefully structured opportunities for problem identification and resolution, renewed optimism and improvement in self-esteem are likely to result (Rimm, 1986).

In summary, though difficulties persist in defining underachievement among gifted students, there are a number of techniques that have been helpful in reducing if not eliminating achievement problems. Many of these approaches are related to focusing educational experiences on situations in which gifted underachievers' interests reign; students can be challenged and, at the same time, can interact with material that is personally rewarding. While some degree of success needs to be guaranteed, particularly at the early stages of intervention, previous investigations, though largely restricted to academic underachievement, confirm the importance of focus on individual strengths as most critical in reversing underachievement (Emerick, 1992). Regardless, intervention of some kind is essential; once under-achievement has become all but inseparable from a youngster's identity, either systematic intervention is developed and implemented or the child may be lost. "The simple and disturbing fact is that, by the secondary school level, a pattern of underachievement is not likely to be broken unless the child is lucky enough to get into a situation where an empathetic person with whom he or she can identify to some degree exhibits behaviors that the child can try to emulate" (Coleman & Cross, 2001, p. 217).

Case Illustrations of Nonacademic Underachievement: Causes for Optimism

Two case studies highlight the use of various cognitive strategies to reverse patterns of underachievement in young people in the academic realm as well as other domains of human pursuit. Each case study entailed a minimum of six months in a comprehensive in-school and out-of-school intervention program. Using methods delineated for qualitative research by Patton (1990), data were collected through triangulated sources of participant observations, interviews, and analysis of documents such as testing protocols and anecdotal notations. The case descriptions are followed by a discussion of the interventions employed.

Karen's Dilemma

Karen had been identified at approximately age six as having significant musical talent by a church choir director. Having noticed that the child possessed perfect pitch, he had recommended to Karen's parents that she be enrolled in vocal lessons as soon as possible and also be exposed to different types of musical instruments. Karen's parents, both of whom were employed outside the home, her mother as a bank teller and her father as a long distance trucker, were avid fans of country and western music and delighted that their daughter had some talent. As a result and after the choir director had discussed various instruments with her, Karen's parents enrolled her in private violin and voice lessons offered by a nearby university.

By the time Karen was in third grade, her mother was forced to quit her job to care for Karen's baby sister. Though the small fees for the lessons and the transportation of Karen the 30 miles to her lessons presented a problem, the family persevered. In fact, Karen's father recalls that he told his daughter the lessons were extremely important for her future — just as important as anything else she would do in or out of school — and that they would make sure she got to her music lessons. Karen's mother remembers, with her husband on the road, the difficulty she encountered in bundling up the infant sibling at inopportune times of the afternoon twice weekly so that she could drive Karen to her lessons. She also reflects on how she relied on Karen's assistance to make certain all of the necessities for the baby were placed in the car ahead of time. Karen herself reflected on this period of time as "really important that I help my mama out so she could help me out by getting me to my lessons."

As she progressed with her musical studies, Karen's instructors felt that her talent was such that the absence of musical opportunities at her school would hinder her growth; even at the high school Karen would eventually attend, music largely consisted only of

marching band and chorus. Consequently, her music instructors at the university advised her parents that they should consider enrolling her in a school in which her musical talent could be magnified. They recommended she seek enrollment at the state's school for fine arts, where, if she passed admissions requirements, she could attend free of charge beginning in seventh grade. However, the state school was located more than an hour's drive from the family home, and Karen's parents felt that was impossible. Though the option existed for Karen to board at the state school, her parents did not want her to leave home at such a young age, and Karen concurred. She forcefully stated, "I need to be around to help everybody out, and when daddy's gone, it is even more important."

By eighth grade, Karen had performed instrumentally and vocally at numerous community concerts, had become a frequent church choir soloist, and had even played alongside her violin instructor in a seasonal concert at the university. During this time, Karen's academic grades and standardized achievement test scores remained in the high-average range, consistent with her previous school performance. Different from previous years in school, however, Karen began to practice her music far less frequently, and on several occasions complained of illness on the days she had music lessons. Prior to this, she had missed only one lesson in over six years and practiced voluntarily an average of two hours or more daily. Her parents also noted that Karen was spending much more time than ever before attending parties and talking on the telephone.

One day, after Karen's mother had returned to her position at the bank, she was called away from her work to speak to one of the music instructors who expressed concern that Karen was stagnating in her musical development. In fact, at this point, Karen's mother learned that her daughter had yet to master a relatively easy violin piece even though she had spent more than three months on it. The instructor told Karen's mother that, unless the child were willing to devote time to her musical studies, she would have to discontinue Karen to make room for a number of others who desired lessons. Moreover, the vocal instructor had arrived at the same conclusion because Karen had insinuated to her that she was seriously considering quitting music altogether. Karen's mother was so upset that she left her job early, called her husband in his truck asking him to return home as soon as possible, and picked Karen up from school.

Karen's Treatment

Throughout the weeks that followed, Karen and her parents agreed that they would work jointly with a private therapist who would also seek cooperation from the school. The intervention plan included an assortment of cognitive techniques — sociodrama, bibliotherapy, and problem solving — all designed to facilitate the family's examination

of the situation. A number of realizations developed during counseling including:

1. Karen had no instructional support system for her music at school. The two music teachers, one vocal and one instrumental, who served the small school, were preoccupied with additional teaching duties at several other schools. In addition, they taught academic courses at a nearby high school and, therefore, could not devote their attention fully to their art let alone to the needs of a single student.

2. Karen had no social support for her music outside of her family. Very much in the throes of typical adolescence, Karen sought approval from her peers. With the absence of any appropriate musical forums for her at school other than chorus, Karen found a largely unappreciative audience among her peer group. She had even been taunted by some who viewed her violin lessons negatively. In Karen's words, "lots of the kids think playing a violin is nerdy. I don't want to be a nerd." One peer whom Karen viewed as her best friend had advised her to "take up an instrument that you can play in the marching band at football game — it will give you more friends." At all costs, like any adolescent, Karen needed to belong to her peer group; if her music became a point of distinction serving to partition her away from that group, she would probably seek to eliminate it over time.

3. Although an enrollment option existed in the state fine arts school, Karen and her parents saw it as an impossibility. Neither Karen nor her parents wanted her to board away from home, and the commuting distance did not make the school a possible alternative. Despite the vagaries of the father's work and the demands placed on the mother to rear the children often single-handedly and, at the same time, to hold a position outside the home, the family was close knit and wished to remain intact.

4. Karen continued to love music, but she was unwilling to allow her personal interests to divide her family or to separate her from peers who unfortunately had little if any appreciation for who she really was as a person. Karen was more frustrated than either she or her parents recognized. She was torn between her own desires and the mandates of a peer group lacking understanding. Worse, the school was ill equipped to provide any refuge for her with her peers because music was granted so little significance in the curriculum. Karen recalled leaving school early one day to go to the dentist and then to one of her music lessons as "one of my best days ever because everyone

thought I was just going to the dentist, but I was also going to see my teacher" (music instructor) "... it is great when I can sing or play without anybody from school needing to know what I'm up to."

5. Due to the challenges imposed by an unsupportive school program and peer group, Karen was significantly underachieving in her musical efforts. Her attendance at lessons, practice time, and energy spent on musical study had declined markedly, though she continued to verbalize interest in music. She also acknowledged that her music was as important to her parents as it was to her.

6. Due to the close knit nature of the family, Karen was fearful that any special demands she placed on her parents would detract not only from overall family needs but also from needs of her younger sibling. Thus, she felt it better to abandon her music because of the demands it placed not only on her but on the entire family. "I love my music as much as anything except mama and daddy and my sister," she explained at one session, yet only a few weeks later she said that it would be "simpler to try another instrument or just do chorus at school... it takes too much time to go to my lessons, and it's just too hard to get there all the time."

As the family continued to examine their circumstances, they learned a problem identification and resolution strategy under the guidance of the therapist. By applying an adaptation of the Future Problem Solving Process (FPS) (Torrance, 1976) (see Figure 1) over an extended period of more than three months, the family engaged in gathering data and fully studying and weighing all options before attempting to arrive at a resolution. With the reassurance of the therapist, the family ultimately decided to relocate nearer the state school for fine arts, allowing Karen to enroll there as a day student while continuing to reside with her family.

The family decided the negative effects of a relocation would be marginalized as a result of the research they did as part of the FPS process. Karen's music instructors felt that, with only a little renewed effort, she could gain admission to the school. Though she would leave her few friends behind, she was reassured by the fact she would find many new friends who had interests and talents similar to her own. Given his work, her father could live anywhere in the state; Karen's mother discovered she could be transferred to another bank branch; and the second child was still young enough that a relocation would not have enormous impact on her. As a result, Karen had reason to believe that her frustration and sense of despair about her music could be alleviated.

Figure 1

Adapted Version of the Future Problem Solving Process Employed with Karen and Her Family

Researching

researching and gathering
information about the topic at hand

Describing the Large-Scale Dilemma

developing a "fuzzy situation" about the topic, a scenario
reflecting conscious ramifications the dilemma may have on the future

Generating Problems

creating a list of problems related to the fuzzy situation,
using traditional rules for brainstorming, and then elaborating them

Identifying and Focusing One Problem

focusing the list of problems by categorizing them, selecting one specific category for attack, and articulating the problem so that, in question form, it succinctly states what needs to be accomplished, the purpose or "why" the task needs to be accomplished, and the parameters of the future period in which the situation is being tackled

Generating Solutions

brainstorming and elaborating a list of solutions that
responds directly to the focused question that has been posed

Criteria to Select the Best Solution

assessing the solution options through a set
of criteria so that the best solution can be selected

Developing an Action Plan

detailing the solution so that it can be implemented

Danny's Dilemma

Each year, Danny, an only child, would approach the start of school in the exact same manner: excited to return to the classroom for time with his friends but less than exhilarated about what he called "the rest of school," meaning the academic assignments and other scholastically related expectations. Having been identified in fifth grade for participation in a gifted program for development of leadership ability, Danny had consistently demonstrated strong ability to lead others and had also been highly rated on the *Leadership Skills Inventory* (Karnes & Chauvin, 1985). While his academic talents were not insignificant, none of his test scores or his classroom performance prompted his school to consider placement for scholastic giftedness.

Though Danny did not maintain numerous friendships, he was often selected by his classmates for important duties; if he were not chosen to lead, another boy consistently was. A bond gradually developed with this other youngster, who was also enrolled in the leadership program, and the two boys enjoyed participating together in a variety of interests they shared. Thus, Danny had become increasingly active in many out-of-school activities including scouting, ice hockey, and a school science club that he and his best friend had founded. In addition, Danny had convinced his buddy to join him in operating a year-round yard maintenance service which required them to handle seasonal chores such as shoveling snow, raking leaves, mowing and watering lawns, and planting and maintaining flower beds. Superficially, Danny and his peer were identical, save for one major difference; while the friend consistently produced high quality academic work, Danny had progressively let more and more of it slide. Missing assignments and poor grades in all aspects except the leadership program were hallmarks of Danny's school record.

As Danny's situation worsened, the school contacted Danny's mother, a single parent who worked outside the home, to express concern. With the impending movement the following year to a large middle school, Danny's principal and teachers were fearful that he may be headed for scholastic disaster; Danny's mother concurred. School officials recommended that Danny's mother curtail his extracurricular activities until his academic performance improved and that his participation in the leadership program be postponed to allow him additional study time during the school day. Danny's mother agreed by enforcing early curfews, furlough from scouts and organized sports, and suspension of the science club. At the same time, the school initiated assessment procedures for learning disabilities.

Despite support from the school counselor, Danny's academic performance worsened. Calling school "a prison" and telling his mother and the counselor that "my life was so boring that maybe I shouldn't get out of bed," Danny began to typify many of the characteristics of depression. While the adults in his life continually reminded him that improved academic effort on his part would result in reinstatement of the programs he enjoyed, Danny showed significant regression. By the end of the first marking period, Danny was failing all subjects — even those in which he had performed well before his removal from extracurricular activities and the leadership program. When questioned about how he spent his time in school, he replied that "school is the only time I get to be with my friends now, so I need to use the time there with them and not doing work." In fact, teachers reported that Danny had become a fairly significant classroom disrupter, often inducing poor behavior from the entire class due to his constant chattering and passing of notes. His mother described evenings at home as "battles of will" in which she would have to harass Danny to accomplish anything; otherwise, he simply would sit at his desk with his books and gaze into space. Without some substantial action to reverse Danny's increasing academic decline, there was every likelihood retention in fifth grade was in his future. He literally was accomplishing nothing scholastically, had taken to using his leadership ability negatively — a form of underachievement, and home life had become miserable. His mother and the school alike realized a different approach had to be undertaken.

