Appropriate Practices for Screening, Identifying and Instructing Gifted/Disabled Youth

A Project funded by
The U.S. Department of Education
and
The University of Southern Mississippi

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This document was designed to be a tool in assisting school districts appropriately screen, identify, and instruct gifted/disabled youth. Copies of this document will be forwarded to each Mississippi public school district.
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During its 25 of existence, The Frances A. Karnes Center for Gifted Studies has had many goals. One was to design a model to better serve and identify gifted students with disabilities. The Frances A. Karnes Center for Gifted Studies would like to express its gratitude to the U.S. Department of Education and The University of Southern Mississippi. Without their support, the research reported in this manual could not have been completed and would not have been written.

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Preface

Appropriate screening, identification, and instruction of gifted and talented students with disabilities are growing concerns for educators. Research indicates that students’ gifts are often masked by their disabilities; therefore, their giftedness is never discovered and educators tend to focus on remediating the problem area. Research has also revealed that many gifted students use their strengths to compensate for their disabilities, which may cause the disability to go unnoticed.

In 2001, The Frances A. Karnes Center for Gifted Studies at The University of Southern Mississippi conducted a study to determine the number of identified gifted/disabled students within the state of Mississippi, with a return rate of 61% of the 149 public school districts. Findings indicated students identified as gifted/disabled in specific categories were clustered in certain areas of the state. At that time, researchers concluded that further research was needed in order to raise awareness. The information contained in this manual is a compilation of the research that already exists on gifted/disabled youth.

This manual serves to promote appropriate practices for screening, identifying, and instructing gifted/disabled youth. By bringing awareness to this unique and under served population, The Frances A. Karnes Center for Gifted Studies hopes to create more opportunities for these students. Additionally, the center has distributed the manual to each of the school districts in Mississippi and each district will use it as a model to conduct training sessions for teachers of the gifted, regular classroom teachers, special education coordinators, and parents in each of the four congressional districts.

Throughout the manual, children who are both gifted and disabled are referred to as twice-exceptional. Yet despite these definitions, it remains difficult to screen, identify, and instruct gifted/disabled students. Appropriate time, effort, and planning must be spent in order to satisfy their myriad of needs.

The Individuals with Disabilities Education Act (IDEA) 1997 served as a framework for our investigation of the gifted/disabled population. Whenever possible, we used the IDEA 1997 definition of a specific disability; however, in a few instances the IDEA 1997 definition was too general. In those instances, we referred to the Diagnostic and Statistical Manual of Mental Disorders (DSM-TR-IV 4th ed., 2000) in order to provide a more complete list of characteristics.
Definitions of Giftedness

Mississippi Definition of Giftedness

For purposes of this manual, the term *gifted* refers to the Mississippi definition of giftedness. The Mississippi Gifted Education Act of 1989, as amended in 1993, defines gifted as those children and youth who are found to have an exceptionally high degree of intelligence, academic ability, or ability in visual arts and/or performing arts as documented through the identification process. The state of Mississippi has four categories of giftedness (intellectual, academic, creative, and artistic). Each section includes a definition of the disability, but does not include a definition of giftedness. Below is the Mississippi definition for each category of giftedness:

- **Intellectually Gifted Children** shall mean those children and youth who are found to have an exceptionally high degree of intelligence as documented through the identification process.

- **Academically Gifted Children** shall mean those children and youth who are found to have an exceptionally high degree of demonstrated academic ability as documented through the identification process.

- **Artistically Gifted Children** shall mean those children and youth who are found to have an exceptionally high degree of ability in visual arts as documented through the identification process.

- **Creatively Gifted Children** shall mean those children and youth who are found to have an exceptionally high degree of creativity and exceptionally high degree of ability in the performing arts (music, drama, or dance) as documented through the identification process.

The state of Mississippi in the Gifted Education Act (1989) stipulates that Local School Agencies (LEA) must provide an equitable opportunity for the identification of giftedness among special population groups such as children with various disabilities.

Federal Definition of Giftedness

Although the Mississippi definition of giftedness was used as a reference, that definition is based on the Jacob K. Javits Gifted and Talented Act (1988). According to that act, the term *gifted and talented student* means children and youths who

1. give evidence of higher performance capability in such areas as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who

2. require services or activities not ordinarily provided by the schools in order to develop such capabilities fully.

*Title IV, Part B of P.L. 100-297*
Gifted/Autistic Students
Definitions

The IDEA 1997 mandates that individuals diagnosed with autism receive special education and related services. The IDEA 1997 defined autism as

A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, which adversely affects a child's educational performance. Other characteristics often associated with autism include: (a) engagement in repetitive activities and stereotyped movements, (b) resistance to environmental change or change in daily routines, and (c) unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disturbance.

The Mississippi Department of Education defines autism as

A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3 that adversely affects a child’s educational performance. A child who manifests the characteristics of autism after age 3 could be diagnosed as having autism if the criteria are satisfied. Other characteristics often associated with autism include (a) engagement in repetitive activities and stereotyped movements, (b) resistance to environmental change or change in daily routines and (c) unusual responses to sensory experiences. The term does not apply if a child’s educational performance is adversely affected primarily because the child has an emotional disability (p. 1).

Autism and Asperger Syndrome (AS) are disorders that both fall under the Pervasive Developmental Disorders (PDDs) classification. When attempting to determine the presence of a PDD, professionals in the behavioral sciences consult DSM-TR-IV to make their diagnosis (Dunlap & Bunton-Pierce, 1999; Powers, 2000; Volkmar & Lord, 1998). The DSM-TR-IV characterizes PDDs as severe and pervasive impairments in the following developmental areas: (a) reciprocal social interaction skills, (b) communication skills, or (c) the presence of stereotyped behavior, interests, and activities. For purposes of this topic, the term disability will serve as a substitute for disorder.

Characteristics of Autism

There are approximately 120,000 children in the United States with autism. Furthermore, 4 to 5 of every 10,000 are diagnosed with the classic form of autism; 16 out of every 10,000 are diagnosed with less severe forms of
autism; and 2 to 3% of children with autism are diagnosed with the most severe form (Powers, 2000). Autism affects an individual’s capacity to communicate, understand language, play, and socialize (Dunlap & Bunton-Pierce, 1999). Although these characteristics may impede an autistic individual’s performance on a standardized IQ test, it does not mean by definition that an autistic individual has a diminished IQ. In fact, some children with autism may have normal to above-normal IQs (Baron-Cohen, 2002). Regrettably, the distinctive behavioral characteristics generally associated with autism often prevent individuals who are gifted/autistic from receiving gifted services.

Behavioral characteristics of individuals with autism include (a) hyperactivity, (b) short attention spans, (c) impulsivity, (d) aggressiveness, (e) self-injurious behaviors, (f) temper tantrums, (g) high threshold for pain, (h) oversensitivity to sounds or being touched, (i) exaggerated reactions to light or odors, (j) abnormalities in eating, (k) abnormalities of mood (giggling or weeping for no apparent reason or apparent absence of emotional reaction), and (l) lack of fear in response to real dangers (DSM-TR-IV, 2000). Children with autism have difficulty with tasks that involve language, imitation, abstract or conceptual reasoning, and executive function skills such as sequencing, organization, planning and flexibility (Prior & Ozonoff, 1998). Conversely, they may perform well on tasks that require manipulation of concrete materials.

Standardized IQ test results reveal that many autistic individuals will score extremely low on sequential picture arrangement but extremely high on digit span (Scheuffgen, Happé, Anderson, & Firth, 2000). Although the dichotic performance of individuals with autism on standardized IQ tests broaches the traditional notion that standardized tests are good predictors of general intelligence, the incidence of giftedness among the autistic population is lower than that of the general population (Donnelly & Altman, 1994). In fact it is estimated that 75% (Scheuffgen, et al., 2000) of children with autism are mentally retarded. One possible reason for the high number of autistic individuals labeled as mentally retarded is that these children lack the social skills needed to perform well on standardized IQ tests. After six months of instruction, focusing on communication and socialization skills, S. M. Wilczynski (Conference - Autism Spectrum Disorders in the Classroom: Effective Instructional/Behavioral Practice, September 26, 2003) reported being able to raise performance on a standardized IQ test by one standard deviation. Hence, interventions that address the disabling autistic conditions can improve IQ test results.

Characteristics Gifted/Autistic

Even though the number of recognized children who are gifted/autistic is relatively low, Scheuffgen et al. (2000) purported that the total number might actually be higher than currently identified. The root of this inaccuracy
stems from the fact that several similarities exist between gifted and autistic populations such as: (a) a precocious ability to focus on tasks for an extended period of time, (b) poor understanding of social cues, (c) negative behaviors, (d) visual thinkers, (e) difficulty making and maintaining friendships, and (f) hyper-vigilant senses (Cash, 1999; Donnelly & Altman, 1994). These similarities make diagnosing an individual as gifted and autistic - especially high-functioning individuals with autism - difficult.

A percentage of the autistic population, albeit small, does possess splinters of giftedness. Those individuals with autism who have gifted abilities are commonly referred to as idiot or autistic savants (Hermelin, 2001; Rimland & Hill, 1984). For purposes of this document, the term autistic savant will replace the use of idiot savant. Hermelin (2001) asserts that savant abilities are much more common among autistic individuals than in other forms of mental disabilities. Rimland and Hill (1984) estimated that it is 10 times more likely for an individual with autism to have savant abilities than other mentally disabled individuals. Aside from performing in the gifted range on subtest sections of standardized intelligence tests, an autistic savant’s talents may include a precocious ability to: (a) calculate dates, (b) work with machines, (c) memory recall, (d) perform mathematics, and (e) excel in the visual/musical arts (Hermelin, 2001; Rimland & Hill, 1984).

Typical developmental patterns of individuals who are gifted/autistic include dramatic differences within ability profiles. Gifted/autistics usually have one (or just a few) intellectual and/or creative strength(s) and numerous behavior, social, and intellectual weaknesses. Researchers (Hermelin, 2001; Prior & Ozonoff, 1998) approximated that as many as 10% of the autistic population have savant abilities. This statistic helps to support documentation from literature and clinical experience that there is an occurrence of giftedness among the autistic population. Donnelly and Altman (1994) suggested that some students who are gifted/autistic are undiagnosed among the general population or misdiagnosed among the learning disabled. According to Hermelin (2001), autistic savants have “islands of intelligence” (p. 36) which can and should be refined. There are a considerable number of autistic children with uneven test scores which prevent them from receiving gifted programming and in fact, many times these children only receive special education services that address their deficits.