Danny's Treatment

With assistance from the school, Danny and his mother became involved in twice-weekly counseling sessions with a psychologist. From the onset, it was clarified that, in exchange for the time Danny spent in counseling, all of his extracurricular activities would be restored, though school authorities adopted a "wait and see" posture for reinstating Danny in the leadership program. After one week, Danny was performing at a rate far improved from that during the curtailment trial, but his academic productivity was still at a level far below his potential.

As counseling progressed with Danny and his mother — both jointly and individually, the psychologist learned that Danny "really wasn't ever sure" what his teachers wanted from him. In contrast, he explained that he was certain about his role in scouts, sports, and even in the leadership program. In leadership, "I am supposed to think using the Talents" (reference to the Talents Unlimited thinking skills [most current description provided in Schlichter & Palmer, 1993] used widely in all aspects of Danny's leadership programming but not integrated into the remainder of the school curriculum) "and try to become the best leader I can because other people have faith in me to make

good decisions and to have good ideas about problems." This statement also convinced the psychologist that Danny had successfully integrated some important process skills into his life *outside* of the leadership program but had failed to make the transfer to the rest of school.

One of Danny's most important reflections described an incident in art class where each student was expected to sketch an object using shading and perspective techniques to illustrate the concept of depth. Danny elected to draw his own house, adding extensive detail, including ivy that covered the chimney. With vivid recollection, Danny explained how he had received the assignment back with both a poor mark and a question from the teacher about where Danny ever had seen anything so absurd as ivy all over a chimney. Despite his efforts to explain, the teacher refused to consider his work further, yet in Danny's mind, the assignment had been completed according to the "rules" established by the teacher. Further, Danny related his lower grade directly to the chimney that "had not broken any rules because it is real."

As the sessions continued, the psychologist uncovered many additional examples of school situations where Danny felt he had accomplished a task according to established guidelines only to be dashed. These included: being verbally berated before the entire class for working ahead in a workbook; removal from the safety patrol because he had placed traffic cones in the parking lot to help guide car pools before school; and detention after school for starting a student petition drive to reduce homework, a project Danny had thought would fulfill a requirement for the leadership program. For these and other reasons, Danny felt incongruous with the school, its teachers, and their demands. Outside of school, in comparison, Danny described satisfaction with: scouts and the "set list of things you have to do to earn a badge;" ice hockey and how one earns "penalties if you don't play fair, and the 'ref' is the judge and knows the rules and how to play the game better than anybody;" and his after-school science club where "you get to stay in it if you do an experiment once a month and have the club be there when you do it."

Basing future directions for counseling on Danny's various revelations, the counselor felt that Danny's major problem was probably linked to the boy's irrational view that school was *totally* without rules of fair play. To permit the student to explore his view as well as the perspectives of others, it was decided that role playing would be useful as a primary counseling approach (see Table 1). Over time, the psychologist believed Danny would come to establish a "set of rules" against which he could measure academic expectations. Furthermore, previous cases had revealed that participation in such introspection might eventually lead Danny to identify the irrational side of his underachievement *himself* (Little & Kendall, 1979; McMullen, 1986).

Table 1
Role Playing Stages Employed with Danny

Stage I: *Selecting the Problem for Role Playing*
- examine discussion qualitatively for recurrent themes
- listen with sharpened analytical skills
- determine with client most immediate needs

Stage II: *Warming up for Role Playing*
- select a problem scenario that is not too far removed from reality
- choose a scenario similar but not identical to the client's real situation
- attempt to select a scenario for warming up that can be fun for the client

Stage III: *Explaining the General Situation*
- state and detail the client's real problem scenario to be played out
- establish geography and climate for the scenario ("set the stage")
- explain each role to be played
- allow the client first to select which role s/he wishes to play
- plan to alternate roles later or have the client eventually play all roles
- if roles are complex, write out a few basic traits each role includes
- suggest how scenario action might be started or initiate it yourself

Stage IV: *Role Playing the Problem Scenario*
- intervene only to provide reinforcement that keeps the client in the role
- motivate dialog if necessary (how would you answer/ reply/react?)

Stage V: *Discussing, Debriefing, and Analyzing*
- examine each role, one-by-one
- consider alternative solutions and reactions
- evaluate what transpired and what was learned from the experience

The role playing technique was employed with Danny for the remainder of the school year, with most sessions focusing on scenarios designed around a conflict between the rational and irrational ideas related to school fairness and expectations. Danny most often played the rational part — whether acting as himself, as a teacher, or as his mother, while the psychologist played the irrational role. Occasionally, Danny played both roles, alternating between them. Shortly after the intensive role playing therapy was introduced, Danny's academic performance showed signs of improvement of sufficient significance to convince his school to allow him to again participate in the leadership program.

The Emotional Toll of Nonacademic Underachievement

Students like Karen and Danny exemplify underachievement of a sort that has been all but overlooked: the sort that takes place in individuals' domains of talent aside from the scholastic. The emotional concerns for such students are both similar to and different from those of other gifted students.

Similarities to Academic Giftedness

Personality traits of gifted individuals tend to include high degrees of sensitivity, perfectionism, and intensity, each of which contribute to greater degrees of stress than in others (Silverman, 1993). Paralleling these traits are tendencies for able children, whether gifted academically or otherwise, to become deeply concerned about moral issues at an earlier age than peers. Sophisticated awareness of world events, injustice, and ideals, when combined with feelings of impotence experienced by all children, are likely to have serious impact on the emotional development of gifted children.

While previous studies of the emotional traits of gifted individuals have been primarily restricted to those with academic giftedness, the efforts of Dabrowski (1938, 1964) and later of Piechowski (1991) expand the conception of advanced emotional development, much as the works of Sternberg (1995) and Gardner (1999) have expanded the notion of intelligence. Dabrowksi's "psychic overexcitabilities" have been described as heightened sensitivities in five contexts: psychomotor, sensual, intellectual, imaginational, and emotional (see Table 2). In and of themselves, each contextual overexcitability can be described as a "gift," but there has been conclusive evidence that individuals with academically-oriented, IQ-delineated giftedness (that which is most frequently measured and served in schools) tend to have heightened overexcitabilities across all five contexts (Silverman, 1993). However, there has also been significant investigation revealing that emotional development in *other* types of giftedness parallels the amplified sensitivities found in the academically gifted (Lind & Olenchak, 1995).

Table 2

Psychic Overexcitabilities

Adapted from Dabrowski, K., & Piechowski (1977). Theory of levels of emotional development (Vols. 1 & 2). Oceanside, NY: Dabor Science.

PSYCHOMOTOR

- Heightened excitability of the neuromuscular system
- Capacity for great activity and animation; love of movement for itself
- Organic surplus of energy demonstrated in various forms
  (rapid speech; marked enthusiasm; need for action)
- Psychomotoric expression of emotional tension
  (compulsive talking; impulsive actions; acting out; nervous habits; drive; workaholism; high degree of competitiveness)

SENSUAL

- Magnified sensual experiences
  (seeing; smelling; tasting; touching; hearing)
- Intense sexuality
- Sensual expression and outlets for emotional stress
  (overeating; buying sprees; wanting to be in the limelight)
- Appreciation of aesthetic pleasures
  (appreciation of beauty in objects, words, music, form, color)

INTELLECTUAL

- Amplified need to seek understanding and truth and to gain knowledge
- Intense activity of the mind
  (curiosity; concentration; capacity for sustained intellectual effort; avid reading; keen observational skills; detailed planning and recall)
- Penchant for probing questions and problem solving
  (search for truth and understanding; tenacity in finding and resolving problems)
- Preoccupation with logic and theoretical thinking
  (love of theory and analysis; metacognition; introspection; morality; highly conceptual; independent)
- Tendency to want to develop new concepts

IMAGINATIONAL

- Enhanced use of imagination in terms of intensity and frequency
- Rich association of images and impressions, both real and imagined
  (frequent use of image and metaphor; inventive; detailed fantasy and visualization; poetic and dramatic perception)
- Spontaneous imagery as an expression of emotional tension
  (mixing truth and fiction; elaborate dreams; illusions)

- Potential for living in a fantasy world
  (predilection for fairy and magic tales; creation of private worlds; imaginary companions; escapism through imagination)

EMOTIONAL

- Extremely intense positive and negative feelings
  (extremes of emotion; complex emotions and feelings; highly empathetic; awareness of range and intensity of feelings; high ability to differentiate interpersonal feelings)
- Tendency toward somatic expressions
  (tense stomach; sinking heart; blushing; flushing)
- Powerful affective expressions
  (inhibitions; ecstasy; euphoria; pride; strong affective recall; fears and anxieties; feelings of guilt; concern with death)
- Capacity to develop deep relationships
  (strong emotional ties and attachments to people, places, pets, objects; compassion; responsive to others; sensitivity; difficulty adjusting to new environments; loneliness; intense desire to offer love to others)
- Well differentiated feelings toward self
  (awareness of one's real self; inner dialog and self-judgment; sense of self-responsibility; awareness of one's growth and adjustments)

Previous research has determined that context-specific overexcitabilities must be integrated with all other overexcitabilities before there are influences on emotional development equating with characteristics of giftedness (Piechowski, Silverman, & Falk, 1985). Using Dabrowski's theory, the emotional development associated with academically gifted persons has been confirmed in individuals whose talent domains are not particularly scholastic: studies of artists (Piechowski & Cunningham, 1985), creative children (Gallagher, 1985; Schiever, 1985), and social reformers and leaders (Brennan & Piechowski, 1991; Grant, 1990; Piechowski, 1990). Hence, it appears that emotionality in gifted persons, whether academically or otherwise gifted, is parallel. While distinctions certainly exist in the emotional characteristics of gifted individuals, persons of high ability *of any type* tend to develop pronounced sensitivities and, therefore, require specialized affective curriculum and instruction.

Differences from Academic Giftedness

While the internal emotional traits of gifted persons appear to be similar regardless of talent domain, distinctions exist demarcating those who have great ability in fields aside from the academic; these appear to be external to the individual. A wide array of external variables

— home, parents, peers, school, social values, among others — have significant influence on the emotional development of individuals, gifted or not. Due to the amplified sensitivities described above, these external variables likely have a heightened effect on gifted individuals' emotions, but a case can be made that they can have even greater significance on the emotions of those with nonscholastic gifts.

Most persons with great potential must learn to live in a society that fails to celebrate their gifts and often rejects them due to their superior abilities. Certainly, terms like "nerd" and "egghead" symbolize society's apparent contempt for individuals who are academically gifted. For whatever reason, society generally has chosen to reject such individuals from its mainstream, and surely such rejection must prompt notable negative emotional reactions in the academically gifted population. However, most gifted programs in schools today reflect identification procedures and programming efforts suitable only for the academically gifted. Other than athletic giftedness, perhaps the singular type of superior potential society has elected to support avidly with special programs and opportunities, few other kinds of giftedness or intelligence are celebrated by educational institutions. Most assuredly, efforts on behalf of academically gifted persons are totally inadequate and pale in comparison to the often extravagant expenditures on athletic giftedness; nonetheless, the fact remains there are programs available for persons of superior scholastic potential.

While academically gifted students quite sadly often respond to social rejection by camouflaging their gifts, at least if specialized programs are available, they have some chance for adjusting their emotional development. Contrast this with students who possess remarkable talents in domains other than the athletic or academic, for whom specialized school programs are seldom available. In the absence of suitable school programming, these children are frequently forced not only to hide their abilities, but worse, they come to deny them (Kogan, 1995). Denial of one's abilities among gifted populations often leads to risk of underachievement, dropping out of school, delinquency, eating disorders, drug abuse, and other activities deemed not only unacceptable socially but also personally destructive. A review of literature over the past decade revealed that previous investigations of this group have largely been limited to three categories: gifted students with concomitant disabilities; those from poverty, minority and/or overlooked cultures, or otherwise being at an educational disadvantage; and those who are underserved due to their gender and/or degree of giftedness. Although few studies were located that examined the emotional risks of students having significant talents aside from the academic, this group's strong similarities with those who have concomitant giftedness and disabilities place them equally in danger. One

investigation that concentrated on extreme talent in dancers examined the negative outcomes, including serious health problems, that repeatedly occur as a result of inappropriate and/or inadequate training both in schools and in specialized dance programs (Kogan, 1995). Apparently, where talents—regardless of their type—remain either underserved or unserved in schools, students are placed at risk of developing serious affective problems.

Academically gifted students, by virtue of the presence of at least some school programs, are less at risk of personal disaster than are those for whom programs seldom if ever are offered. Moreover, where social pressure to disregard certain talents in schools is personified by teachers and educational officials who do not, cannot, or will not understand gifted students' needs, there is every likelihood that emotional damage will be guaranteed. Such children have little reason to be optimistic, and persons who lack "optimistic willpower" are not likely to find or develop "optimistic waypower" (Snyder, 1994, p. 44). In all probability, they will suffer damaged motivation and an overall sense of despair more frequently than gifted students for whom programs are available. Due to the infrequency of programs for gifted students in domains other than the academic, gifted youth with nonscholastic talent, like gifted students with disabilities, are at more emotional risk than other gifted students.