Researchers (Cox & Eames, 1999; Donnelley & Altman, 1994; Hermelin, 2001; Rimland, 1989; Neihart, 2000) have demonstrated that many children with autism have artistic savant abilities. While these children might not have an above average IQ (Hermelin, 2001) they do possess a gift. Given that most programming for children who are gifted/autistic centers around the disability, many of these children will never have the chance to fully
develop their gifts. Educators and parents must acknowledge that these gifts exist and allow the gifted/autistic individuals the opportunity to hone their abilities.

One area where autistic savants have demonstrated a strong aptitude has been in the visual arts. Cox and Eames (1999) compared the drawings of two children who are artistically gifted/autistic to their cognitive profiles in an attempt to establish that advanced cognitive skills are not a prerequisite for precocious artistic ability. Subject 1 had an extraordinary linear drawing ability while subject 2 excelled in drawing images with a high degree of tonal contrast. For 18 months, the researchers studied each subject’s drawing and cognitive potential. Subject 1 (male; 19 years) had poor language skills, poor concentration, and poor coordination, and suffered from epilepsy. Subject 2 (female; 13 years) had difficult sleeping, poor language and communication abilities, and generally unhappy. Both subjects were given the *Wechsler Intelligence Scale for Children – Revised* (*WISC-R*; Wechsler, 1974) or the *Wechsler Adult Intelligence Scale – Revised* (*WAIS-R*; Wechsler, 1981), the *Benton Visual Retention Test* (Benton, 1974), and the *Embedded Figures Test* (Witkin, Reskine, & Karp, 1971).

Due to the age of subject 1, Cox and Eames (1999) administered the *WAIS-R*. Subject 1’s full scale score was 68 (verbal IQ = 62; performance IQ = 82). Subject 2 completed the *WISC-R*. Subject 2’s full scale score was 54 (verbal IQ = 52; performance IQ = 64). According to Cox and Eames, the scores were typical of autistic individuals.

The *Benton Visual Retention Test* (Benton, 1974) assesses short-term visual memory for graphic designs (Cox & Eames, 1999). The researchers administered forms C, D, and E to the subjects and with each form varied the exposure and delay time. The variations were: no delay (form C), 5 seconds (form D), and 10 seconds (form E). After exposure, the subjects recalled what they saw and redrew the graphic design. Results indicated that subject 1 worked at the same level as a person with an IQ range of 95 to 102, while subject 2 worked at the same level as a person with an IQ range of 116-147. These results show that both subjects have enhanced copying abilities given their disability. Additionally, Cox and Eames (1999) reported that subject 1’s memory was better than expected.

On the *Embedded Figures Test*, subjects were required to locate a simple drawing embedded in a complex drawing. Although subject 1 was 19 years old at the time of the test (Cox & Eames, 1999), the subject’s score was more than one standard deviation above the mean for normal subjects. Furthermore, subject 1 required only 10 or more seconds on three of the items. Comparatively, the mean response time for college students is 45 to 69 seconds per item (Cox & Eames, 1999). Subject 2 scored slightly higher than the mean. Of the three tests, the subjects scored highest on this test (Cox & Eames, 1999).
Cox and Eames (1999) reported that these results were consistent with the general autistic population. However, subject 1 had a more advanced ability to reproduce a design from memory. According to Cox and Eames, most autistic savants have an amazing ability to draw from memory. This study revealed that it is possible for individuals with autism, even those with depressed cognitive abilities, to be artistically gifted. Moreover, parents and educators cannot simply rely on the results from one instrument to determine the educational needs of children with autism. Rather, children with autism must be given a multifaceted assessment that allows the individual with autism to showcase all of his/her abilities and deficiencies.

**Characteristics of Asperger’s Syndrome**

Henderson (2001) reported that Asperger’s Syndrome is a pervasive developmental disorder on the autism spectrum characterized by social deficits, relatively normal language and cognitive development, and the presence of idiosyncratic interests. The characteristics of individuals diagnosed with AS include: (a) environmental/social processing deficits, (b) cognitive processing deficits, (c) verbal and nonverbal communication deficits, and (d) limited range of interests (Henderson, 2001; Myles 2002). Most individuals with Asperger’s Syndrome have an average to above-average IQ and greater than expected language skills (Kellman, 2001). Although children with AS have the ability to “think outside the box and focus intently in a narrow sphere” (Safran & Safran, 2001, p. 393), they lack the necessary tools to extend that focus into practical or real world situations.

**Characteristics Gifted/AS**

Despite the many developmental obstacles children with AS face, it is possible for an individual to be diagnosed as gifted and AS (Cash, 1999; Safran & Safran, 2001). Researchers (Cash, 1999; Henderson, 2001; Little, 2002; Safran & Safran, 2001) have documented several cases of individuals who are gifted/AS although exact numbers of the total population have not been ascertained. However, Cash (1999) estimated that the prevalence of AS in gifted individuals may be as many as 72 out of 1000 children. Although the identified gifted/AS population is growing (Little, 2002), accurate diagnosis remains difficult for two reasons. First, educators, parents, and clinical professionals are unaware of the characteristics of children who are gifted/AS. Second, many people do not believe that it is possible for a single individual to have a dual diagnosis. Thus, in order to more accurately identify children who are gifted/AS, all those who have a vested interest in the child’s life must not only be knowledgeable of the characteristics of gifted/AS individuals, but they must be willing to accept the possibility of a dual diagnosis.

Surprisingly, giftedness and AS have many similar characteristics such as: (a) advanced vocabulary, (b)
social isolation, (c) excellent memory, and (d) hypersensitivity to sensory stimuli (Little, 2002; Neihart, 2000).

Although they possess many characteristics, it is difficult to create a single list of gifted/AS characteristics. To help professionals make an accurate gifted/AS diagnosis, Little (2002) created a list of characteristics of gifted/AS children. Little emphasized that the following list of characteristics has not been accumulated from a specific research study, but rather from a literature review on individuals who are gifted/AS. These characteristics include: (a) precocious vocabulary, (b) inability to see another’s point of view, (c) excellent memory, (d) sensory hypersensitivity, (e) routine minded, and (f) poor language comprehension. Individually, these characteristics can be identified in many gifted children without AS and children with AS who are not gifted, yet when they all exist together, it is possible that the child is both gifted and has AS.

Another issue complicating the diagnosis of children who are gifted/AS, is the incredulousness that an individual can have a gifted and AS ruling. A major reason for this incredulity is the paucity of research that solely focuses on the developmental trajectory of children who are gifted/AS. Church, Alisanski, and Amunullah (2000) conducted a study to determine the static and dynamic characteristics of AS over an extended period of time and during four different developmental stages. While the study was not limited to children who are gifted/AS, many of the individuals had IQs in the gifted range (IQ > 120).

At the time of reporting, the subjects consisted of 39 males and 1 female (n = 40) who fell into the following developmental stages: preschool (n = 1), elementary school (n = 26), middle school (n = 8), and high school (n = 5) ages 3 to 15 years. All 40 children had a DSM-TR-IV diagnosis and a developmental history completed by parents, school personnel, and pediatricians. Data were collected on all subjects beginning in preschool. Some subjects (n = 5) had participated in the program from preschool through high school. The program focused on social skills, behavioral skills, language skills, and sensory issues. Church et al. reported that 67% had extreme auditory sensitivities, 62% had extreme tactile sensitivities, and 73% were categorized as clumsy. Finally, Church et al. stated that at the time of diagnosis the IQ range was 84-160 (mean = 107). Post-program testing yielded an IQ range of 93-155 (mean = 123).

Preschool. Preschool historical information was available on all 40 subjects from this study. According to Church et al. (2000), the preschool subjects had little difficulty getting along well with teachers and adults but had problems starting and sustaining age-like peer relationships. Preschool subjects tended to throw temper tantrums whenever a routine, such as watching particular TV shows or a variation in the type of transition from one activity to
another, was not followed. Many preschool subjects were hypersensitive to noises or specific textures. Finally, by preschool age, 88% of the subjects had early or normal language emergence (Church et al., 2000).

**Elementary School.** Elementary school historical information was available on 39 subjects from this study. Church et al. (2000) asserted that parents, teachers, and pediatricians began to notice developmental delays at this stage. In fact, Church et al. stated that by age 7 all subjects had considerable social skill deficiencies, and none had any significant peer relationships. By this developmental stage, most subjects developed humming, drumming, and/or pacing habits. Additionally, they continued the need for routine and order. Aside from the continued hyper-sensory issues, many students displayed extreme clumsiness and poor handwriting. Furthermore, the early language emergence had given way to pragmatic language problems and most were receiving speech and language therapy. Finally, Church et al. reported a majority of subjects were described as extremely smart by their teachers, yet challenging and difficult to deal with.

**Middle School.** Middle school historical information was available for 13 subjects. Although parents noticed improvements in social skills, Church et al. (2000) purported that this was the subjects’ biggest deficiency. Most subjects had good relationships with family members and could even identify a best friend. However, Church et al. noticed that the best friend often changed, thus indicating that the subjects did not really have a best friend. Generally speaking, these AS subjects were unable to read social cues of their peers. Routines continued to play an important part in the daily lives of the subjects. Of the 13 middle school subjects, 9 were in regular education classrooms, 4 in resource settings, and 1 attended middle school for half the day and then spent the afternoon at the local community college taking advanced math classes. Additionally, 4 students were in gifted education classes.

**High School.** Five subjects, all boys, were followed all the way through high school. According to Church et al. (2000), the subjects continued to display social skill deficiencies and, although all had at least one similar age peer, none had girlfriends. The subjects still had a strong rigid routine. Church et al. reported that 60% (n = 3) of the high school subjects were in specialized education placements mainly due to behavioral issues. Each of these three subjects had a half day of core academic classes and a half day of vocational education classes. Conversely, 1 of the remaining subjects was enrolled in advanced placement physics while another was in an advanced computer programming course.

Church et al. (2000) asserted that children who are gifted/AS and non-gifted children with AS find school settings difficult. Aside from the difficulties in dealing with being gifted and having AS, these children physically
appear normal. Unfortunately, children who are gifted/AS are typically misunderstood by teachers, school personnel, and peers. Throughout all developmental stages, Church et al. identified social skills to be the number one obstacle preventing children who are gifted/AS from maximizing their potential. To combat this problem, parents and educators need to design intervention programs that stress social skills such as initiating and sustaining peer relationships.