Implications for Intervention

Obviously, if professionals in education and psychology are aware that gifted youth with advanced abilities in areas other than academic are more fragile than other gifted students, it would seem that preventive measures would be appropriate. The first psychologist and counselor specializing in emotional needs of the gifted, Leta Hollingworth, suggested that gifted students be involved in "emotional education" (Hollingworth, 1939, p. 585) to assist them in handling the special problems they were likely to encounter in school. Hollingworth felt that such emotional programming would help prevent potential maladjustment and enhance full development of their talents.

What Hollingworth meant by emotional education was a comprehensive program integrating all aspects of emotional, social, cognitive, and physical development. Such a program would integrate sufficiently challenging curriculum and instruction appropriate to the individual interests and needs of each gifted student. Later investigations confirmed Hollingworth's suspicion that curriculum and teaching have an important link to lifelong emotionality—that messages transmitted to students indirectly can be as critical to emotional development as more direct, therapeutic approaches.

Terman and Oden (1947) found that gifted adults who did not find their work interesting were prone to higher mortality rates, while Ziv, Rimon, and Doni (1977) concluded that gifted students who underachieve academically often are successful outside of school because they find pursuits that are interesting and fulfilling in which to engage. Later, Whitmore (1988) determined that school negligence of any number of specific social, emotional, and intellectual needs — including interests could trigger a spiral of underachievement in the gifted that would likely be irreversible without specific curricular interventions. Further, Emerick (1989) ascertained that consciously serving gifted students' interests could stimulate a reversal of academic underachievement. Olenchak (1991, 1994, 1995) concluded that under-achievement in academic domains attributed to learning disabilities could be at least partially reversed when schools nurture significant, nonacademic performances of superior quality. This recognition by schools that some students' strengths may not lie in traditional academic work legitimizes human pursuits of all kinds, thereby indirectly delivering a powerful message that talents of all types are important. And Baum and Olenchak (in press) have found that, treating strengths and de-emphasizing weaknesses in gifted students who either have attention deficit hyperactivity disorder or are being confused with ADHD students, serves to reduce if not eliminate risks for underachievement and social/emotional concerns altogether.

Common to these studies as well as to Hollingworth's emotional education plan is a general willingness in schools to equip gifted students with information and techniques useful and rewarding for handling stress. Consequently, opportunities for gifted students to engage in purposeful reflection as a means for sifting through life's events, in addition to activities in which they learn to integrate various problem resolution strategies, are suitable for all gifted children. To prevent emotional maladjustment, personally rewarding curriculum and instruction, opportunities for interaction with others of similar ability and interests, and situations likely to teach how to relate to those with lesser abilities and differing interests are critical school components for all gifted youth (Hollingworth, 1942). However, no subgroup among the gifted is any more at risk of emotional problems than those with abilities that are likely to be ignored or underserved by schools. This group includes not only gifted students with disabilities, gifted females, those from different cultures, and those representing low socioeconomic groups, but it also refers to young people with superior abilities that are not particularly valued by the educational system.

The primary intervention programs utilized with Karen and Danny illustrate some viable and relatively easy to employ options for schools and therapists. Each one is described in terms of the cases of these two atypically gifted students.

Future Problem Solving

The Future Problem Solving Program (FPS) was originally designed by E. Paul Torrance (Torrance & Torrance, 1978) as a means for teaching young people the Creative Problem Solving model and, concurrently, increasing student awareness and appreciation for the future. This futuristic orientation assists students in creating more accurate images of the future, their places in it, and their interaction with its development (Torrance, 1976; Torrance & Reynolds, 1979).

For underachieving gifted students, the importance of a healthy, futuristic outlook is linked very closely to the routes for reversal of their underachievement condition. It is virtually impossible, for example, to ameliorate underachievement if the student perceives little opportunity in which to interact positively with the various aspects of personal life in the future. Moreover, by equipping underachieving students with an heuristic that is effective both in problem resolution and in assessing the future, it is likely such students will begin to feel a sense of control over their own destinies. For underachievers, most of whom feel as if life "just happens" to them, a strategy for seizing control over at least some aspect of one's life can be incredibly appealing. More importantly, teaching a strategy that works amounts to handing those who feel both helpless and hopeless a tool that helps them develop hopefulness. As Karen put it: "FPS has helped me to realize that the world ahead is as unlimited as the world behind is limited; I can play a part in the way the future turns out — especially my own."

The FPS process was designed to parallel most of the steps encompassed in Creative Problem Solving. The FPS heuristic (refer again to Figure 1) most often is practiced through an interscholastic competition. Coaches (teachers, therapists, counselors, mentors, parents or any interested adult) teach and model the stages of problem resolution for their student teams of four young people and guide them in practicing the skills, but ultimately, students must demonstrate their problem solving prowess unassisted. In fact, the FPS competition forces students into sequestration in order to compete. Though competition may, at face value, appear improper for those already experiencing significant problems with achievement, Rimm and Olenchak (1991) found that FPS:

1. serves to change both self-expectations and expectations of others about the underachiever, provides role models for achievement;
2. teaches how to compete in a safe environment, serves to form teacher-student alliances; and
3. provides sanctuary to the underachieving gifted student who often can find no peer group.

While the purpose here is not to debate the advantages and disadvantages of competition, there is reason to believe that the competitive side of FPS arranges competition in an extremely healthy, helpful, and hopeful manner. The competitive component serves to introduce the underachiever to team dynamics and dependency on others in a structured system where failures occur as group learning and successes are group achievements. Its most important application — to personal dilemmas — is the aspect which counselors and teachers must demonstrate themselves through modeling, so that gifted underachievers can see the real-world utility of the process beyond the game-like sessions of the competitive team program.

Numerous case studies of gifted underachievers have been completed to date, each revealing that involvement in FPS, coupled occasionally with either individualized or family counseling, has instigated reversal of under-achievement. This population of over 50 young people has included students from fourth grade into undergraduate collegiate study, all of whom noted that participation in FPS had specifically marked the beginning of change from underachievement to achievement in at least one aspect of their lives (Olenchak, 1990; Rimm & Olenchak, 1991).

Bright underachievers can benefit from inclusion in school and counseling programs that emphasize learning and practicing a simple problem solving process. The opportunities to take risks, to participate as a member of a team working toward a common goal, and to adopt a proven strategy for effective problem resolution are rarely provided through any other component of life. The Future Problem Solving Program, in particular, addresses many of the major needs of gifted underachievers that are so often mentioned: control, future perspective, and self-esteem.

FPS in Karen's Case

After a student has been involved in FPS for a period long enough to allow her time for work within the team and practice with the process, there is a window of opportunity in which the teacher and/or counselor can intervene beyond FPS itself. This intervention can take the form of application of the FPS process to some aspect of real life in which the student finds herself or, better yet, the adult can demonstrate application to his own life. This latter technique is particularly useful as the student can begin to see how the heuristic is worthwhile in helping a reasonably successful adult to control aspects of his life.

In Karen's situation, she had not been involved in FPS, as it was not available at her school. Nonetheless, the psychologist felt that using this problem attack technique

would be useful and easy for Karen and her parents to integrate as they engaged in family therapy. As noted earlier in this chapter, Karen and her family were able to use the process to arrive at a successful solution to their dilemma, one that not only allowed Karen to find a school more suitable to her needs and interests but one which would likely increase the sense of optimism — if not hope — in a family that had all but lost it.

Additional individualized counseling in Karen's case included discussions of other young people and how they had applied FPS as a means for personal control in resolving situations. Such discussions, of course, retained the anonymity of others but also encouraged Karen and her parents to analyze how others had employed the process to their advantage. Emphasis was placed on the possible widespread applications of FPS in one's personal life. As Karen's needs occasionally dictated, other types of family counseling were deemed necessary to enhance the effects of FPS, but primarily her circumstance of serious non-academic underachievement was fully reversed through FPS.

An Update on Karen

Karen's family no longer is involved with the therapist except for occasional reports on their progress. Their situation has changed markedly in a few years. Karen is currently enrolled as a sophomore at the state-sponsored fine arts school, while her mother and father continue with their careers from their new location. Since enrolling at the school, Karen's grades have improved to honor roll status in a curriculum that is probably more rigorous than that she left behind. More importantly, she has performed an invited violin solo with a large symphony orchestra and has sung several parts in musical dramas. At present, she is preparing to compete for the lead in a school production of an opera.

Role Playing

Recommendations from the literature note the importance of counseling for gifted students (Silverman, 1993). More specifically, counseling activities should be designed to assist gifted students in self-discovery: understanding themselves, their abilities and how they are manifested, problems they encounter, values of society and family, motives supporting actions, and interests of self and others (Davis & Rimm, 1989). Further, it is strongly recommended that counseling activities for gifted students be based on the fact that many such young people are simply in need of an adult whom they can trust, with whom they feel relaxed, and with whom they can develop open lines of communication (Delisle, 1992). Few counseling strategies better integrate this array of recommendations for working with gifted youth than role playing.

The stages of the role playing strategy (refer again to Table 2) delineate the various means through which students are likely to come to greater self-awareness by removing themselves from situations analytically even though they are performing a part in simulating those same situations. This metacognitive technique also is likely to illuminate their specific abilities as well as weaknesses and to shed light on such issues as values and motives reflected by people through their actions (Blatner, 1988). Moreover, the opportunity to forge a bond with an adult becomes authenticated because role playing in individual counseling requires openness in communication, the student and therapist are coequals in "staging the play."

The effectiveness of role playing can be attributed to two major characteristics as a therapeutic approach: the spontaneity of emotions and behaviors; and the simultaneous amplification of both feelings and thoughts. The contrived but realistic situations used to stimulate later consideration of actual life events force people to create new and appropriate solutions. However, the therapist must structure role playing in such a way that these characteristics emerge (Rosenberg, 1992, p. 45).

As with all forms of psychotherapy, an absolutely essential consideration must be the environment in which role playing will transpire. In order to promote openness of communication, role playing must take place in a private, comfortable, and relaxed atmosphere. Space should be adequate to permit physical movement in the event the role playing evolves beyond a verbal exchange. Although audio and video recorders can be used to assist in the maintenance of meaningful data, it is critical these instruments not be obtrusive or intimidating, or the quality of role playing is likely to be reduced. Use of recorders of any type can be useful in that they permit immediate review of the role play proceedings, thus enhancing the debriefing and analysis stage. However, if there is even the slightest reason to believe the student will feel reluctant to share in frank, straightforward communication, the equipment should be eliminated.

Use of role playing with students — especially those who are gifted underachievers and who often have become masters of manipulation — demands the counselor be highly creative, willing to take risks, and at least moderately charismatic. Even if the student should move the role play in a direction that was not predictable, it must always appear to the student that the therapist knows precisely what is happening and why (Kipper, 1986). While high quality role playing must afford students latitude to exercise some creativity themselves, the therapist must have careful control of the overall events in a way that avoids suppression of the emergence of students' authentic emotions and behaviors. Consequently, role playing requires the counselor to be clearly in charge but not to the degree that the role playing arrests student responses.

The spontaneous aspects of role playing necessitate rapid thinking on the part of the counselor. Highly active and often unpredictable, the role playing process dictates that the therapist make decisions on a moment's notice regarding the direction the session is taking. Even more critically, the therapist must analyze each segment of the play acting as it occurs in order to identify areas and topics that might lead to future role play exploration.

Role Playing in Danny's Case

The selection of role playing as an intervention technique reveals that Danny had gained comfort in communicating with his psychologist; without this interest and ease in verbal communication, role playing would not have made sense. Fortunately, not only was Danny known to possess an extroverted personality, but he had come to admire the therapist and the relationship they had constructed. Furthermore, with his leadership skills, Danny was a natural for role playing; his successful achievement in activities external to school could perhaps serve as lessons from which he could learn how to attain academic success.

Danny's dilemma, the incongruity between imprecise expectations in school versus what he perceived as clear cut rules in his extracurricular activities, was clarified through role playing numerous situations from school and home. In one regard, Danny's astute recognition and self-reporting of this inconsistency made the counseling task much easier. Role playing was not needed to determine the range of underlying problems prompting Danny's behaviors, but it became useful as a tool for safely analyzing the clashing school and extracurricular points of view that Danny had already perceived.

Using a number of warm-up exercises prior to role playing, the psychologist was careful to place Danny in roles that not only paralleled his frame of reference for reality but could also serve to stretch his thinking. For example, in one warm-up session, Danny played a teacher who was trying to explain to a baseball umpire — played by the therapist — what it was like to make sure students learned and, at the same time, enjoyed school. The roles were later reversed, and finally Danny was asked to play both roles back and forth. Though intended simply to warm Danny up to role playing for more substantial work in his session that day, this scenario encouraged examination of two seemingly opposing systems, one more explicit to Danny than the other.