**Differences between Autism and Asperger’s Syndrome**

Although both autism and AS fall under PDDs, there are some significant differences between the two disabilities. Children with Asperger’s Syndrome, according to Freeman, Cronin, and Candela (2002), have fewer significant developmental delays than individuals with autism and generally are identified with their disability later. The diagnostic differences between the two groups generally occurs during the preschool years and include: (a) communication and imagination impairments for autism not present for AS, (b) no clinically significant language delay for AS (i.e., single words by age 2 – phrases by age 3); and (c) no significant delay in cognitive development or developmentally age-appropriate self-help skills and adaptive behaviors other than in social interaction and curiosity about the environment.

**Screening and Identification**

People have varying definitions of the term talent. For purposes of this section, the term talent is defined as precocious potential that allows an individual to excel within a specific area of activity (Hemerlin, 2001). Ultimately it is the responsibility of parents, educators, and clinical professionals to look for and identify talent within individuals diagnosed with autism or AS. Unfortunately, giftedness among those diagnosed with a PDD is difficult to identify. One reason is that there is simply not an abundant number of identified gifted individuals with autism or AS, thus consistent identification strategies are not available. A second reason is that many educators, parents, and clinical professionals do not believe that individuals with a PDD can have a precocious talent. Consequently, identification of an outstanding talent is never pursued.

Fortunately, over the past two decades researchers have been better able to design assessments that accurately measure the ability of an individual with autism or AS (Harris, 1998). In order to identify a gifted/autistic or AS individual, it is essential to use a multifaceted approach that includes: (a) parent, teacher, and individual interviews (Harris, 1998); (b) nonverbal screenings (Hermelin, 2001); (c) indication of an outstanding ability (Kellman, 2001); and (d) behavioral assessments (Harris, 1998). This approach allows diagnosticians to assess an
individual’s full range of abilities.

**Identification of Gifted/Autistic**

Identifying giftedness in an individual with autism requires a mind-set that children with this disability can possess a precocious talent. Furthermore, it must be realized that the gifts of these individuals with autism are generally savant abilities. In other words, while individuals who are gifted/autistic might possess a savant ability such as calendar calculations, date memory, musical ability, or drawing/painting ability, most will have an IQ below 70. In addition, only an estimated 2% of individuals with autism will live independently and most of them cannot do work that has social demands or requires manual skills (Autism – Part II, 2001).

Since many autistic individuals lack social and verbal skills, abstract measures of intelligence such as the Universal Nonverbal Intelligence Test (Bracken & McCallum, 2002; UNIT) are more appropriate to use (Edelson, Edelson, & Jung, 1998). However, given the numerous distractions that exist in a testing situation, children with autism might not be able to fully demonstrate the extent of their abilities. According to Powers (2000), the results of any standardized test should be used to evaluate what the child is capable of and not capable of doing. Then, educational planning should focus on developing the strengths and minimizing the effects of their disabilities.

In addition to using a nonverbal measure of intelligence to determine giftedness among a child with autism, Prior and Ozonoff (1998) suggested looking for evidence of an outstanding talent or ability. Generally speaking, extraordinary gifts will surface during normal instruction. However, the teacher must be willing to accept that a child with autism can also be gifted.

**Identification of Gifted/Asperger’s Syndrome**

Identification of individuals who are gifted/AS is a trying process. In order to accurately diagnose an individual who is gifted/AS, it is key to recognize behavioral patterns related to gifted/AS. AS-specific behavioral patterns can be measured in groups of young children using screening tools specific to AS (Henderson, 2001) such as: (a) *Australian Scale for Asperger’s Syndrome* (Garrett & Attwood, 1998), (b) *Asperger’s Syndrome Diagnostic Scale* (Myles, Jones-Bock, & Simpson, 2000), or (c) the *Gilliam Asperger Disorder Scale* (Gilliam, 2001).

Moreover, the *Gifted and Talented Evaluation Scale* (GATES; Gillam, Carpenter, & Christensen, 1996) is an adequate measure for identifying gifted characteristics, particularly when deficits in leadership are not counted against the person with AS (Henderson, 2001).

Giftedness among the AS population often goes unnoticed. Safran, Safran, and Ellis (2003) argued that
gifted children’s above-average intellectual functioning will mask the AS and vice versa; thus, it is difficult for teachers to accurately identify students who are gifted/AS. Hence, the first step in identifying a child who is gifted/AS is professional knowledge (Safran et al., 2003). Regrettably, most teachers are unaware of gifted/AS characteristics. In order to raise awareness of students who are gifted/AS, Safran and Safran (2001) suggested that experts provide teacher in-service training.

Once knowledgeable about the characteristics of a student who is gifted/AS, teachers and parents can begin the screening process. Safran and Safran (2001) recommended that checklists be used to help during the screening process. Checklists should be completed by the teachers, parents, and clinical professionals. No matter which instrument is used during the screening process, Safran and Safran suggested that data be collected from two raters. Many times giftedness will mask the disability and vice versa, it is recommended that children who are potentially gifted/AS be screened with a gifted checklist such as the Scales for Rating the Behavioral Characteristics of Superior Students – Revised (SRBCSS-R) (Renzulli, Smith, White, Callahan, Hartmen, & Westberg, 2002).

It stands to reason that appropriate screening and identification of children who are gifted/AS is an essential element in designing an effective program. In fact, Neihart (2000) stipulated that in order to appropriately serve children who are gifted/AS, a correct diagnosis is needed. Furthermore, Neihart outlined a two-step process to follow that will help to ensure an accurate diagnosis. The first step is to construct a developmental history for the child. The second step centers around the use of behavioral scales.

First, parents and educators must outline the child’s developmental history. Freeman et al. (2002) stated that developmental historical information should include: (a) pregnancy, pre- and post-natal information, (b) child’s medical history, (c) family history of developmental disorders, (d) family history of psychological disorders and, (f) history of communication skills. Developmental historical information allows parents, educators, and psychological experts to document behavioral changes and track effectiveness of intervention strategies.

Second, behavioral rating scales are useful because they establish current behavioral tendencies, but Freeman et al. (2002) stressed that they should be used only as screening instruments. According to Barnhill, Hagiwara, Myles, and Simpson (2000) several instruments can be used to help screen for AS. These instruments include: (a) Kanner Criteria (1943), (b) Rutter’s (1978) definition, (c) the International Classification of Diseases (World Health Organization, 1992) (ICS-10) diagnostic manual, (d) Diagnostic and Statistical Manual of Mental Disorders – 4th edition (DSM-TR-IV; American Psychiatric Association, 1994), and (e) Autism Behavior Checklist
(ABC; Krug, Arick, & Almond, 1980). Barnhill et al. maintained that, although useful in helping to identify Autism Spectrum Disorder, these instruments are not 100% reliable. Since most people are unknowledgeable about the unconventional behaviors of AS, the main fallibility with screening instruments lies with the individual evaluator. To the untrained eye AS is tricky to distinguish from learning disabilities (Barnhill et al., 2000). Therefore, to accurately identify children who are gifted/AS, educators need a greater understanding of the nature of individuals who are gifted/AS and a more reliable process to identify them.

Barnhill et al. (2000) studied 37 youth identified with AS (35 males; 2 females). The purpose of the study was to determine if results on any of the WISC could be used to establish a cognitive profile of children diagnosed with AS. Barnhill et al. reported that in 22 previous studies, a consistent cognitive pattern had emerged (strong performance on Block Design; weak performance on Comprehension). However, only 4 of the previous 22 studies had specifically included children with AS. In those 4 studies, researchers found no statistically significant similarities.

The subjects were drawn from a database of AS children who attended a resource center at a large university in the Midwest. At the time of the testing, the subjects’ ages ranged from 3 years, 2 months to 14 years, 9 months. One female subject was blind. Barnhill et al. (2000) reported that all the participants were individually tested by qualified personnel. Due to their age, 2 subjects completed the Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI, 1989). The remainder of the subjects completed either the Wechsler Intelligence Scale for Children – Revised (WISC-R, 1989) (n = 2) or the Wechsler Intelligence Scale for Children – Third Edition (WISC-III, 1991) (n = 33). The authors did not indicate why two different tests were given.

Among the subjects, Barnhill et al. (2000) reported no significant statistical difference between the Verbal IQ scores and the Performance IQ scores of children with AS and children without AS. The verbal scores ranged from 55 to 146, the performance scores ranged from 59 to 137, and the full scale scores ranged from 66 to 144. Based on the results of the study, a distinct cognitive profile could not be inferred. Furthermore, since there was no statistically significant difference between the sample AS and non-AS population, Barnhill et al. asserted that there is no distinctive cognitive profile indicating higher or lower IQ scores among individuals with AS.

The results of this study indicated that children with AS can be gifted and that they can not be identified by one instrument. Thus, when attempting to identify giftedness among children with AS, educators must use a multifaceted approach that includes: (a) authentic assessment; (b) portfolios; (c) interviews with the individual in
question, parents, and teachers; (d) standardized behavioral checklists and, (e) standardized measures of intelligence.

**Instruction**

The goal of any educational program for gifted individuals with autism or AS is to reach the point where they make a positive contribution to society. Certainly behavior modifications can be made that will allow these individuals to function completely in society; yet, as Firth (1989) stated PDDs “never go away” (p. 15). As a result, it is imperative that gifted children with autism or AS learn to utilize their strengths to help them overcome their weaknesses. Firth identified the following four general educational strategies to employ when dealing with this population of children: (a) a safe and loving learning environment, (b) a structured routine, (c) supportive home environment, and (d) an IEP that mandates gifted services. This last point, according to Firth, can have a profound effect because it will help the child to learn the necessary language, social, and academic skills to succeed in the real world.

*Instruction Gifted/Autistic*

The ability to socially exist with the general population is not easy for students who are gifted/autistic. Approximately 10% of the autistic population has savant skills (Rimland, 1989), yet Donnelly and Altman (1994) contended that a much smaller percentage of these students actually receive appropriate gifted services. Their exclusion from gifted programming, intentional or unintentional, is a trend that must be reversed if this population of students is to ultimately maximize their full potential and make a positive contribution to society.