Following this warm-up activity, the session moved to a role playing situation in which Danny played his own math teacher and the psychologist played Danny. Again, roles

were later reversed, and then both were played by Danny. During the debriefing and analysis stage, Danny reflected on how his teacher had a job to do and that "her job doesn't give her a rule book like a baseball ump has." Danny had made linkage himself between the warm-up and the real role play segments in a way that would help him clarify his situation, his emotions, and his underachieving behaviors.

An Update on Danny

Today, Danny is a graduate of a small liberal arts college in the Northeast where he eventually served as vice-president of the student government. Though his academic record never became stellar, he was able to complete his studies in a fairly rigorous business management program. After graduation, he entered a management training program of a large insurance firm in which he not only marketed insurance but also was taught company techniques for supervision. Given his recent sales success, there is every likelihood he will be promoted shortly to a field management position in the firm.

Pessimism Begets Hopelessness; Optimism Begets Hope

Students whose gifts and talents are grounded in domains other than those which society has chosen to serve or to reward are at significant risk of underachievement. Although underachievement academically is one issue that confronts this population, it appears more significant that educational and psychological scholars and practitioners begin to recognize the potential for underachievement in each gifted student's domain of talent. Though academic underachievement is of concern to teachers and parents of any child, there must be growing consciousness that academic success alone is unlikely to nurture in gifted students the élan, commitment to task, ability, and creativity upon which gifted-like performances are founded. If anything, an entrenched school system and social climate, often supporting appropriate programs only for academic and/or athletic gifts while ignoring many others, runs the risk of so alienating these young people that they may never fully realize their potential.

The case studies that served as the foundation for this treatise are a few among many this researcher has collected, and those are simply a minor representation of the many cases of atypically gifted students across the nation and around the globe. Regardless, they provide ample opportunity for professionals to reflect on the diversity prevalent among a population we too frequently refer to as if it were homogenous: gifted people. While there has been an effort to alert the field to the needs of gifted students whose differences lie in socioeconomics, race and culture, gender, and concomitant disabilities, there has been little attention paid to students whose talents are significant yet are not in any way reflected in school gifted programs. In fact, underachievement and resultant

affective dilemmas are the same for each of these populations of gifted students; hence, gifted students, because of inadequate services, are *all* placed in jeopardy.

If we are to extend, quite humanely, the spirit of equality of opportunity to persons without distinction, it is critical that all gifted students be included. A cornerstone of the American Dream is the prospect for each individual to succeed. If we continue to underaddress the needs of gifted students, thereby promoting underachievement for all of them, their individual sense of optimism is likely to become damaged to the extent that hopelessness may well consume them. Our next great leaders cannot possibly emerge from hopelessness; the upcoming generation of inventions will be masked by hopelessness; the beauty of the arts will become ugly in hopelessness; and dreams imagined are likely to become nightmares mired in hopelessness. The time has come to advocate for services for gifted and talented youth with all kinds of abilities, or we will surely lose the Dream.

We did not dare to breath a prayer
Or give our anguish scope!
Something was dead in each of us,
And what was dead was Hope.
— Oscar Wilde, *The Ballad of Reading Gaol*

References

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.) (Text revision). Washington, DC; Author.

Baum, S. M., & Olenchak, F. R. (in press). The alphabet children. *Exceptionality.*

Baum, S. M., Olenchak, F. R., & Owen, S. V. (1998). Gifted students with attention deficits: Fact and/or fiction? Or can we see the forest for the trees? *Gifted Child Quarterly, 42(2),* 96-104.

Baum, S. M., Olenchak, F. R., & Owen, S. V. (1995, May). *Gifted students with attention deficits: Alternate hypotheses, alternate solutions.* Paper presented at the International Conference on Research and Practice in Attention Deficit Disorders, The Hebrew University, Jerusalem, Israel

Baum, S. M., & Owen, S. V. (1988). High ability/learning disabled students: How are they different? *Gifted Child Quarterly, 32(3),* 321-326.

Baum, S. M., Owen, S. V., & Dixon, J. (1991). *To be gifted and learning disabled: From identification to practical intervention strategies.* Mansfield Center, CT: Creative Learning Press.

Blatner, A. (1988). *Acting-in: Practical applications of psychodramatic methods* (2nd ed.). New York: Springer.

Brennan, T. P., & Piechowski, M. M. (1991). The developmental framework for self-actualization: Evidence from case studies. *Journal of Humanistic Psychology, 31(3),* 43-64.

Coleman, L. J., & Cross, T. L. (2001). *Being gifted in school: An introduction to development, guidance, and teaching.* Waco, TX: Prufrock Press.

Cramond, B. L. (1994). Attention-deficit hyperactivity disorder and creativity -- What is the connection? *Journal of Creative Behavior, 28(3),* 193-210.

Dabrowski, K. (1938). Typy wzmozonej pobudliwosci: psychicnej (Types of increased psychic excitability). *Biul. Inst. Hig. Psychicznej, 1(3-4),* 3-26.

Dabrowski, K. (1964). *Positive disintegration.* Boston: Little-Brown.

Davis, G. A. (1992). *Creativity is forever* (3rd ed.). Dubuque, IA: Kendall/Hunt.

Davis, G. A., & Rimm, S. B. (1989). *Education of the gifted and talented* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Delisle, J. R. (1992). *Guiding the social and emotional development of gifted youth: A practical guide for educators and counselors.* New York: Longman.

Emerick, L. J. (1989). Student interests: A key to reversing the underachievement pattern. *Understanding Our Gifted, 2(1),* 1, 10-12.

Emerick, L. J. (1992). Academic underachievement among the gifted: Students' perceptions of factors that reverse the pattern. *Gifted Child Quarterly, 36(3),* 140-146.

Ford, D. Y., & Harris III, J. J. (1991). On discovering the hidden treasure of gifted and talented African-American children. *Roeper Review, 13(1),* 27-33.

Gallagher, S. A. (1985). A comparison of the concept of overexcitabilities with measures of creativity and school achievement in sixth grade students. *Roeper Review, 8,* 115-119.

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century.* New York: Basic Books.

Grant, 8. (1990). Moral development: theories and lives. *Advanced Development, 2,* 85-91.

Griffin, J. B. (1992). Catching the dream for gifted children of color. *Gifted Child Quarterly, 36(3),* 126-130.

Hollingworth, L. S. (1939). What we know about the early selection and training of leaders. *Teachers College Record, 40,* 575-592.

Hollingworth, L. S. (1942). *Children above 180 IQ Stanford-Binet: Origin and development.* Yonkers-on-Hudson, NY: World Book.

Kardaras, K. (1996). *Teacher perceptions of negative characteristics and their attributions to giftedness and/or Attention Deficit Hyperactivity Disorder.* Unpublished doctoral dissertation, Adler School of Professional Psychology, Chicago, IL.

Karnes, F. S., & Chauvin, J. C. (1985). *Leadership skills inventory, Administration manual.* East Aurora, NY: DOK Publications.

Kearney, K. (1989). Homeschooling gifted children. *Understanding Our Gifted, 1(3),* 1, 12-13, 15-16.

Kipper, D. A. (1986). *Psychotherapy through clinical role playing.* New York: Brunner/Mazel.

Kogan, N. (1995, September). *Motivational and personality patterns in performing artists.* Paper presented at the Esther Katz Rosen Symposium on the Psychological Development of Gifted Children, Lawrence, KS.

Lind, S., & Olenchak, F. R. (1995, March). *ADD/ADHD and giftedness: What should educators do?* Paper presented at the annual conference of the Association for the Education of Gifted Underachieving Students, Birmingham, AL.

Little, V. L., & Kendall, P. C. (1979). Cognitive-behavioral interventions with delinquents: Problem solving, role taking, and self control. In P.C. Kendall & S.D. Hollon (Eds.), *Cognitive-behavioral interventions: Theory, research, and procedure*. New York: Academic Press.

McMullen, R. E. (1986). *Handbook of cognitive therapy techniques*. New York: W.W. Norton.

Olenchak, F. R. (1990, November). *Controlling underachievement through future problem solving.* Paper presented at the annual convention of the National Association for Gifted Children, Little Rock, AR.

Olenchak, F. R. (1991). Wearing their shoes: Role playing to reverse underachievement. *Understanding Our Gifted, 3(4),* 1, 8-11.

Olenchak, F. R. (1994). Talent development: Accommodating the social andemotional needs of secondary gifted/learning disabled students. *Journal of Secondary Gifted Education, 5(3),* 40-52.

Olenchak, F. R. (1995). Effects of enrichment on gifted/learning disabled students. *Journal for the Education of the Gifted, 18(4),* 385-399.

Olenchak, F. R. (1999). Affective development of gifted students with nontraditional talents. *Roeper Review, 21(4),* 293-297.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.

Piechowski, M. M. (1990). Inner growth and transformation in the life of Eleanor Roosevelt. *Advanced Development, 2,* 35-53.

Piechowski, M. M. (1991). Emotional development and emotional giftedness. In N. Colangelo & G. Davis (Eds.), *Handbook of gifted education.* Needham Heights, MA: Allyn & Bacon.

Piechowski, M. M., & Cunningham, K. (1985). Patterns of overexcitability in a group of artists. *Journal of Creative Behavior, 19(3),* 153-174.

Piechowski, M. M., Silverman, L. K., & Falk, R. F. (1985). Comparison of intellectually and artistically gifted on five dimensions of mental functioning. *Perceptual and Motor Skills, 60,* 539-549.

Purcell, J. H. (1994). *The status of programs for high ability students.* (Research Monograph No. CRS94305). Storrs, CT: The National Research Center on the Gifted and Talented.

Rimm, S. B. (1986). *Underachievement syndrome: Causes and cures.* Watertown, WI: Apple Publishing.

Rimm, S. B. (1997). An underachievement epidemic. *Educational Leadership, 54(7),* 18-22.

Rimm, S., & Olenchak, F. R. (1991). How future problem solving helps underachieving gifted students. *Gifted Child Today, 14(2),* 19-22.

Rosenstein, M. (1992). *The unread mind: Unraveling the mystery of madness.* New York: Lexington Books.

Schiever, S. W. (1985). Creative personality characteristics and dimensions of mental functioning in gifted adolescents. *Roeper Review, 7,* 223-226.

Schlichter, C. L., & Palmer, W.R. (1993). *Thinking smart: A primer of the talents unlimited model.* Mansfield Center, CT: Creative Learning Press.

Seeley, K. (1993). Gifted students at risk. In L. K. Silverman (Ed.), *Counseling the gifted and talented.* Denver: Love.

Silverman, L. K. (1989). The highly gifted. In J.F. Feldhusen, J. VanTassel-Baska, & K. Seeley (Eds.), *Excellence in educating the gifted.* Denver: Love.

Silverman, L. K. (1991). Family counseling. In N. Colangelo & G.A. Davis (Eds.), *Handbook of gifted education.* Needham Heights, MA: Allyn & Bacon.

Silverman, L. K. (1993). The gifted individual. In L. K. Silverman (Ed.), *Counseling the gifted and talented.* Denver: Love.

Snyder, C.R. (1994). *The psychology of hope: You can get there from here.* New York: Free Press.

Sternberg, R. J. (1995). *A triarchic approach to giftedness.* Storrs, CT: National Research Center on the Gifted and Talented.

Terman, L. M., & Oden, M. H. (1947). *Genetic studies of genius: Vol. 4. The gifted child grows up.* Stanford, CA: Stanford University Press.

Torrance, E. P. (1966). *Torrance tests of creative thinking.* Bensenville, IL: Scholastic Testing Service.

Torrance, E. P. (1976, October). *Career education of the gifted and talented: Images of the future.* Paper presented at the Western Symposium on Learning, Bellingham, WA.

Torrance, E. P., & Reynolds, C. R. (1979). Images of the future of gifted adolescents: Effects of alienation and specialized cerebral functioning. In J. Gowan, J. Khatena, & E.P. Torrance (Eds.), *Educating the ablest.* New York: Peacock.

Torrance, E. P., & Torrance, J. P. (1978). The 1977-78 future problem solving program: Interscholastic competition and curriculum project. *Journal of Creative Behavior, 12,* 87-89.

Vaughn, V., Feldhusen, J., & Asher, J. (1991). Meta-analysis and review of research on pull-out programs in gifted education. *Gifted Child Quarterly, 35(2),* 92-98.

Wechsler, D. (1974). *The Wechsler intelligence scale for children - revised.* New York: The Psychological Corporation.

Whitmore, J. R. (1980). *Giftedness, conflict, and underachievement.* Boston: Allyn & Bacon.