The main obstacle to students who are gifted/autistic receiving gifted services is their lack of social skills. Although some students who are gifted/autistic can speak fluently, perform mathematical computations, create visual artistic pieces, or play musical instruments, they are lacking in many social skills. Donnelly and Altman (1994) asserted that children who are gifted/autistic are socially deficient and are generally unaware of social cues. As a result, they have difficulty with nonverbal communication such as: (a) direct eye contact, (b) body gestures, and (c) appropriate facial expressions. On one hand, students who are gifted/autistic can colorfully and expertly discuss topics within their personal areas of interest, yet many times they lack the social awareness to participate in a degree of ‘small talk’. Harris (1998) stated that social skills interventions should be mandatory for all individuals with a PDD. Strategies to improve social skills include group treatment and peer modeling (Harris, 1998). Group treatment techniques allow individuals to role play situations where deficient individuals can be guided by more adept peers.
Although children who are gifted/autistic may have extraordinary talents, they tend to have difficulty applying those talents to real world situations (Donnelly & Altman, 1994). Thus, these researchers suggested that teachers of children who are gifted/autistic need to enable these students to use their strengths and talents in useful situations. One method to accomplish this goal is for the teacher to set up a mentorship for the gifted/autistic child. However, the mentorship must cautiously be established because most people are not fully aware of how to deal with the unique autistic idiosyncrasies.

In order to help children who are gifted/autistic or gifted/AS fully reach their potential, educators need to plan and implement better programs. Freeman et al. (2002) stated that these programs must provide educational, vocational, social, and emotional support. The ceilings on these programs must be limitless, thus allowing the individual the freedom to maximize his or her talents. Furthermore, according to Dunlap and Bunton-Pierce (1999), children with autism respond better to structured instructional settings that have clear guidelines and specific expectations regarding appropriate and inappropriate behavior. In this situation, children who are gifted/autistic can noticeably improve their expressive language, receptive language, and social awareness. In addition, they can increase their performance on life, academic, and vocational skills (Harris, 1998).

Instruction Gifted/AS

Many students with AS have above average intelligence, and a large majority of them are mainstreamed into the regular classroom (Safran & Safran, 2001). The practice of inclusion with a child who is gifted/AS can be appropriate if the right steps are followed. First, as with any child receiving special education services, an appropriate IEP must be created and implemented. Safran and Safran (2001) reported that most students who are gifted/AS require an IEP that addresses their gifts and deficiencies, but will remain in the regular classroom. Due to the fact that many students with AS have above average intelligence and are generally socially deficient, a large majority of them are included into the regular classroom (Safran & Safran, 2001). In order for the IEP to be successful, teachers of students who are gifted/AS need to understand the characteristics of AS. Moreover, they must be able to appropriately deliver intellectually stimulating material without creating a socially undesirable environment for the individual who is gifted/AS or the rest of the students.

Despite their profound communication and social disabilities, students who are gifted/AS possess remarkable areas of talent (Donnelly and Altman, 1994). However, it can be difficult for persons without AS to empathize with the perception of reality of a person who is gifted/AS. Many times, persons who are gifted/AS
operate within their own situational paradigm. Accordingly, Henderson (2001) suggested keeping two important questions in mind when working with students who are gifted/AS: (a) what is the child’s true sense of reality? and (b) how can my perception of reality be communicated clearly and consistently?

Jackel (1996) asserted that, due to social pressures, unpredictable events, and academic expectations school can be a difficult situation for children who are gifted/AS. Without appropriate instruction, these children may be incapable of reaching their full potential. Aside from having physiological deficits, Jackel asserted that children with AS lack the following skills which can obstruct academic progress: (a) social skills, (b) communication skills, and (c) cognitive skills. For children who are gifted/AS children, social and communication skills are the most significant obstacles.

Hence, any effective instructional program must first recognize the student’s abilities and disabilities. Additionally, it is imperative to build upon the student’s strengths in order to establish a confident and successful feeling. Finally, it must teach the student to use his or her strengths to compensate for academic and social deficiencies. Overall, according to Jackel (1996), the instructional program should employ strategies that teach the skills needed to achieve future academic and social success. In addition to accommodating for the student’s sensory hypersensitive, Little (2002) suggested program focal points that include: (a) social skills, (b) personal interests, and (c) language comprehension skills. Fundamentally, the instructional program must require the individual to become proficient academically and socially while being able to sustain a high level of self-control and discipline.

Children who are gifted/AS need a student-centered atmosphere, yet creating one can be overwhelming. There are some crucial aspects to consider when developing a learning environment for students who are gifted/AS such as: (a) physical make-up of the room, (b) structure/routine, (c) methods of presentation, and (d) teaching concerns (Jackel, 1996). The specific conditions of each of these considerations will vary depending on the individual’s unique idiosyncrasies; thus it is imperative that school personnel collaborate with parents, clinical professionals, and the student prior to committing to a specific learning environment. This will ensure that all parties are on the same page and working in the best interest of the child.

Physical Make-up of the Room

The physical classroom configuration needs to be warm and should provide a safe learning environment. Jackel (1996) maintained that teachers should arrange the room so that the student who is gifted/AS is surrounded by as few distractions as possible. Distractions include, but are not limited to: (a) peers who make inappropriate
comments; (b) limited personal space; and (c) superfluous visual and auditory noise (Jackel; Safran & Safran, 2001).

In the end, it is up to the teacher, student, parent, and clinical professional to determine what is or is not a distraction. Not only should all parties agree on a configuration, but they should discuss appropriate ways to go about making changes. This will help to ensure harmony among all involved, plus it will demonstrate to the child how to modify agreed upon plans.

Structure/Routine

Structure and routine are like oxygen for students who are gifted/AS; they cannot survive without them. For this reason, teachers must create a predictable environment. Certainly, teachers do not have the power to eliminate many of the unpredictable variables that exist in an academic setting such as unannounced fire drills, unexpected assemblies, or the myriad of other unforeseen events that transpire during the typical school day. However, teachers need to prepare the children who are gifted/AS for the eventuality of these events occurring. Safran et al. (2003) insisted that, in addition to establishing a classroom routine, it is important to inform these gifted students that unexpected change is a natural part of life and provide them with a routine to follow when sudden change does occur.

Method of Presentation

Presentation of new material is a complex task and requires methodical planning. Students who are gifted/AS benefit from activity-based, concrete learning activities. Additionally, Jackel (1996) implored teachers to combine written directions with visual clues that indicate due dates. Furthermore, teachers must provide examples of what is required and allow for short breaks during lengthy assignments. Of utmost importance, Jackel stated that educators need to teach to individual’s strengths.

Teaching Concerns

Given that students who are gifted/AS will be able to be productive members of society, they need to learn self-reliance. Jackel (1996) stated that balancing between helping individuals who are gifted/AS and doing for them is difficult. However, it is imperative that these bright individuals learn how to overcome the obstacles their disability presents and to become positive contributors to society. In order to accomplish this goal, teachers of children who are gifted/AS must consider the following: (a) teaching empathy to students who are gifted/AS, (b) bridging new information with prior knowledge, (c) modifying inappropriate behavior, and (d) establishing boundaries (Henderson, 2001; Jackel; Little, 2002).
Conclusion

There is no reason why these talented students cannot maximize their full potential. However, parents, school personnel, and clinical professionals must realize the unique needs of the gifted/AS population and create appropriate programming that caters to them. The greatest need of gifted children with autism or AS is to learn how to appropriately socially interact with others. However, the gifts of these individuals cannot be ignored. Thus, in order to facilitate talent development and appropriate socialization, educators must design a student-centered curriculum that caters to the individual’s needs. These students need a structured authentic learning environment where they can safely learn how to properly interact with others while cultivating their unique talents. The ultimate goal for these gifted individuals is to be able to sustain a productive life.
References


Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


### Appendix A

#### Characteristics of Students Who Are Gifted/Autistic

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of social skills and understanding of social cues</td>
<td>These children have difficulty socializing with other individuals. Their lack of social skills often prevents educators from focusing on their talents.</td>
</tr>
<tr>
<td>Savant abilities</td>
<td>These students will have an extraordinary talent in a specific field. Research has demonstrated that many gifted/autistic individuals have savant ability in one of the arts (e.g., music or visual arts).</td>
</tr>
<tr>
<td>Self-stimulating behavior</td>
<td>This typical autistic behavior includes rocking, hand flicking, and/or spinning.</td>
</tr>
<tr>
<td>Extreme possessiveness of unusual objects</td>
<td>Individuals who are gifted/autistic tend to have an extreme attachment to objects (e.g., piece of lint, string, or rock).</td>
</tr>
<tr>
<td>Preference for routine</td>
<td>Any change to routine may result in panic. Children who are gifted/autistic find it difficult to cope with sudden events or changes to their routine.</td>
</tr>
<tr>
<td>Hypersensitivity</td>
<td>They will experience sensory overload from certain stimuli such as loud sounds, the touch of another individual, fabrics, or smells.</td>
</tr>
<tr>
<td>Mood swings</td>
<td>Students who are gifted/autistic may exhibit drastic and sudden changes in moods.</td>
</tr>
<tr>
<td>Typically low IQ</td>
<td>Although many autistic students can possess an amazing gift or talent, a large majority of them have average to below average IQs.</td>
</tr>
<tr>
<td>Poor communication skills</td>
<td>Their lack of these skills can lead to frustration for the student and those working with the student. Additionally, it can lead to depressed test scores.</td>
</tr>
</tbody>
</table>

Adapted from British Columbia Department of Education (1995); Cox & Eames (1999)
## Appendix B
### Screening/Identification Procedures for Students Suspected of Being Gifted/Autistic

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use abstract measures of intelligence such as the UNIT</td>
<td>Due to their lack of social and communication skills, the intellectual ability of individuals who are gifted/autistic should be assessed using nonverbal measures of intelligence.</td>
</tr>
<tr>
<td>Look for indication of outstanding talent/ability</td>
<td>Through regular instruction, teachers need to try to identify areas where the student has strengths and then teach to those strengths to try and determine an extraordinary talent.</td>
</tr>
<tr>
<td>Construct a developmental history</td>
<td>Developmental histories provide teachers, parents, and clinical professionals documentation of the student’s strengths and weaknesses.</td>
</tr>
<tr>
<td>Complete behavioral rating scales</td>
<td>These should be completed by parents and teachers so that the child is evaluated in all situations.</td>
</tr>
</tbody>
</table>

Adapted from Brown, Sherbenou, & Johnsen (1997); Edelson, Edelson, & Jung (1998); Hermelin (2001)
Appendix C

Instructional Strategies for Students Who Are Gifted/Autistic

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include parents, clinical professionals, and student when determining educational programming</td>
<td>This strategy ensures agreement among all of those involved in the gifted/autistic child’s education. It reduces miscommunication and promotes consistency between the home and school settings.</td>
</tr>
<tr>
<td>IEP must address student’s strengths and weaknesses</td>
<td>These children have amazing talents that must be cultivated and used to help compensate for the child’s weaknesses.</td>
</tr>
<tr>
<td>Establish routines</td>
<td>Routines provide comfort and safety for gifted/autistic students.</td>
</tr>
<tr>
<td>Infuse social skills into the academic programming</td>
<td>Many of these children lack the ability to establish and maintain relationships.</td>
</tr>
<tr>
<td>Use physical, verbal, and visual aids to signify transition</td>
<td>These cues will allow the child to prepare himself/herself for transition from one activity to another. Furthermore, they will decrease emotional outbursts.</td>
</tr>
<tr>
<td>Use hands-on kinesthetic activities</td>
<td>Hands-on activities are less abstract and allow the gifted/autistic child to physically manipulate objects while learning.</td>
</tr>
<tr>
<td>Stress communication skill acquisition</td>
<td>Improved communication skills would allow gifted/autistic children to better function in society and express their unique talents and knowledge.</td>
</tr>
<tr>
<td>Teach to the student’s strengths</td>
<td>Teaching to the child’s strengths promotes confidence and a positive self-esteem.</td>
</tr>
</tbody>
</table>

Adapted from British Columbia Department of Education (1995); Cox & Eames (1999)
## Appendix D

### Characteristics of Students who are Gifted/Asperger’s Syndrome

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor nonverbal communication skills</td>
<td>Many times these poor nonverbal communication skills lead to under-developed social relationships and social isolation because their actions are socially inappropriate.</td>
</tr>
<tr>
<td>Lack of coordination</td>
<td>Children who are gifted/AS often experience motor delays in preschool.</td>
</tr>
<tr>
<td>Exceptional memory</td>
<td>These students will have an intense interest in a very specific topic (e.g., dinosaurs). Due to their excellent memory, they will be able to learn an extraordinary amount of information about that topic.</td>
</tr>
<tr>
<td>Normal to high IQ</td>
<td>Most children do not experience language or cognitive delays. In fact, this population is often described as extremely curious.</td>
</tr>
<tr>
<td>Poor sense of time</td>
<td>They do not plan or use their time in a highly effective manner. Especially poor at estimating amount of time needed to complete a task.</td>
</tr>
<tr>
<td>Inflexibility</td>
<td>They find routines necessary for daily living. Spontaneous events and changes in regular schedule are difficult to manage.</td>
</tr>
<tr>
<td>Difficulty transitioning between tasks</td>
<td>Their intense focus makes it difficult for them to break away from a task. Gifted/AS students will get lost in what they are doing.</td>
</tr>
<tr>
<td>Poor social skills and understanding of social cues</td>
<td>The inability to create and maintain friendships often leads to social isolation for these students.</td>
</tr>
<tr>
<td>Inability to explain their feelings and those of others</td>
<td>This inability can be very frustrating for the gifted/AS individual and those working with the individual. Their lack of empathy is also a result of their poor social skills.</td>
</tr>
</tbody>
</table>

Adapted from British Columbia Department of Education (1995); Jackel (1996)
### Appendix E

**Screening/Identification Procedures for Students Suspected of Being Gifted/Asperger’s Syndrome**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct a developmental history</td>
<td>This procedure allows parents, teachers, and clinical professionals to document behavioral changes and gain a greater insight into the child’s developmental pattern.</td>
</tr>
<tr>
<td>Inform parents and teachers about gifted/AS children</td>
<td>Once knowledgeable about the characteristics, parents and teachers can begin the screening and identification process.</td>
</tr>
<tr>
<td>Utilize gifted behavioral checklists (e.g., Scales for Rating the Behavioral Characteristics of Superior Students)</td>
<td>Behavioral checklists provide a standardized method of observing the child’s behavior in a variety of situations.</td>
</tr>
<tr>
<td>Make use of screening tools specifically designed to help identify Asperger’s Syndrome</td>
<td>These standardized screening tools allow parents and teachers to document the behavioral patterns of the child.</td>
</tr>
<tr>
<td>Use standardized intelligence tests</td>
<td>Children who are gifted/AS tend to have a general cognitive profile that would help to identify both giftedness and AS.</td>
</tr>
<tr>
<td>Employ a team approach</td>
<td>Involving parents, teachers, and clinical professionals in the identification process ensures that a complete and accurate diagnosis is made.</td>
</tr>
</tbody>
</table>

Adapted from Donnelly & Altman (1994); Henderson (2001); Jackel (1996); Neilson (2000)
### Instructional Strategies for Students Who Are Gifted/Asperger’s Syndrome

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use verbal, visual, and physical cues</td>
<td>These cues help students to follow instructions and transition from one activity to another. Additionally, they help students to learn how to read nonverbal social cues.</td>
</tr>
<tr>
<td>Establish a daily routine</td>
<td>Aside from teaching transition skills, a routine also enables the student to know what to expect from one minute to the next.</td>
</tr>
<tr>
<td>Develop an IEP that addresses the student’s strengths and weaknesses</td>
<td>An appropriate IEP ensures that all of the student’s needs are being met.</td>
</tr>
<tr>
<td>Include parents, clinical professionals, and the student when making decisions about educational programming</td>
<td>It is imperative to include everyone involved in the student’s life. By doing so, this inclusion guarantees that the expectations of the student are consistent at home and school. Furthermore, it ensures that all parties are in agreement as to what is best for the student.</td>
</tr>
<tr>
<td>Be consistent</td>
<td>In addition to providing structure, consistency also establishes expectations. The student knows the type of behavior and quality of work expected for every situation.</td>
</tr>
<tr>
<td>Avoid sarcasm</td>
<td>This population of students interprets language very literally.</td>
</tr>
<tr>
<td>Teach students to deal with sudden changes</td>
<td>Sudden change is a fact of life. Students must have the necessary coping skills needed to deal with life’s unpredictable nature.</td>
</tr>
<tr>
<td>Develop social skills</td>
<td>The biggest obstacle facing gifted/AS students is their lack of social skills.</td>
</tr>
<tr>
<td>Provide a rubric when asking essay questions</td>
<td>Many times, students who are gifted/AS do not know when they have written enough or properly addressed the question. Rubrics provide a guideline for them to follow.</td>
</tr>
</tbody>
</table>

Adapted from Jackel (1996); Neilson (2000); Safran & Safran (2001)
National and State Associations for Autism and Asperger’s Syndrome

**Autism Society of America**

7910 Woodmont Avenue, Suite 300  
Bethesda, MD 20814-3067  
(301) 657-0881  
(800) 3AUTISM  
[http://www.autism-society.org/site/PageServer](http://www.autism-society.org/site/PageServer)  
E-mail info@autism-society.org

The mission of the Autism Society of America is to promote lifelong access and opportunity for all individuals within the autism spectrum, and their families, to be fully participating, included members of their community. Education, advocacy at state and federal levels, active public awareness and the promotion of research form the cornerstones of ASA's efforts to carry forth its mission.

**Autism Web**

E-mail autismweb@yahoo.com

A parents' guide to the diagnosis, treatment and education of children with autism, Pervasive Developmental Disorder (PDD) and related disorders.

**Autism National Committee (Autcom)**

E-mail marna.ares@state.co.us

This is the only autism advocacy organization dedicated to "Social Justice for All Citizens with Autism" through a shared vision and a commitment to positive approaches. The organization was founded in 1990 to protect and advance the human rights and civil rights of all persons with autism, Pervasive Developmental Disorder, and related differences of communication and behavior. In the face of social policies of devaluation, which are expressed in the practices of segregation, medicalization, and aversive conditioning, we assert that all individuals are created equal and endowed with certain inalienable rights, and that among these are life, liberty, and the pursuit of happiness.

**Autism Research Institute (ARI)**

4182 Adams Avenue  
San Diego, CA 92116  
(619) 563-6840 (fax)  

ARI is primarily devoted to conducting research, and to disseminating the results of research, on the causes of autism and on methods of preventing, diagnosing and treating autism and other severe behavioral disorders of childhood. We provide information based on research to parents and professionals throughout the world.

**Cure Autism Now**

5455 Wilshire Boulevard Suite 715  
Los Angeles, CA 90036 – 4234  
(888) 8-AUTISM  
(323) 549-0500  
(323) 549-0547 (fax)  

The message parents often receive is that science cannot be hurried. Cure Autism Now believes that, with enough determination, money and manpower, science can in fact be hurried so that answers are found sooner rather than later. Progress in the fight against AIDS and Alzheimer's have already demonstrated the power an organized effort among families can have. To do any less for people with autism is unacceptable. Cure Autism Now will find answers for autism through research, resource establishment, outreach, and awareness.
Families for Early Autism Treatment
P. O. Box 255722
Sacramento, CA 95865-5722
(916) 843-1536
(916)-381-5029 (fax)
http://www.feat.org/
E-mail webfeat@feat.org
Families for Early Autism Treatment, Inc. (FEAT) is a nonprofit organization of parents and professionals, designed to help families with children who have received the diagnosis of Autism Spectrum Disorder (ASD), including Autism, Pervasive Developmental Disorder (PDD), or Asperger’s Syndrome. It offers a network of support where families can meet each other and discuss issues surrounding autism and treatment options.

Asperger’s Syndrome Coalition of the United States (ASC-U.S.)
P.O. Box 524
Crown Point, IN 46308
(219) 662-1311
(219) 662-0638 (fax)
http://www.asperger.org
E-mail chart@netnitco.net
The mission of ASC-U.S. is to enable individuals with AS and related disorders to realize their potential. Families, professionals and affected individuals work together on a national, regional and local level to strengthen grassroots efforts that provide support and reliable information and bring people together to create a national voice, advocating for research, education and public awareness.