Whitmore, J. R. (1988). Gifted children at risk for learning difficulties. *Teaching Exceptional Children, 20(4),* 10-14.

Ziv, A., Rimon, J., & Doni, M. (1977). Parental perception and self-concept of gifted and average underachievers. *Perceptual and Motor Skills, 44,* 563-568.

Academic Coaching for the Gifted Learner

Stuart Dansinger EdS

Licensed Psychologist
Minneapolis, MN

In the past 35 years I have worked as a psychologist with hundreds of gifted children providing psychological evaluations, program planning, school conferencing, parent consultation, and counseling. In the course of evaluating these hundreds of cases, I discovered that two primary problems continue to linger long after the services are provided according to parental feedback: 1) difficulties parents have working with the school(s); and 2) gifted children not performing up to full potential. The second problem, under-performance, has been difficult because of the multiple causes and variables that account for the problems. Research reported by Williams (1999) has shown benefits of coaching in increasing performance and productivity in various work settings. Therefore, it is felt that coaches in an academic setting will also be able to aid gifted students, particularly those considered twice exceptional, to increase their performance, productivity, and other learning skills.

To help approach the problem of the under-performing gifted student, parents should consider obtaining an academic coach. This would be comparable to serious athletes seeking out coaches to improve their skills and talents. Successful coaches motivate their players into top physical shape, fine tune their skills required of the sport, and also work on mental strategies of the game or sport. A player learns how to get motivated for a game and how to use positive mental imagery to increase performance (Shapiro, 1999).

School personnel are beginning to see the value of coaching for academic success. Students from elementary school through college show the disabling outcomes of poor academic performance in future vocations and daily living activities. Poor academic performance can also lead to social and emotional problems. Parents and educators argue that each other holds this responsibility to provide the structure for academic success. However, since neither parents nor school personnel have the time or resources to meet the needs of under-performing students, this would be an opportunity for an academic coach to provide these needs. The value of academic coaching is that the focus is on the student. Coaching can provides the skills, support, and training to enable students to take over responsibility for their own learning.

Gifted students are particularly well suited for academic coaching given their high potential and likelihood of success. However, the gifted student need not be "twice exceptional" or performing below ability to benefit from academic coaching. Highly motivated and serious students also benefit greatly from academic coaching to help them learn even more and take their performance to the next higher level. Elementary students will learn more from curriculum compacting and subject acceleration, and may show more benefit from grade skipping, concurrent enrollment, and mentorships. Secondary students may test out of basic courses so they can take more electives, including advanced placement courses. High school students looking for early admission to college or toward admission to a prestigious college benefit from coaching. College students entering highly competitive fields may have a competitive edge using a coach in gaining admission to difficult graduate school programs. Even adult learners returning to school after a long absence can use a coach to regain their academic skill. (Shapiro, 1999).

At the same time a gifted student who also may have an educational handicap such as a learning disability, AD/HD, or various social and/or emotional problems will benefit greatly from academic coaching. These students, sometimes called "twice exceptional" rarely get their needs met in school (Dansinger, 1999, 1998). Their full array of needs is often overlooked at school and, even if identified, is not usually serviced in all areas. Academic coaching will help the gifted child in any of the handicapping areas as well as in the areas in need of acceleration.

The coaching process involves a number of procedures regardless of the needs of the gifted student. First, the coach should have the student's assessment data such as intellectual ability, academic skills, social and emotional status, learning styles, and information about other needs and abilities. Next, the coach should determine the student's ability to benefit from coaching. For those students who may be showing a psychological disorder, a referral for mental health services would be more appropriate than coaching. There may be situations in which mental health services and academic coaching can be used together in the treatment plan. Thirdly, the student should have enough motivation or desire to put forth effort to improve his or her academic performance. The next step would be to obtain further information about various academic strengths and weaknesses such as study skills, preference for independent mastery and challenging tasks, and creative thinking. Finally, an action plan should be developed to teach techniques needed to improve academic performance. These skills or characteristics may include:

- Organizational and study
- Test preparation and test taking
- Achievement motivation and commitment to learning
- Anxiety management for test taking
- Time management and scheduling
- Goal setting and career planning
- Note taking
- Risk taking and perfectionism reduction
- Assertiveness training, advocacy, and communication skills
- Self esteem and confidence building
- Attention to task and work completion
- Problem solving and conflict resolution
- Peer relations and relating with other gifted friends
- Coping with frustration and expression of feelings
- Social competence and maturity
- Transferring learning into daily practice
- Accepting a preference for a challenge, intellectual curiosity, and independent mastery without teacher dependency
- Self directed learning and good work ethics
- Creative thinking and leadership
- Developing effective learning styles
- Awareness of various classroom settings
- Learning the culture and process of the classroom
- Advocating for and facilitating change
- Recognizing non rational behavior
- Building feelings of mastery
- Finding meaning, self-actualization, and greater balance in life

The addition of these skills and techniques as well as the teaching and support of a personal mentor serves as a potent enhancement for change. Support, monitoring of progress, and accountability along with a personal interest in their success, provides most gifted students with the reinforcement needed to improve their academic performance. Furthermore, twice exceptional gifted students with academic coaching, are not only likely to enhance their academic performance, but, may also learn to live their life to the fullest. Through coaching, these individuals are better able to discover their true gifts as a person and a leader (Williams, 1999). They are able to identify and practice their life purposes, values, and goals in their daily living activities and relationships. Research

reported by Williams (1999) compared training alone verses coaching and training. Training alone was found to increase productivity by 22.4%, while training and coaching increase productivity by 88%.

To illustrate the academic coaching experience with twice exceptional gifted students I have presented two case studies as examples:

An 11 ½-year-old boy, highly gifted intellectually and academically was taking several high school classes. His teachers were concerned about his irritation and rejection of classmates, inability to consistently follow directions and complete tasks, talking out of turn, being uncooperative with teachers, and having exaggerated feelings of anger and anxiety. With the approval of parents and school personnel, I met with this boy at his school. I held five sessions ranging from one to two hours per session over a two-month period of time. His mother was also present in three sessions and his high school counselor was present in one session. His classroom teachers were not present but I did talk with them before or after the sessions and they were aware of the plan and did monitor his progress. The boy was told about his teachers' concerns and was motivated to solve his problems. We worked on social skills such as showing respect, cooperating, following classroom rules, ignoring teasing, valuing classmates' comments, and not making noises during class discussions. We also worked on setting up a study schedule, taking notes in class, listening to classroom discussions, completing assignments on time, and talking positively with peers and staff. The boy and his mother were better able to discuss his angry and anxious feelings. I taught him relaxation exercises, visual and auditory imaging, how to study and take certain kinds of tests, better communication skills, better self control skills to counter impulsive behavior and to monitor his behavior. He would sometimes e-mail his progress and his teachers and parents would telephone me about his improvements. At the end of two months teachers agreed he was a more serious student, more cooperative, less acting out, and more positive in peer and adult relationships. He also felt he was a better learner.

In another case, I worked with a 7-year-old girl, gifted intellectually and academically, who was home schooled. Her mother/teacher was concerned about the girl's unhappiness about her younger brother surpassing her in some skill areas, not enjoying school work, feeling lonely and "bored", and complaining of trouble sleeping and of stomach aches. I performed an intellectual, academic and personality assessment and presented a coaching plan to the mother outlining specific goals and objectives, the ways I would coach her and how we would monitor her progress. Over a six-week period I met with the girl and her mother separately for 1 hour each for three sessions at their

home. We determined how the girl could be happier with family members, learning, and to formulate peer friendships. Our specific focus included commitment to learning, time management and scheduling, goal setting, assertiveness training, conflict resolution, peer and sibling relationships, self-directed learning, and building feelings of mastery. I discussed teaching these techniques directly with the mother including how she could teach them to her daughter by role-playing. The parents also learned better communication, teaching, and parent management skills. As a result, parents were better able to meet their daughter's needs and she became a happier and a better learner.

In these examples I, as a psychologist, served as the academic coach. However, coaches may come from a variety of backgrounds and training. Who makes a good coach? Originally, coaches came from athletics, the arts, and the corporate world. Surprisingly, only 15% of coaches are trained as psychologists even though psychologists' training, skills, and experience give a decided edge on being an effective coach, because they are experts at facilitating behavior change, listening, encouraging, empathizing, being non-judgmental and objective, and respecting confidentiality (Shapiro, 1999). The school psychologist who has already been trained in education, assessment, program planning and other services with exceptional children can be particularly creative and effective with the gifted learner. These characteristics would be true of many gifted consultants and some academic tutors who also would be well suited for academic coaching.
Academic coaching is more flexible and less restricted than psychotherapy and is also better accepted by society. The coaching can even be done by e-mail, fax, or phone as well as in person. Coaching is directed toward health and purposeful living, not problems in living and pathology. Obtaining services of a personal coach is a major shift in how an individual seeks help from a trained helper who can listen and assist him/her in desired changes in his/her life. For gifted students, it would be beneficial for all of society to improve their current academic performance as well their life satisfaction.

Although schools spend a great deal for athletic coaches and special education services they do not have the funds for extensive coaching of gifted learners. At the same time, not all parents can afford to hire a coach even though it may be a very good investment. Various parenting and personal finance articles indicate the huge amount of money needed to raise each child and much of that goes toward their learning and education. However, many parents have not allocated a budget for coaching and the economic reality is that they may not be able to pay for these services. If parents cannot afford coaching services, the child is not eligible for special education or 504 services that includes coaching, or the school staff is unavailable for coaching, the gifted child will go

without in spite of the ideal that all gifted children should have equal access to services. Generally, health insurance would not cover academic coaching. However, depending on the nature and extent of the handicapping condition, health insurance may cover some services and some conditions with an ICD9CM or DSM-4 diagnosis by a licensed professional that affects the twice exceptional gifted child's learning. If this is the case, 504 classroom modifications and adaptations would apply and should be implemented. Parents of twice exceptional gifted children should be familiar with possibilities for potential insurance coverage and for 504 eligibility and programming. Parents should also be aware of school personnel who maybe available and effective as an academic coach.

References

Dansinger S.S. (1998) Integrating gifted and special education services in the schools. *Gifted Child Today*, (May-June), 38-41

Dansinger, S.S. (1999) School practices that hinder gifted learners. *MCGT News*, (July-Aug) 5-7,11.

Shapiro, R. (1999) Academic coaching. *The Independent Practitioner*, (Summer), 132-134.

Williams, P. (1999) The therapist as personal coach: reclaiming your soul. *The Independent Practitioner*, (Fall), 204-207

Teaching Gifted Students with Asperger's Syndrome

Maureen Neihart, PsyD

> We thought Adam hugged the children in school and on the playground because he came from a loving, affectionate family. We thought he wandered the periphery of the classroom and preferred the company of his teachers over the other children because he was so bright and needed the stimulation. We thought his inability to focus and pay attention was due to his daydreams about future inventions and discoveries. What we didn't realize was that Adam didn't know how to connect with other children. He was content being a spectator rather than a participant (Shery, 2000, p. 444).

Asperger's Syndrome (AS) is a developmental disorder included in the DSM-IV (APA, 1994) under the umbrella of pervasive developmental disorders, or autism spectrum disorders. The syndrome is characterized by severe deficits in social communication and restricted patterns of interests and behaviors. Similarities in the behaviors of Asperger children and gifted children suggest that the disorder might not be identified in some gifted children whose unusual behaviors are attributed to their advanced cognitive functioning and heightened responsivity (Cash, 1999a,1999b, Neihart, 2000).

Little information was available about the disorder or its treatment until after 1993 (Klin & Volkmar, 1995). As a result, parents often found themselves trying to help children with a disorder that few people knew much about, much less what to do about it. Fortunately, research and clinical practice during the last five years have greatly increased our understanding about the disorder, though there remains much to be learned, and we know much more about helpful instructional and behavior management strategies.

As is the case with other exceptionalities, gifted children with Asperger's Syndrome are sometimes forced to choose between addressing the concerns of one exceptionality over another, but this is occurring less and less as thoughtful teachers and informed parents collaborate to create environments and programming that supports the child's individual profile of abilities. The aim of this chapter is to describe instructional and behavioral management strategies that can help realize the full potential of gifted children with Asperger's Syndrome (AS). Specifically, the focus is on three areas of concern: sensory sensitivity, social skills, and coping with change.

Asperger's Syndrome and Giftedness

Diagnostic criteria for the syndrome are specific and limited, (see Table 1), but clinical descriptions of AS children are broader. Asperger children are often described as having circumscribed interests, pedantic and monotonic speech, poor social communication (including poor eye contact), little emotional understanding, and motor deficits (Asperger, 1991; Frith, 1991; Szatmari, Barolucci & Bremener, 1989; Wing, 1981; Wing & Gould, 1979). Prevalence estimates are changing as more is learned about the disorder, and range from 3 to 7 per 1000 (Ehlers & Gillberg, 1993).