Asperger’s Syndrome Education Network, INC.
http://www.aspennj.org/
E-mail info@AspenNJ.org
ASPEN ® is a regionally based nonprofit organization headquartered in New Jersey, with 12 local chapters, providing families and those individuals affected with Asperger’s Syndrome, PDD-NOS, High Functioning Autism, and related disorders.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(703) 620-3660
(866) 915-5000 (text only, TTY)
(703) 264-9494 (fax)
http://www.cec.sped.org/
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) LET-ERIC (538-3742)
(301) 519-5157
(301) 519-6760 (fax)
E-mail accesseric@accesseric.org
URL: http://www.eric.ed.gov/
ERIC gathers and disseminates professional literature, information, and resources on the educational and development of individuals of all ages who have disabilities and/or who are gifted.
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.
**Gifted/Deaf-Blind Students**

**Definition**

*Deaf-blindness* means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness (Individuals with Disabilities Education Act, 1997).

The deaf-blind child is one who has a combination of auditory and visual disabilities that adversely affect a child’s educational performance. These disabilities must also cause such severe communication and other developmental and educational needs that the child cannot be accommodated in special education programs designed solely for children with hearing disabilities or with visual disabilities (Mississippi Department of Education, p. 2).

**Characteristics**

In order to understand the nature of children who are gifted/deaf-blind, one must consider their high potential behaviors in comparison to children with similar disabilities. Their gifted characteristics may not stand out in comparison to children with normal hearing and vision. The idea that a child might have a disability as severe as deaf-blindness and, yet be gifted, has been explored little in the literature (Friedrichs, 2001; Ingraham & Daugherty, 1995; Maker, 1977). Our lack of understanding about the traits of giftedness in children with deaf-blindness makes identifying and servicing them difficult. A recurrent theme in the literature is the uniqueness of the individual.

Hearing and vision loss in children who are deaf-blind varies in severity and cause (Ingraham, 1998). This variation, in turn, will affect the degree to which the student is able to interact with the environment and the level of intervention services he or she will need for optimum development.

The literature, though limited, does reveal distinctive characteristics of children who are deaf-blind with high potential. Intellectually gifted students who are deaf-blind have a deep sense of their own uniqueness. This may be the impetus for their strong interest in personal goal setting and persistence in working to reach their goals. Intensely aware of their limitations, they desire normalcy and often become extremely frustrated when the reality of their disability prevents them from achieving the goals they have set for themselves (Friedrichs, 2001). These children may also be identified by their superior memory, large knowledge base, and problem-solving skills.

Frustration among children who are gifted/deaf-blind can be especially apparent in the social aspects of
their development. Although successful in the academic realm, they often discover that the severity of their
disability prevents them from having normal interactions with their peers. In addition to the obvious communication
barriers between children who are deaf-blind and children with no disabilities, the presence of interpreters and other
support personnel provided by schools to accommodate the disability can have a detrimental effect on the ability of
a student who is gifted/deaf-blind to develop leadership skills among and relationships with their peers (Friedrichs,
2001; Ingraham & Daugherty, 1995). A tendency among the gifted/deaf-blind to express high emotions and volatile
temper further hampers their relationships with their peers (Friedrichs, 2001).

Another important characteristic of the gifted/deaf-blind lies in the area of creativity. Perhaps due to the
great need for contact and stimulation brought on by their giftedness and their disability, they are quite adept at
devising communication methods (Friedrichs, 2001). An example of this is found in the case study of a Polynesian
man, both deaf and blind, who developed his own language symbols in order to communicate with his highly verbal
cultural group (Maker, 1977). The intense isolation of his disability appears to have triggered his problem-solving
skills related to the need to communicate. This type of activity is typical of individuals who are gifted/deaf-blind.
They possess the mental capacity to excel, but lack the sensory capabilities to interact with their environments.

Because of the lack of stimulation that children who are deaf-blind receive as infants and young children, a
lag in development in all areas of growth occurs. However, the child who is gifted/deaf-blind may be recognized by
rapid progress in communication and cognitive skills once the child receives special intervention services
(Friedrichs, 2001; Whitmore & Maker, 1985). The case study of a young Singaporean woman who is deaf-blind
illustrates this point. When she came to the United States, she had no knowledge of English. However, by the time
she left, she had mastered both written and spoken forms of the language to the extent that she could teach other
students. Her giftedness was also evidenced by great self-confidence and risk-taking skills (Waterhouse, 1974).

Characteristics observed by Henley (1998) in an artistically talented young man who is gifted deaf-blind
 echoed those found in the intellectually gifted/deaf-blind. Though legally blind and deaf, the young man did have
limited vision capabilities, which made it possible for him to draw. He created bold abstractions of scenes from
urban life. Gifted characteristics noted by Henley were the young man’s energetic attitude, high commitment, and
compensatory adaptations for his disability in his work. He also exhibited strong frustration at times, especially
when he was required to put his work aside unfinished. He expressed intense curiosity about the world around him
and had a great appetite for knowledge (Heneley, 1988).
A heightened sense of touch and smell have also been noted in high-ability individuals who are deaf-blind. Take for example, the case of a six-year-old boy living in a residential school for the deaf and blind. On daily walks around campus, with the help of an attendant, the young boy would constantly reach out his arms to make contact with those around him. He insisted on walking barefoot around campus as often as possible to feel the surface of the ground, and he could be observed sniffing the air as he walked to receive stimulation from the air around him (Waterhouse, 1974). This young boy grew into a self-sufficient adult who was able to support himself as well as his family without assistance. It should be noted here that in the non-disabled world such an accomplishment would not be considered in the realm of gifted behavior, but for one deprived from birth of the two primary means of environmental interactions, vision and hearing, it is truly remarkable.

**Screening and Identification**

The severity of hearing and vision loss for a student who is deaf-blind must be considered when seeking identification of giftedness. Since the extent to which vision and hearing loss exists varies among students who are deaf-blind, the administration of intelligence tests can be difficult and time consuming. Standardized intelligence tests may not accurately assess the intellectual level of students who are deaf-blind (Ward & Zambone, 1992). Developmental lags resulting from the students’ lack of environmental stimulation cause intellectual growth to be delayed when compared to non-disabled students, making it imperative that identification standards for giftedness for children who are deaf-blind be separate from standards developed for students with no disabilities. Intelligence tests used with children who are deaf and blind should also be normed on this population for accurate score interpretation (Maker, 1977).

One norm-referenced assessment instrument developed to aid in the assessment of students who are deaf-blind is the *Callier-Azusa Scale: H Edition* (Stillman & Battle, 1985). This scale was used to assess children who were deaf-blind between the ages of birth and 12 years and to serve as a guide for educators in their evaluations of children who were deaf-blind in the areas of motor development, perceptual development, daily living skills, cognition, communication, and language. An earlier version of the scale, the *Azusa Scale*, was the focus of two studies reported by Stillman in 1973. The first study evaluated the scale with 16 children who were deaf-blind, while the second study evaluated the scale with 124 children who were deaf-blind. Findings indicated that the scale was appropriate for measuring developmental progress, improving instruction, and evaluating programs. An additional study to evaluate the effectiveness of the more recent *Callier-Azusa Scale* in assessing children who were deaf-blind.
was conducted by the scale’s developer, Robert Stillman (1973; 1974). The participants of the second study were 70 teachers of the deaf-blind, who participated in a field-test using a pilot version of the scale. Results indicated the scale might be best suited for assessing the developmental progress of low-functioning children who are deaf-blind and multi-disabled (Stillman, 1973; 1974). However, there are currently no standardized intelligence tests specifically developed for or normed on the deaf-blind population.

To supplement the lack of standardized tests for the deaf-blind population, informal identification procedures should be implemented to aid in the screening and identification of giftedness among this population. Among those recommended include: (a) samples of the child’s work; (b) interviews with the child’s parents and teachers; and (c) observations of the child in academic settings.

To aid in the early identification of high potential in deaf-blind children parents and caregivers should be trained in nonverbal communication skills (Maker, 1977). Evidence shows that nonverbal communication skills are essential for parents of nonresponsive infants to promote health and provide stimulation for the growing infant (Waterhouse, 1974). Furthermore, Maker suggested that teachers and support personnel for the deaf-blind should be trained to observe their students for signs of giftedness.

With young children who are deaf-blind, assessment through observational techniques such as the Play Assessment Scale (PAS; Fewell & Rich, 1987) may offer guidance in identifying children who are gifted/deaf-blind. By observing play, the PAS has been studied to determine the effectiveness of evaluating the cognitive and communication abilities of children who are deaf-blind. Seventeen children who were multi-disabled, including deaf-blind, between the ages of four and six were evaluated using the PAS. Through the use of toys, child interaction, and an observer checklist, researchers found a significant correlation between the PAS and the Callier-Azusa Scale in the areas of cognitive and communicative development (Fewell & Rich, 1987).

Though few measures exist for assessing children who are deaf-blind, an even greater paucity of research has been uncovered related to the identification of giftedness in these children. Multiple measures and direct observation of students who are deaf-blind appear vital to their being identified for inclusion in gifted education programming at this point.

**Instruction**

Serving children who are gifted/deaf-blind has been problematic for several reasons. Among those has been the identification of the deaf-blind population. Because deaf-blindness is often accompanied by other disabilities,
responsibility for special services has fallen to the agencies for the blind, the deaf, and/or the multi-disabled. In addition, students may inadvertently be labeled either blind or deaf or multi-disabled depending on the education agency and its funding needs (Ward & Zambone, 1992). Attempts to determine the exact number of deaf-blind students in the public school system have been hampered because of a lack of specific information on this unique population and the absence of teachers and teacher training programs for working with these students (Zambone & Huebner, 1992).

Given that identifying the total number of students who are deaf-blind has been difficult, it is no wonder that the gifted/deaf-blind have not been recognized and served in an efficient manner. The heterogeneous nature of the deaf-blind population who experience varying degrees of vision and hearing loss, often coupled with other disabilities, varying intellectual levels, and limited communication skills, all combine to make best instructional practices for this group difficult to ascertain (Ward & Zambone, 1992). The nature of this group and the lack of knowledge about them hinder planning for the gifted/deaf-blind and the non-gifted/deaf-blind alike.

There has been interest in providing for the needs of capable students who are deaf-blind in the past. A survey of education professionals concerned with future directions in research for this group reported, among other things, that there should be an increase in creating opportunities for high-potential students who are deaf-blind. Additionally, this same report stated that there should be an increased focus on the abilities of students who are deaf-blind rather than their disabilities (Tweedie & Baud, 1981). This sentiment echoed the thoughts of Maker (1977) in her work on gifted students with disabilities.