Table 1

The American Psychological Association's (1994) Diagnostic Criteria for 299.80 Asperger's Disorder

A. Qualitative impairment in social interaction, as manifested by at least two of the following:
   (1) 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
   (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 sharing, 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 for 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 delay in 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 social interaction), curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

Although no controlled studies are yet available to confirm or dispute the similarities and differences between gifted children and Asperger children, clinical experience (Neihart, 2000) and a review of the shared literature suggest that some Asperger children share at least seven characteristics with gifted children. These characteristics are listed in Table 2.

Table 2
Proposed Shared Characteristics of Asperger and Gifted Children

Verbal fluency and precocity
Excellent memories for factual information
Broad knowledge base at an early age
An absorbing interest in a specific topic
Talk excessively and may annoy others with their endless questions and commentary
Hypersensitivity to sensory stimuli
Range of abilities with developmental asynchrony

These similarities may contribute to over and under-diagnosis of Asperger's Syndrome in gifted children (Cash, 1999a, 1999b; Neihart, 2000). Parents and professionals may either mistakenly attribute to giftedness what is more appropriately attributable to Asperger's or, unfamiliar with the range of typical behaviors for gifted children, they may pathologize behaviors that deviate from the norm for average children. Current studies have not yet determined guidelines for differentiating Asperger symptoms from characteristics of gifted children, but this author has suggested (Neihart, 2000) that there are at least eight ways that AS symptoms can be differentiated from the typical behaviors of gifted children.

The three most obvious differentiating characteristics are speech patterns, self-awareness, and response to routine disruption. Asperger children display odd speech that is not characteristic of typical gifted children. AS children are pedantic, and mix personal with factual information (Frith, 1991). They have great difficulty with the gave and take of normal conversation, and often violate speech boundaries by interrupting, failing to respond, or lecturing excessively. They often have trouble stopping themselves once they start talking. The verbosity of gifted children may annoy others at times, and young gifted children in particular may interrupt or persist in talking on a topic others have lost interest in, but the degree to which they do this is less than of a child with Asperger's, and they are aware that others are surprised or irritated by these violations.

There is an enormous difference in the case with which a typical gifted child and an Asperger's child will experience insight and awareness. As a result of their advanced cognitive abilities, gifted children often demonstrate an awareness of self and others that is more advanced than that of their same-age peers (Gross, 1993; Janos & Robinson, 1985; Silverman, 1993). Even at relatively young ages gifted children are aware that they are different from other children their age, and they seek friendships with older children who mirror their abilities and interests (Gross, 1993; Silverman, 1993). In contrast, AS children are remarkably unaware of how others view them and typically initiate few social contacts with peers, even when they desire friendships, and they are often oblivious to the feelings and opinions of others (Dewey, 1991, 1992; Grandin, 1992; Schopler & Mesibov, 1992; Wing, 1981).

Although gifted children may resist disruptions in routine, or express frustration when expected to shift from an activity in which they are absorbed, they do not manifest the degree of difficulty Asperger children have with minor changes. AS children frequently demonstrate a rigidity in thought and behavior that is puzzling and problematic both at home and at school (Atwood, 1998; Willey, 1999; Wallace, 2000).

In addition to these three primary differences, gifted children with the disorder may differ from those without in five other ways: sense of humor, disturbance of attention, affective expression, motor clumsiness, and stereotyping. Gifted children with and without the disorder often have a more sophisticated sense of humor than age mates, but AS children will tend to focus more on word play and have trouble with reciprocal humor like practical jokes (Atwood, 1998; Grandin, 1992; Van Bourgondien & Mesibov, 1987). Disturbance of attention often has an internal source for Asperger children (Asperger, 1991; Grandin, 1992) whereas children without the disorder are bothered by external conditions, if they have problems with attention at all. The affective expression of AS children is odd. It is common for them to have trouble identifying and expressing feeling states, and their mood may seem to not fit the situation. Some AS children exhibit a very flat expression, and come across as though they have little feeling, but that is not true; they just have a lot of trouble communicating internal affective states (Atwood, 1998). Gifted children, on the other hand, do not have this level of difficulty with their emotional expression, and in fact often display a level of insight, understanding, and expression regarding emotional life that seems way beyond their years (Silverman, 1993). Finally, about 50% of Asperger children have difficulties with motor coordination and they all manifest some kind of stereotyping (APA, 1994; Smith, 2000). Although some gifted children may exhibit motor deficits, motor clumsiness and stereotyping is not characteristic of them as a group.

Assessment

Asperger's Syndrome in gifted children is most effectively evaluated by a multidisciplinary team that includes at least one professional who is familiar with the normal range of behaviors in gifted children. Assessment includes a developmental and family history, a semi-structured interview with the child and his or her parents, and testing that clarifies the child's cognitive abilities and personality style. The purpose of the assessment is to delineate the individual child's unique profile of strengths and weaknesses and generate a plan that recommends interventions and supports that will facilitate the child's optimal social functioning and educational achievement (Atwood, 1998; Klin, Sparrow, Marans, Carter, & Volkmar, 2000).

During the interview and testing, observers assess the child's abilities with regard to motor planning, social communication, and social problem solving. The accurate diagnosis of Asperger's Syndrome is challenged by the fact that the disorder shares phenomenological aspects with other conditions (Bishop, 2000; Cash, 1999a; Ozonoff, Rogers, & Pennington, 1992; Rourke, 2000; Schopler, 1985; Wolff, 2000). Schizoid personality, autism, pervasive developmental disorder not otherwise specified (PDD-NOS), and nonverbal language disabilities (NLD), must be ruled out. Accurate diagnosis is important because children with these conditions have different treatment needs and a different prognosis (Tsai, 1992; Klin, Sparrow, & Volkmar, 2000).

For instance, children with schizoid personality features often have an unusual style of social communication, rigid thoughts and habits, and tend to be socially isolated (Tantum, 1988; Wolff, 2000). They seem to lack empathy and appear emotionally detached. Unlike AS children, however, schizoid children don't have difficulty with reciprocal social communication and they don't demonstrate the restrictive, repetitive, stereotyped patterns of behavior.

Asperger's syndrome is distinguished from autism by the early development of speech and later onset of developmental difficulties (APA, 1994). Pervasive Developmental Disorder Not Otherwise Specified is the diagnosis of last resort when children manifest some of the features of an autism spectrum disorder and experience significant impairment in their day to day functioning, but fail to meet the diagnostic criteria for any one disorder (APA, 1994; Martin, Patzer, & Volkmar, 2000).

Person's with nonverbal learning disabilities can manifest all the characteristics of Asperger's Syndrome (Klin, Volkmar, Sparrow, Cicchetti, & Rourke, 1995; Rourke, 1989;

Rourke & Tsatsanis, 2000). They typically have deficits in tactile perception, psychomotor coordination, nonverbal problem-solving, visual-spatial organization, and appreciation of humor. NLD persons also tend to have well-developed verbal memory and verbal abilities with an over reliance on these abilities to handle novel and complex situations. In addition, NLD persons, like AS individuals, tend to have weaker arithmetic competencies relative to their verbal abilities, poor pragmatics and prosody in speech, and significant difficulties with social perception and social interaction. They miss nonverbal aspects of communication, often resulting in their social rejection. As a result, NLD individuals tend toward social withdrawal, and have a higher risk for mood disorders. Nonverbal learning disabilities can be very difficult to distinguish from Asperger's Syndrome, though the absence of restrictive and repetitive, stereotyped behaviors would rule out the latter.

Following a thorough assessment, the plan for teaching gifted children with Asperger's Syndrome begins with general information and support. Many, but not all, parents express some relief upon hearing that there is a name for what they have been struggling to understand in their child. Fortunately, there are increasing resources available online and in print to assist parents, educators, and students, but it remains difficult to find professionals with the information and skills needed to implement the recommendations (Klin & Volkmar, 2000).

Sensory overload, social demand, and changes in routine are the three areas that tend to challenge gifted students with Asperger's Syndrome the most.

Managing Sensitivity and Intensity: Sensory Integration

Gifted children with Asperger's Syndrome have trouble with sensory integration (Atwood, 1998; Frith, 1991; Klin, Volkmar, & Sparrow, 2000), which is the process of receiving, organizing, and regulating sensory information in the brain (Ayres, 1979). Sensory information comes from internal sources as well as external. In addition to the five far senses of touch, hearing, sight, smell, and taste, there are also three hidden senses: vestibular, tactile, and proprioreceptive (Kranowitz, 1998). Most of the time our sensory integration functions automatically and efficiently, screening out irrelevant information and modulating other information as needed; we don't even think about it. Children with Asperger's Syndrome and some ordinary gifted children have sensory integration difficulties (Silverman, 1993). They receive too much or too little sensory information and as a result may feel over- or under-stimulated in some environments.

Sensory systems mature in stages as people develop, and most children are able to adapt to changing environments and modulate their arousal with minimal adult support by the

time they enter school. Their nervous systems automatically inhibit useless sensory input so that they don't have to attend to every sensation, and their bodies make connections between sensory input and behavioral reactions without their thinking about it. As a result, most primary school children are able to make easy transitions from one mood or movement to the next. They can stop a relaxing activity like reading and increase their alertness to circle up for a group sing-a-long, for example. They can ignore the cold or the itch of their wool hat long enough to build a snow fort with their friends.

When sensations are well-organized, people feel safe and secure and are able to attend well. When sensations are not well-organized, people may be distracted and upset by internal or external stimuli, and engage in behaviors that are designed to control their level of stimulation. They react to this stimulation with behaviors that are perplexing to those who don't understand what is going on (Kranowitz, 1998, Tupper, 1999). Sensory integration problems contribute to the gifted AS student's difficulties with attention, impulse control, mood regulation, and motor coordination.

Gifted students with Asperger's Syndrome often have great difficulty with everyday functioning. Since they do not feel safe and secure in some environments, they become easily upset, and once upset, they have trouble recovering. Since they often feel out-of-control, control can become a major issue for these students.

Sensory integration difficulties are manifested in a great variety of ways, depending on the sensory system most involved. Some gifted AS children, for example, are stimulation seekers. They are hyperactive, always on the go, and feel a strong urge to move in order to remain engaged cognitively (Kranowitz, 1998, Tupper, 1999). In the absence of a good developmental evaluation, they may be misdiagnosed with ADHD or their restlessness may be attributed to "psychomotor intensity". These children often manifest some kind of repetitive behavior such as rocking, twisting, flapping, tapping, twirling, spinning, or shaking. These movements may be obvious or very subtle. Sometimes these children are intrusive, violating the space of other children and hitting or pushing. They may literally bounce off the walls, bumping into chairs, doors, and desks, climbing up and jumping down from high places. They may also assume distracting postures in the classroom - lying on the floor, leaning way back over their chairs, and hanging upside down.

Other children may have trouble getting started, or feel nausea from simple movements that other children tolerate or enjoy. These children demonstrate an unusually high level of anxiety in reaction to the possibility of falling. For instance, they may refuse to walk on certain kinds of outdoor surfaces, or decline to participate in new experiences (like

going to camp), and insist on staying at home because it is familiar to them. If they are more inclined to aggression than to anxiety, they may be viewed by others as controlling, manipulative, demanding, or rigid.

Sensory integration therapy helps the child develop his or her nervous system. In such therapy, the child engages in stimulation exercises that are designed specifically to improve his or her ability to inhibit and discriminate a particular sensory stimulation, and to improve the synchronicity of the sensory and motor systems. For example, a child with vestibular defensiveness may play simple games that involve rolling, sliding, swinging, or twirling. A child with tactile defensiveness may "paint" with shaving cream, or brush his arms and legs (Ayres, 1979; Kranowtiz, 1995; 1998;Tupper, 1999) Therapy is also where children and their parents learn techniques for self-soothing and calming, like deep pressure holds or rubs, and joint compressions (e.g. squeezing knee joints together briefly). Sensory integration problems should not be ignored because in the long run, they can compound an AS child's social problems. The child's resistance to new experiences, his or her inflexibility, and inability to cope with change complicates socializing.

Social Skills training

Children with Asperger's Syndrome have great difficulty with social communication, but they can improve their social skills with training. The training must take into consideration their unique learning modes, however. it is usually of little benefit to explain to a gifted AS student what he or she needs to change. Teachers who don't understand what is going on may wonder, "How can a child so bright fail to understand the simplest social behaviors?" Or, the bizarre behavior of a gifted child with Asperger's syndrome may reinforce some teacher's misguided assumptions that gifted students are social misfits, "Some kids are just too smart for their own good." Worse, people may assume the child is manipulative, or is using his intelligence to find creative ways to be oppositional and create havoc in the classroom.

In spite of their intellect and creative powers, gifted children with Asperger's Syndrome have a profound lack of awareness about expectations for social behavior. They may care very deeply about matters of fairness, but have great difficulty spontaneously tuning in to the needs and feelings of those around them. They are surprisingly unaware about how to interpret and respond to social cues, and even when they can verbalize what is appropriate, they are unable to translate that knowledge into action (Atwood, 1998; Klin, Volkmar, & Sparrow, 2000; Mesibov, 1984). Even when they are aware, their deficits in communication and motor planning may keep them from responding appropriately. As

a result, adults and peers may view them as uncaring, callous, tactless, or even cruel. Nothing could be further from the truth.

The essential principle to remember is that most AS students are strong visual thinkers and need to see, rather than hear, what it is that you want them to do. For this reason, the use of video, mirrors, digital cameras, and comic strip conversations is recommended. AS children need an active, direct and structured approach (Klin & Volkmar, 1995; Mesibov, 1992; Myles & Southwick, 1999) They need to look, identify, and repeat. In this fashion, gifted AS children can learn to recognize feeling states in others and label their own feelings accurately. They can work to improve the match between their facial expression, intonation, and body language with their feeling states. They can improve the accuracy of their interpretations of others' emotions and nonverbal language. They can develop social problem solving skills. Adam's mother notes her son's progress in social skills (Shery, 2000, p. 447):

> Adam still has difficulty with social situations, but he has made great progress. The boys in the social skills group he has attended for the past 2 years have become his good friends. Last year, on a flight home from Disney World, Adam was seated next to a boy he didn't know. As the plane took off, I could hear Adam making conversation with the youngster. 'Hi, my name is Adam. What's your name?' and then 'Nice to meet you, Tommy. I'm in fifth grade, what grade are you in?' and then 'You're also in fifth grade? What's your favorite subject?' I smiled to myself. No one but Adam and I knew that this was a well-rehearsed script that he had learned in his group. To anyone listening, it sounded completely natural and spontaneous. They couldn't have known how proud I was of him.

Carol Gray's (1994, 1999, 2000) social stories and comic strip conversations are widely recommended for improving the social understanding and social behavior of children with autism spectrum disorders. Although no studies have yet examined the effectiveness of these interventions with gifted AS students, it seems reasonable to conclude that gifted children with exceptional visual-spatial or verbal abilities will not only learn to use these techniques quickly and easily, but may approach the task as a creative challenge and may enjoy writing many humorous stories and conversations for a wide variety of situations.

Social stories are short, first person narratives of about 5-8 sentences that teach cues and behaviors for a specific social situation that is a challenge for the student. The stories

include four kinds of sentences: descriptive, perspective, directive, and control. They describe who, what, when, and where (descriptive), the feelings and behaviors of others in the situation (perspective), what the child is expected to do (directive), and a strategy the child can use to remember the expected behavior (control). A ratio of one directive or control sentence for every 2 to 5 descriptive or perspective sentences is recommended.

A mother described by Gray (1999, p. 6) relates how her daughter makes use of social stories to handle stressful social situations:

> My daughter uses a kind of 'social stories' process to talk her way through difficult situations. She draws or has someone else draw situations that have been confusing or distressing to her. We have learned to not only draw the disturbing situation she requests, but also to draw the sequence of events that leads to an appropriate conclusion of the situation.

Comic strip conversations (1994, 1999) are an approach to conversing with drawings that capitalize on the Asperger's child's strong visual thinking. The technique uses stick figures, simple symbols, and color keys to display a social interaction. Eight symbols and seven colors are used to visually represent what people say and think, and to represent abstract conversational concepts, like interrupting. Table 3 explains the color codes as described by Carol Gray (1999). Comic strip conversations provide insight into the AS student's perspective on social situations, helps them to learn to identify feeling states in themselves and others, and identify strategies for resolving social problems.

Table 3

Carol Gray's (1999) Color Guide for Comic Strip Conversations

Green:	Good ideas, happy, friendly
Red:	Bad ideas, teasing, anger, unfriendly
Blue:	Sad, uncomfortable
Purple:	Proud
Yellow:	Frightened
Black:	Facts, things that we know
Orange:	Questions
Color Combinations:	Confused

Visual supports and assistive technology are widely recommended to help Asperger students predict and respond appropriately to common sequences and routine change (Atwood, 1998; Freeman & Dake, 1996; Hogdon, 1995, 1996; Tupper, 1999). Assistive

technology refers to the use of computer based resources designed to aide individuals with disabilities (Lewis, 1998). Software is available to help clarify schedules and routinize and organize common tasks and assignments. Communicating via email is an easier means for Asperger students to initiate social contacts and its use can promote independence and initiative (Klin & Volkmar, 2000).

Visual supports refers to the use of pictograms, figurative symbols, and visual verbal cues to help children remember sequences for common tasks. Software is available to help families and school personnel create infinite, personal combinations for any situation, or individuals can create their own. Visual supports may be as simple as a vertical Velcro strip that visually depicts what steps a student is to take when the bell rings, or as complex as a matrix of visually depicted sequences for complex learning activities. Parents and teachers may be surprised to see a dramatic decrease in the aggressive or anxious behavior of a child when visual supports are introduced. Often, if AS students can see what is expected, they can do it.

Placement Decisions

A common problem for gifted children with Asperger's Syndrome is that the classes for gifted students have even more social complexity than that of the regular classroom. The student, his or her family, and school personnel may wonder, is it better to remain in the regular classroom where the student feels safer and more secure (and hence be less anxious or aggressive), but not be adequately challenged, or are the child's needs better met by participating in the gifted program with increased supports to address his or her social and emotional needs? This often becomes a major issue when preparing for transitions to middle or high school because these increased supports are often essential if the student is to succeed in the gifted program (Adreon & Stella, 2000; Barber, 1996; Reitschel, 2000; Shery, 2000; Wallace, 2000).

Sometimes gifted AS children do very well in elementary school with minimal assistance, and their parents and teachers may avoid seeking an evaluation or special education services because the child seems to be able to cope. It's not unusual for gifted children with the disorder to be diagnosed as late as adolescence or young adulthood because they've been able to compensate fairly well, or because their teachers and parents have been willing and able to accommodate their "eccentricity". As a result, there may be a reluctance to suddenly utilize special education services in middle or high school because to do so seems a regressive step.

However, the majority of gifted AS students will need significant emotional and social supports to be successful in middle school or high school because the level of support that is effective in elementary school is usually not sufficient for continued success at the secondary level; the social milieu is simply too complex. Increased supports will also be necessary to ensure optimal functioning in the school's gifted program or accelerated classes. Teachers and parents must be proactive in planning for these transitions. Without preplanning and increasing support, even gifted AS students who did very well in elementary school are likely to deteriorate behaviorally, emotionally, and academically at home and/or at school following the transition. "Once the student's difficulties increase, a great deal of effort is often required to stabilize the situation, with significant increases in the amount of supports being needed in order to do so." (Adreon & Stella, 2000, p. 1). Some of the challenges a gifted AS student may face in high school are described in this parent's personal account (Reitschel, 2000, p. 451).

> We had to be ever vigilant mainly in situations that had to do with group work or very nonstructured learning assignments. I became very adept at cross referencing AS symptoms to certain academic occurrences. To be taken seriously, I had to have the published articles that related to whatever assignment had proven impossible for him. The rigidity of AS also becomes problematic when a student is asked to write a paper on something that is a known failure (e.g. he would not 'waste his time' writing a paper on the League of Nations). He would not write papers dealing with science fiction or fantasy because these things could not possibly have happened.

Other Recommendations

Many writers have described strategies that are believed to be effective in working with the unusual behaviors of gifted children with Asperger's Syndrome (Atwood, 1998; Bissell, Fisher, Owens, & Polcyn, 1988; Cumine, Leach & Stevenson, 1997; Freeman & Dake, 1996; Klin & Volkmar, 2000; Kranowitz, 1995; 1998; Kurcinka, 1991; Wilbarger & Wilbarger, 1991), and many resources are now available for those who wish to learn more about effective strategies for teaching and nurturing children with Asperger's Syndrome (Adreon & Stella, 2000; Gray, 1993, 1994, 1999a, 1999b; Hogdon, 1995, 1996). A summary of some of the most common recommendations follows.

Most importantly, establish an agreed upon "I need help" code the student can use with all adults at school. When school personnel see the code, they know to provide the student with a means of de-stressing by going with the student to a quiet area where he or she can use his or her preferred calming strategies (e.g. listening to music for a few

minutes, having a back massage, doing joint compressions, etc.). All staff who will have contact with the student should be able to demonstrate the plan that is to be followed when there are behavioral problems. Before school starts and occasionally throughout the school year, have the student practice having a problem and using the agreed upon "I need help" signal.

Have the student evaluated by an occupational therapist trained in sensory integration therapy, and determine the nature and severity of the student's sensory integration difficulties. Then keep available in the classroom items that help that child avert sensory overload: sunglasses, earplugs, a weighted vest, aromatherapy lotion, squeeze balls, etc. Remember that special events like holidays, theme weeks, and field trips are very stressful for AS students because they involve disruptions in routine and increased and unpredictable sensory stimulation. Plan ahead and allow students extra options for reducing sensory overload. Schedule in downtime to reduce high arousal states (often about every two hours for the elementary student).

AS students have trouble with unexpected changes in routine. They will probably have a lot difficulty adjusting to gifted pull-out if the schedule and types of activities change every week. Since they don't follow auditory directions well, unexpected changes are often a significant stressor and can cause meltdowns. Fire drills, substitute teachers, special assemblies, and any other changes in schedule will increase their anxiety. Having a buddy system in place for these less common situations can facilitate smooth transitions (Kranowitz, 1998). Write social scripts ahead of time for upcoming new situations like competing in a spelling bee, visiting a college campus, or meeting a new mentor.

Some gifted AS students may do fine in a regular classroom situation, but have considerable difficulty with nonclassroom times like recess, the bus, lunch, PE, the bathroom, and before and after school. The social demands of these situations are more complex and sensory stimuli is increased, augmenting the chances that the student will behave inappropriately. Arrange for an escort, increased supervision, or options to be elsewhere at these times. Make sure that all necessary adaptations are listed in the child's IEP or 504 plan, including lunch, bathrooms, recess, bus, etc.

It is crucial that AS students be introduced to learning groups early, no later than upper elementary school, so they have ample opportunity to learn effective coping skills before they enter the more complicated social milieu of secondary school. When students are working in groups, be sure that AS students are placed with a supportive group of peers, or have at least one peer who is sensitive to their needs and willing to assist them. Allow AS students to work with the same group or team all year so that they will be more likely

to take intellectual and social risks. Never tolerate any teasing or bullying, and take steps to reduce the chances of the student being victimized: e.g. preferential seating, supervision at specified times, alternative placements for lunch or breaks, use of an escort, or different times for moving from one place to another. Use a buddy system,teaming the student with a sensitive gifted peer to increase the AS student's sense of safety and security.

Post Secondary Planning

Like other twice-exceptional students, gifted students with Asperger's Syndrome will require advance planning time and assistance to locate post secondary options that provide support for students with social disabilities. While assistive technology is available at many colleges now, only a few of them offer supports like "quiet dorms". Requesting a private room is an option. If the high school student is seeing a therapist, it is a good idea to get the names of counselors who are knowledgeable about the disorder at the college counseling center or at a nearby mental health center. Similarly, other specialists whom the student is meeting with regularly (psychiatrists, occupational therapists, speech and language specialists, etc.) should be consulted to determine what supports will need to be in place to maximize chances for success in college (Mangrum, Strichart, & Latimer, 1997; Rietschel, 2000; Sclafani & Lynch, 2000; Schissel, 1999). Gifted AS students will have little trouble with the academic aspects of college life. Time management, organizational skills, and relationships with faculty and peers are likely to be the issues that will challenge them.

As with other transitions, the gifted high school student with Asperger's Syndrome will benefit a great deal by practicing going to college in small steps. Participation in summer residential programs with good emotional supports is beneficial, provided the student has a thorough understanding of Asperger's disorder and has a demonstrated ability to self-advocate. Attending a community college closer to home during the first year or two may be a useful intermediate step, provided an appropriate level of academic challenge is available. Certainly, a visit to the college the student selects is essential prior to enrollment. This is a time to visit with college personnel (especially the disability coordinator at state institutions and the dean of students at private schools), and to communicate the student's specific concerns and needs. Schissel (1999) recommends bringing along a brief written explanation of Asperger's syndrome and of the student's personal learning profile.