Frequently, the gifted student who is not disabled will become bored with classroom activities related to repetitive skill instruction (Winebrenner, 2001). However, for the student who is gifted/deaf-blind, repetition is the key. In their quest to learn to communicate without the aid of vision or hearing, children who are gifted/deaf-blind appear to understand that continual repetition of words is essential. Making adjustments for success in achieving their communication goals is common among these students (Waterhouse, 1974).

Maker (1977) reported suggestions from educators, family, and friends of individuals who are deaf-blind as to the most effective strategies for addressing the needs of individuals who are gifted/disabled. These included: (a) emphasizing early recognition of and action toward developing potential in these students; (b) increasing opportunities for these children to interact with individuals without disabilities; (c) developing systems that enable individuals who are gifted/deaf-blind to pursue areas of interest; (d) enhancing public awareness of the existence of...
children who are gifted/deaf-blind; and (e) emphasizing independence and responsibility in these students.

Conclusion

Students who are gifted/deaf-blind exhibit specific characteristics that may help parents and educators identify their potential. The need for research in the screening, identification, and instruction of students who are gifted/deaf-blind is great. This research is essential if their exceptional talents are to be recognized and nurtured.
References


 Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


### Appendix A

**Characteristics of Students Who Are Gifted/Deaf-Blind**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep sense of their own uniqueness</td>
<td>Students who are gifted/deaf-blind may be intensely aware of the limitations brought on by their disabilities.</td>
</tr>
<tr>
<td>High task commitment</td>
<td>These students may demonstrate a strong interest in personal goal setting and persistence to achieve those goals.</td>
</tr>
<tr>
<td>Desire for normalcy</td>
<td>They may become extremely frustrated when their expectations for normalcy are not met.</td>
</tr>
<tr>
<td>Superior memory</td>
<td>By virtue of their superior memory, gifted/deaf-blind students may possess a large knowledge base.</td>
</tr>
<tr>
<td>Deep curiosity</td>
<td>Though typical of gifted children in general, the student who is gifted/deaf-blind may use this trait to satisfy a great appetite for knowledge.</td>
</tr>
<tr>
<td>Excellent perception of the environment</td>
<td>Individuals who are deaf-blind, by virtue of their disability, must be attuned to their environment through the senses they have available to them. This sensitivity may be even more pronounced in students who are gifted/deaf-blind.</td>
</tr>
<tr>
<td>Precocious progress in cognitive and communication</td>
<td>Children who are gifted/deaf-blind may display great growth once intervention services are implemented.</td>
</tr>
<tr>
<td>Problem-solving skills</td>
<td>Elements of superior creative thinking are commonly found in gifted students. Children who are gifted/deaf-blind may possess creative problem-solving skills in devising methods of communicating with others.</td>
</tr>
<tr>
<td>Strong emotions</td>
<td>Due to their frustration with the limitations of their disabilities, individuals who are gifted/deaf-blind may express high emotions.</td>
</tr>
</tbody>
</table>

Adapted from Friedrichs (2001); Henley (1988); Ingraham & Daugherty (1995); Maker (1977); Waterhouse (1974); and Whitmore & Maker (1985).
## Appendix B

**Screening/Identification Procedures for Students Suspected of Being Gifted/Deaf-Blind**

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid comparing students who are deaf-blind to students without disabilities.</td>
<td>Because of their disability, gifted/deaf-blind students may experience a lag in cognitive development. When their performance is compared to nondisabled age-mates, deaf-blind children’s scores may not indicate giftedness.</td>
</tr>
<tr>
<td>Standardized assessments may not accurately assess the intellectual levels of deaf-blind students.</td>
<td>Because these instruments were developed for non-disabled individuals, results may not be valid for the deaf-blind.</td>
</tr>
<tr>
<td>Use alternative assessment methods.</td>
<td>These may include interviews with the students’ teachers and parents, samples of student work, and observations of the child in academic settings.</td>
</tr>
<tr>
<td>Train teachers and parents to recognize the characteristics of giftedness in the deaf-blind.</td>
<td>Teachers and parents who are cognizant of gifted traits in deaf-blind students can recommend them for further screening.</td>
</tr>
</tbody>
</table>

### Appendix C

**Instructional Strategies for Students Who Are Gifted/Deaf-Blind**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build on students’ strengths; Look for areas of concentrated intellectual abilities.</td>
<td>Observation and analysis of individual test items on standardized tests will reveal student strengths. Plan instruction to build on these.</td>
</tr>
<tr>
<td>Learn as much as you can about the cause of the child’s disability and family background.</td>
<td>In order to be able to focus on the strengths of these students, teachers must develop a comprehensive understanding of them as individuals.</td>
</tr>
<tr>
<td>Emphasize communication skills through repetition.</td>
<td>It is vitally important that gifted/deaf-blind children develop a communication mode for interaction with their environments.</td>
</tr>
<tr>
<td>Develop psychomotor skills.</td>
<td>Independence and normalcy are important to gifted/deaf-blind students. The ability to move somewhat freely in their environments will help students develop confidence and self-esteem.</td>
</tr>
<tr>
<td>Provide frequent opportunities to explore the world through hands-on experiences.</td>
<td>The lack of sensory input experienced by gifted/deaf-blind children causes developmental lags when compared to nondisabled children. Increased opportunities to experience learning in novel ways will help them close the developmental gap.</td>
</tr>
</tbody>
</table>

Adapted from Ingraham & Daugherty (1995); Maker (1977); Tweedie & Baud (1981); Waterhouse (1974); and Whitmore & Maker (1985).
National and State Associations for the Deaf/Blind

American Association for the Deaf-Blind
814 Thayer Avenue, Suite 302
Silver Spring, MD 20910-4500
(301) 495-4402 (TTY)
(301) 495-4403
(301) 495-4404 (fax)
http://www.aadb.org
E-mail info@aadb.org
The AADB seeks to enable deaf-blind persons to achieve their maximum potential by increasing independence, productivity and integration into the community.

The Council for Exceptional Children
1110 North Glebe Road Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(866) 915-5000 (text only) (TTY)
www.cec.sped.org/
E-mail service@cec.sped.org
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) LET-ERIC (538-3742)
(301) 519-5157
(301) 519-6760 (fax)
E-mail accesseric@accesseric.org
URL: http://www.eric.ed.gov/
ERIC gathers and disseminates professional literature, information, and resources on the education and development of individuals of all ages who have disabilities and/or who are gifted.

The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
www.ids.usm.edu/projectOutdoor.htm
This organization can be contacted directly by e-mail at www.ids.usm.edu/contactUs.htm
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

The Helen Keller Foundation for Research and Education
1201 11th Ave. South, Suite 300
Birmingham, AL 35205
(860) 306-2496
(860) 521-6101 (fax)
http://www.helenkellerfoundation.org
The foundation’s mission is based on the legacy of Helen Keller. This organization strives to prevent blindness and deafness by promoting research and education. The foundation’s goals include being a leader in integrating sight, speech and hearing research with the greater biomedical research community, as well as creating and coordinating a peer-reviewed, worldwide network of investigators and institutions.

**Mississippi Department of Rehabilitation Services (MDRS)**
MDRS State Office  
1281 Hwy. 51 North  
Madison, MS 39110  
(601) 853-5209  
[www.mdrs.state.ms.us](http://www.mdrs.state.ms.us)

This organization can be contacted directly by e-mail at [www.mdrs.state.ms.us/contact/index.html](http://www.mdrs.state.ms.us/contact/index.html)

It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

**NICHCY**
P.O. Box 1492  
Washington, DC 20013  
(800) 695-0285 (Telephone & TTY)  
(202) 884-8441 (fax)

[www.nichcy.org](http://www.nichcy.org)

E-mail nichcy@aed.org

The National Center for Children and Youth with Disabilities provides information on disabilities and disability-related issues for parents, educators, and other professionals.

**Office of Special Education Programs (OSEP)**
Office of Special Education and Rehabilitative Services  
U.S. Department of Education  
400 Maryland Ave., S.W.  
Washington, DC 20202  
(202) 205-5507


The Office of Special Education Programs (OSEP) is dedicated to improving results for infants, toddlers, children and youth with disabilities ages birth through 21 by providing leadership and financial support to assist states and local districts.

**PACER Center**
8161 Normandale Blvd.  
Minneapolis, MN 55437  
(952) 838-9000  
(952) 838-0190 (TTY)  
(952) 838-0199 (fax)

[www.pacer.org/index.htm](http://www.pacer.org/index.htm)

E-mail pacer@pacer.org

The PACER Center expands opportunities and enhances the quality of life of children and young adults with disabilities and their families, based on the concept of parents helping parents. This national center responds to thousands of parents and professionals each year. Services provided include assistance to individual families, workshops, materials for parents and professionals, and leadership in securing a free and appropriate public education for all children.

- 45 -
Gifted/Deaf and Gifted/Hearing Impaired Students
Definitions

According to the IDEA 1997, deafness is “a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification that adversely affects a child's educational performance.” A hearing impairment is “an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness” (IDEA, 1997).

In Mississippi, the definition of hearing impaired states:

Children with a hearing impairment are those who are deaf or who are hard of hearing. Deaf means a hearing impairment which is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, which adversely affects educational performance. Hearing impairment means an impairment in hearing, whether permanent or fluctuating, which adversely affects the child’s educational performance. Children with hearing impairments have sufficient hearing to allow them to process information through the auditory channel with or without amplification.

(Mississippi Department of Education, p. 8).

Hearing impairments are classified by level of decibel loss, ranging from Level I (26-53 decibels loss) to Level IV (90 decibels or greater loss), and can occur during early childhood (before age 4), late teens (18 to 19) or late adulthood (Deutch, 1987 as cited in Birely, 1991).

Students who are gifted/hearing impaired meet criteria for special education services based on their formal identification as both hearing impaired and gifted. Such services for the hearing impaired are usually provided for students with a hearing loss of 70 decibels or greater in the better ear. These students may receive educational placements in a variety of settings, including full or partial inclusion in a regular education environment, or placement in a school for the deaf (Yewchuk & Bibby, 1989). The incidence rate of giftedness among deaf or hearing impaired students varies; Gamble (1985) reported a 4.2 percent incidence rate, but Tubb (1990) reported a 7.5 percent incidence rate.