Conclusion

Gifted students with Asperger's Syndrome have serious social communication deficits that may compromise their high achievement if they do not receive accurate diagnosis and appropriate supports. The most common difficulties they face are sensory overload, coping with routine change, and poor speech pragmatics. Although there are few controlled clinical studies to confirm the effectiveness of many interventions, there is wide consensus that students can learn social skills and manage their sensory sensitivities so effectively that they can fully participate in their school's gifted program. Sensory integration therapy is effective in improving motor and sensory synchronicity, and in developing individualized strategies for affect regulation. Social stories, comic strip conversations, assistive technology, and visual supports capitalize on the strong visual-spatial skills of these learners to help them establish routines for handling social situations, novelty, and common tasks or assignments.

Although many gifted students with the disorder will be able to attend classes for gifted students when these supports are in place, there are some gifted AS children who need a level of support services that precludes them from participating in their school's gifted program, at least for a time. There are cases, too, where gifted AS children are better served in private or residential programs than in public schools (Wallace, 2000). In those cases it is still imperative that their intellectual needs be met. The healthy adjustment of gifted students is compromised when they lack appropriate challenge in the curriculum and when they have few opportunities to learn with people who share their interests and abilities (Gross, 1993; Silverman, 1993).

It will be necessary to provide additional training for the gifted teacher, who may understand giftedness, but not be familiar with the impact Asperger's syndrome has on the child's academic, emotional, and social functioning. Educational planning should include specialists (e.g. augmentative communication specialist, resource teacher, assistive technology specialist, occupational therapist, behavior specialist) to consult with teachers and parents and plan effective strategies for enhancing social communication and for managing behaviors. Professionals acquainted with the needs and behaviors of gifted children should take a careful, systematic approach to assessing a gifted student's social withdrawal, alleged boredom, and sensitivity before attributing their behaviors to a need for more a more stimulating environment.

In addition to the references listed at the close of this chapter, there are two excellent websites that provide information and resources about Asperger's Syndrome and its treatment. One is ASPEN, the Asperger Syndrome Education Network, www.aspennj.org, a nonprofit organization that provides support and advocacy to

individuals with Asperger's and their families. The other is OASIS, the Online Asperger Syndrome Information and Support at www.udel.edu/bkirby/asperger, that in addition to providing information and resources, lists upcoming events and publications about Asperger's and hosts a list serve for people who wish to dialogue with parents, clinicians, educators, and individuals with disabilities.

My son received a very late diagnosis of Asperger syndrome (AS). He was 13 years old. He had been called many different things throughout his life. Words such as "eccentric", "gifted", and "shy" come to mind. I was always on the sidelines, though, hoping that they were right and I was wrong. It had always seemed to me to be something more, almost inexplicable or intangible. I would question certain inconsistencies, clumsiness, extreme discomfort around strangers, near hysteria at changes in routine, and most important, a complete lack of friendships. On the other hand, mastery scores would be quoted to me. Report cards were waved joyfully. There was a sense of what could be the problem with a mind like this. The answer to that is plenty (Rietschel, 2000, p. 448).

References

Adreon, D. & Stella, J.L. (Winter, 2000). Transitioning AS students to middle and high school. The Source: A publication of Aspen, America, Inc. 1, 4-5, 9.

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Asperger, H. (1991). 'Autistic psychopathy in childhood.' Translated by Uta Frith in U. Frith (Ed.), Autism and Asperger syndrome. London: Cambridge University Press.

Atwood, T. (1998). Asperger's Syndrome: A guide for parents and professionals. Philadelphia, PA:. Taylor and Francis.

Ayres, J. (1979). Sensory integration and the child. Los Angeles: Western Psychological Services.

Barber, C. (1996). The integration of a very able pupil with Asperger's Syndrome into a mainstream school. British Journal of Special Education, 23, 19-24.

Bishop, D.V. M. (2000). What's so special about Asperger Syndrome? The need for further exploration of the borderlands of autism. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 254-277). New York: Guilford Press.

Bissell, J., Fisher, J., Owens, C., & Polcyn, P. (1988). Sensory motor handbook: A guide for implementing and modifying activities in the classroom. Torrance, CA: Sensory Integration International.

Cash, A. (1999a). A profile of gifted individuals with autism: The twice-exceptional learner. *Roeper Review,* 22(1), 22-27.

Cash, A. (1999b). Autism: The silent mask. In A.Y. Baldwin and W. Vialle, (Eds.), The many faces of giftedness (pp. 209-238). Albany, New York: Wadsworth Publishing Company.

Cumine, V., Leach, J. & Stevenson, G. (1997). Asperger Syndrome: A practical guide for teachers. Philadelphia, PA: Taylor and Francis.

Dewey, M. (1991). Living with Asperger's syndrome. In U. Frith (Ed.). Autism and Asperger Syndrome. London: Cambridge University Press. 184-206.

Dewey, M. (1992) Autistic eccentricity. In E. Schopler and G.B. Mesibov (Eds.),High functioning individuals with autism (pp. 281-288). New York: Plenum Press.

Ehlers, S., & Gillber, C. (1993). The epidemiology of Asperger syndrome. A total population study. Journal of Child Psychology and Psychiatry, 34(8), 1327-1350

Freeman, S. & Dake, L. (1996). Teach me language: A language manual for children with autism, asperger's syndrome and related developmental disorders. B.C. Canada: SKF Books.

Frith, U. (1991). Asperger and his syndrome. In U. Frith (Ed.) Autism and Asperger syndrome. London: Cambridge University Press. pp. 1-36.

Grandin, T. (1992). An inside view of autism. In E. Schopler and G.B. Mesibov (Eds.) High functioning individuals with autism. (pp. 105-128).

Gray, C. (1994). Comic strip conversations. Arlington, TX: Future Horizons.

Gray, C. (2000). Social stories and comic strip conversations with students with Asperger Syndrome and high functioning autism. In E. Schopler, G.B. Mesibov and L. Kunce (Eds.) Asperger's syndrome or high functioning autism? New York: Plenum Press.

Gray, C. (Summer, 1999). Comic strip conversations. The Source: A publication of ASPEN of America, Inc., 6-7.

Gray, C. & Garand, J. (1993). Social stories: Improving responses of students with autism with accurate social information. Focus on Autistic Behavior, 8, 1-10.

Gross, M. (1993). Exceptionally gifted children. New York: Routledge.

Hogdon, L. (1995). Solving social-behavioral problems through the use of visually-supported communication. In K.A. Quill (Ed.), Autism and pervasive developmental disorders (pp. 209-241). Cambridge, UK: Cambridge University Press.

Hogdon, L. (1996). Visual strategies for improving communication. Volume 1: Practical supports for home and school. Troy, MI: QuirkRoberts.

Janos, P.M. & Robinson, N. (1985). Psychosocial development in intellectually gifted children. In F.D. Horowitz & M. O'Brien (Eds.). The gifted and talented: Developmental perspectives (pp. 149-195). Washington, D.C.: American Psychological Association.

Klin, A. & Volkmar, F.R. (2000). Treatment and intervention guidelines for individuals with Asperger Syndrome. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 340-366). New York: Guilford Press.

Klin, A. & Volkmar, F.R. (1995). Guidelines for parents: Assessment, diagnosis, and intervention of Asperger Syndrome. Pittsburgh, PA: Learning Disabilities Association of America.

Klin, A., Volkmar, F.R., & Sparrow, S.S. (Eds.)(2000). Asperger Syndrome. New York: Guilford Press.

Klin, A., Sparrow, S.S., Marans, W.D., Carter, A., & Volkmar, F.R. (2000). Assessment issues in children and adolescents with Asperger Syndrome. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 309-339). New York: Guilford Press.

Klin, A., Volkmar, F.R., Sparrow, S.S., Cicchetti, D.V. & Rourke, B.P.(1995). Validity and neuropsychological characterization of Asperger Syndrome: Convergence with nonverbal learning disabilities syndrome. Journal of Child Psychology and Psychiatry and Allied Disciplines, 36(7), pp. 1127-1140.

Kranowitz, C.S. (1995). 101 Activities for kids in tight spaces. New York: St. Martin's Press.

Kranowitz, C.S. (1998). The out-of-sync child: Recognizing and coping with sensory integration dysfunction. New York: Penguin Putnam.

Kurcinka, M.S. (1991). Raising your spirited child: A guide for parents whose child is more intense, sensitive, perceptive, persistent, energetic. New York: Harper Perennial.

Lewis, R.B. (1998). Assistive technology and learning disabilities: Today's realities and tomorrow's promises. Journal of Learning Disabilities, 31(1), 16-26.

Mangrum, C.T., Strichart, S.S., & Latimer, J. (1997). Peterson's colleges with programs for students with learning disabilities or attention deficit disorder. New Jersey: Peterson's Guides.

Martin, A., Patzer, D.K., & Volkmar, F.R. (2000). Psychopharmacological treatment of higher-functioning pervasive developmental disorders. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 210-230). New York: Guilford Press.

Mesibov, G. (1984). Social skills training with verbal autistic adolescents and adults: A program model. Journal of Autism and Developmental Disorders, 14, 395-404.

Mesibov, G. (1992). Treatment issues with high-functioning adolescents and adults with autism. In E. Schopler and G.B. Mesibov (Eds.), High functioning individuals with autism (pp. 143-155). New York: Plenum Press.

Myles, B. S., & Southwick, J. (1999). Asperger Syndrome and difficult moments: Practical solutions for tantrums, rage, and meltdowns. Shawnee Mission, Kansas: Autism Asperger Publishing Company.

Neihart, M. (2000). Gifted children with Asperger's Syndrome. Gifted Child Quarterly, 44, 222-230.

Ozonoff, S., Rogers, S.J. & Pennington, B.F.(1992) Asperger's syndrome: evidence of an empirical distinction from high-functioning autism. Journal of Child Psychology and Psychiatry,

Rietschel, L. (2000). How did we get here? In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 448-453). New York: Guilford Press.

Rourke, B. (1989). Nonverbal learning disabilities: The syndrome and the model. New York: Guilford Press.

Rourke, B.P. & Tsatsanis, K.D. (2000). Nonverbal learning disabilities and Asperger Syndrome. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 231-253). New York: Guilford Press.

Schissel, P. (Summer, 1999). College planning: What you need to know. The Source: A publication of ASPEN of America, Inc., 1, 4-5.

Schopler, E. (1985). Convergence of learning disability, higher level autism, and Asperger's syndrome (Editorial.) Journal of Autism and Developmental Disorders, 15, 359.

Schopler, E. and Mesibov, G.B. (Eds.) (1992). High-functioning individuals with autism. New York: Plenum Press.

Sclafani, A.J. & Lynch, M.J. (2000). College guide for students with learning disabilities. Miller Place, NY: Laurel Publications.

Shery, L.S. (2000). A view from inside. In In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 443-447). New York: Guilford Press.

Silverman, L.K. (Ed.) (1993). Counseling the gifted and talented. Denver: Love Publishing.

Smith, I.M. (2000). Motor functioning in Asperger Syndrome. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 97-124). New York: Guilford Press.

Szatmari, P. Barolucci, G., & Bremener, R. (1989). Asperger's syndrome: A review of clinical features. Canadian Journal of Psychiatry, 34, 554-560.

Szatmari, P., Bartolucci, G., Bremener, R., Bond, S., & Rich, S. (1989). A follow-up study of high functioning autistic children. Journal of Autism and Developmental Disorders, 19, 213-225.

Tantam, D. (1988). Lifelong eccentricity and social isolation: II. Asperger's syndrome or schizoid personality disorder? British Journal of Psychiatry, 153, 783-791.

Tsai, L. Y. (1992). Diagnostic Issues in High-Functioning Autism. In E. Schopler and G.B. Mesibov (Eds.) High-functioning individuals with autism (pp. 11-40). New York: Plenum Press.

Tupper, L. (1999). Sensory Integration. Workshop presented at the Annual State Conference on Autism. Plano, Texas.

Van Brourgandien, M.E. & Mesibov, G.B. (1987). Humor in high-functioning autistic adults. Journal of Autism and Developmental Disorders, 17, 417-424.

Volkmar, F.R. & Klin, A. (2000). Diagnostic issues in Asperger Syndrome. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 25-71). New York: Guilford Press.

Wallace, J. (2000). Walter. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 434-442). New York: Guilford Press.

Wilbarger, P. & Wilbarger, J.L. (1991). Sensory defensiveness in children aged 2-12: an intervention guide for parents and other caretakers. Santa Barbara, CA 93109: Avanti Educational Programs.

Willey, L.H. (1999). Pretending to be normal: Living with Asperger's Syndrome. United Kingdom: Jessica Kingsley Publishers.

Wing, L. (1981). Asperger's syndrome: A clinical account. Psychological Medicine, 11, 115-129.

Wing, L., & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. Journal of Autism and Developmental Disorders, 9, 11-29.

Wolff, S. (2000). Schizoid personality in childhood and Asperger Syndrome. In A. Klin, F.R. Volkmar, & S.S. Sparrow (Eds.), Asperger Syndrome, (pp. 278-308). New York: Guilford Press.

Produced by the Office of Communications 0009-TRC-0010