Characteristics

Friedrichs (2001) provides a list of several traits common to children who are gifted/hearing impaired. These students may compensate for their hearing challenges through exceptional performance on visual memory.
These students may also evidence advanced skill in expression, both verbally and nonverbally (Whiting, Anderson, & Ward, 1980; Whitmore & Maker, 1985). Those who are gifted/hearing impaired may have positive motivational characteristics, as seen in their interest in a variety of subjects and their independent pursuit of these interests (Whiting et al., 1981). Students who are gifted/hearing impaired may also exhibit creativity through their imaginative products (Whiting et al., 1981). Whiting et al. (1980) noted several characteristics of students who are gifted/deaf in addition to having high IQs (See Appendix A).

Yewchuk and Bibby (1988) compiled a master list of “Perceived Characteristics of Giftedness in Hearing-Impaired Nominees,” based upon findings from interviews with teachers of students with hearing impairments. The teachers noted several traits, such as: understanding quickly, demonstrating superior recall, using expressive language through colorful and precise speech articulation, engaging in frequent verbal exchanges, demonstrating superior vocabulary, grasping concepts easily, thinking quickly, evidencing outstanding academic ability in several areas, surpassing peers on achievement tests, and being eager to learn and inquisitive in school. These characteristics are also found in the literature for hearing students (Davis & Rimm, 1985), suggesting that there are similar manifestations of giftedness among students with and without hearing impairments. While many gifted students perform above grade level, achievement of students who are gifted/hearing impaired is usually at grade level (Yewchuk & Bibby, 1988, 1989; Yewchuk, Bibby, & Fraser, 1989).

Bibby (1991) interviewed 14 Canadian teachers of students who are deaf and hard of hearing and found that these professionals were able to identify the unique needs of students who are gifted/hearing impaired. Through comparison with other students with and without hearing impairments, these teachers deduced that a student is gifted through his or her perceptiveness, creativity, ability to grasp information quickly, advanced communication skills, self-motivation, advanced proficiency in American Sign Language, ability to overcome negative circumstances and thrive, and depth of insight.

Hokanson and Jospe (1977) noted that children with hearing impairments may evidence their giftedness in a variety of ways, including the manner in which they infer rules from their social and real-world experiences, “how effectively they learn routines, how quickly they take initiative in generating their own learning (by using a toy or object in a different, unique manner), and how well they organize their behavior and plan” (p. 20). Furthermore, other signs of giftedness in students with hearing impairments students may include their ability to learn new
concepts quickly in both social and intellectual pursuits. The rate of development in areas of deficiency may also indicate potential giftedness. Students may also manifest giftedness through their ability to organize pieces and parts through discrimination and understanding. In order to gather information about the student’s learning, behavior, and characteristics, observation of a young student with hearing impairments in playroom situations is recommended (Hokanson & Jospe, 1977).

Murphy-Berman, Witters, and Harding (1985) replicated a study of spatial perception in academically and intellectually gifted students with profound hearing impairments. Piaget and Inhelder (1956) initially investigated children’s ability to comprehend the principles that still water remains horizontal, regardless of the liquid container’s angle. Piaget considered this understanding of critical importance in a child’s visual-spatial growth and epitomizing the concepts under girding Euclidian space. Additional investigations using the water line test since Piaget and Inhelder’s study considered gender differences (Morris, 1971; Rebelsky, 1964; Williams & Reynolds, 1973), level of education (Kelly & Kelly, 1977, 1978a, 1978b; Thomas & Jamison, 1975; Thomas, Jamison & Hummel, 1973; Walker & Krasnoff, 1978), giftedness, and disabilities in understanding spatial skill development (Kelly & Witters, 1981).

Murphy-Berman et al. (1985) investigated two groups of adolescents. Group 1 (n =18) was composed of gifted male and female students, ages 13 to 18 (mean =14.6), with hearing impairments (severe to profound) who had attended residential schools and summer programs for children who are gifted/hearing impaired and scored at or above 130 on individually administered measures of intelligence, including the *Wechsler Intelligence Scale for Children – Revised (WISC-R)* (Wechsler, 1974), or the *Hiskey Nebraska* (Hiskey, 1966). The second group was comprised of intellectually and academically average male and female secondary students (n=18, ages 13-18) attending two residential schools for the deaf. Subjects were given a paper and pencil test to assess their perception of liquid horizontally in three phases for the purpose of determining whether gender, bottle shape, or bottle position impacted the performance of students who are gifted/hearing impaired and gifted/non-hearing impaired.

Results indicated that “gifted students were less distracted by bottle shape than average functioning students” in making determinations regarding water line (Murphy-Berman et al., 1985, p. 281). No gender differences between the performances of students who are gifted/hearing impaired were found, but gender differences were noticed between average students who were hearing impaired. Ultimately, students who are gifted or non-gifted/hearing impaired can recognize spatial relationships, which are critical to other areas of study,
including mathematics and geology. Educators are encouraged to provide hearing impaired students with concrete activities to assist in the development of spatial relationships rather than abstract words and symbols, which may be less effective.

Tubb (1990) investigated the characteristics of 14 students who were gifted/deaf students attending a state school for the deaf and blind. Students ranged in age from 6 to 19 years, the majority of whom (n=12) were Caucasian, while 2 were Hispanic. Through logging archival data; administering a visual-spatial task; collecting case study data on 4 of the adolescents who were gifted/deaf within the group of 14; and administering a self-report to the subjects, information about the characteristics of these students was gleaned. Findings indicated that subjects 12 or older within the group performed at more advanced levels than their younger peers who were gifted/deaf on the Piaget visual-spatial task, a replication of the Piaget and Inhelder (1956) water level test.

Results of the self-reports indicated that these students who were gifted/deaf recognized their own giftedness because they possessed the ability to learn differently than their non-gifted deaf peers; grades and coursework were also noted by these students as indicators of their perceived giftedness. Students were also aware of other characteristics of their giftedness, including having a good memory, finding ease in tasks such as “reading maps, making friends, and reading charts” and doing math (Tubb, 1990, p. 175).

Tubb (1990) interviews with 4 of the identified gifted/deaf students indicated strengths in many of the 7 areas of Gardner’s (1983) Multiple Intelligences. As a group, the students perceived themselves to be most competent in personal and linguistic intelligences, which included reading ability and interest as well as communication skills. However, individual students in the case studies emphasized their interests and strengths in many of the intelligences.

Baker (1985) studied 30 students who were gifted/hearing impaired and enrolled in public schools in Colorado. The students were assigned to mildly gifted or moderately gifted subgroups based on the results of their performance on nonverbal measures of intelligence. Information about subjects was also gleaned from parent questionnaires; individual measures of intelligence, including the WISC-R (Wechsler, 1974) and the Leiter International Performance Scale-Revised (Leiter-R) (Leiter, 1969); written and verbal language samples derived from the Peabody Picture Story cards (Dunn & Dunn, 1981); verbal responses based on competencies in English and American Sign Language and social-emotional functioning based on the Meadow-Kendall Social-Emotional Assessment Inventory for Deaf and Hearing Impaired Students (Meadow-Olrans, 1983).
Results of Baker’s (1985) study indicated that “gifted, deaf children displayed intellectual patterns characteristic of those of the hearing handicapped population at large” (p. 1899). As a group, these students displayed similar intellectual abilities, characteristics, and social-emotional levels as the general hearing impaired population. These students also evidenced varying written language abilities, most likely due to chronological and mental age. Verbal language abilities for English and American Sign Language also varied among these students. Baker noted that the students in the study “were characterized by curiosity, alertness, excellent memory, keen observation, rapid learning, task commitment in self-identified projects, interest in puzzles and mazes, interest in participating in physical activities, and early development of coordination, agility, and strength” (1985, p. 1899).

**Screening and Identification**

**Assessment Adaptations**

Intellectual assessment of a student with a hearing impairment may require some “administrative modifications during the assessment, response-fair tests, or measures designed and/or standardized on hearing impaired populations” (Gray, 1987, p. 267). Before proceeding with administrative modification decisions, the examiner should investigate the needs of the student to be evaluated, including the etiology of the hearing loss, degree of hearing loss, and age of onset, all of which may be determined through examining case history data, previous audiological evaluations, and previous educational testing (Vernon, 1974; Zieziula, 1982, as cited in Gray, 1987).

Adaptations should be made for the testing based on the degree of hearing loss. Adaptations of assessment may include pantomime or sign language, as “an interpreter may be used to translate verbal instructions into sign language and an examinee’s signed responses into speech” (Gray, 1987, p. 268). Gray cautions that use of an interpreter in this process may lead to a loss of rapport between the examiner and examinee(s). Furthermore, a total communication technique is recommended, whereby both oral and manual administration directions are provided. When delivering oral directions, the examiner should be careful in the delivery of the spoken word. Sullivan and Vernon (1979, as cited in Gray, 1987) suggested that the examiner ensure that the examinee(s) is paying close attention to the examiner’s face. Additionally, the examiner should articulate directions in clear, complete sentences without exaggerating lip movements, which can hinder lip reading.

**Verbal and Nonverbal Measures of Intelligence**

Use of nonverbal measures of intelligence has been recommended in screening and identifying potentially
gifted hearing impaired students (Hokanson & Jospe, 1977; Levine, 1974), including the Raven’s Standard Progressive Matrices (Raven, 1956) and the Leiter-R (Roid & Miller, 1997). Similarly, Gray indicated that verbal measures of intelligence may not produce accurate results of cognitive functioning for hearing impaired students. Thus, nonverbal measures of intelligence are often recommended for use with hearing impaired students (Burchard & Myklebust, 1942, as cited in Gray, 1987). Likewise, Rittenhouse and Blough (1985) indicated that educators should downplay verbal test scores in determining giftedness and accentuate nonverbal abilities in the screening and identification process. The development and use of checklists that are reflective of the type of giftedness addressed in the local gifted program are also recommended. Furthermore, gifted program developers should compare the results of hearing students against the results of hearing impaired and deaf students (Rittenhouse & Blough, 1985).

Sattler (1982) recommends the use of individually administered nonverbal measures of intelligence. Among the most frequently used measures, in descending order of frequency, are the WISC-R (Wechsler, 1974), the Hiskey Nebraska (Hiskey, 1966), the Leiter (Leiter, 1969), the Snijders-Oomen Nonverbal Intelligence Test for Deaf and Hearing Subjects (Tellegen, Winkel, Wijnberg-Williams, Laros, & Snijders, 1989) and the Raven’s Progressive Matrices (Raven, 1956). Tubb’s (1990) research indicated that the WISC-R was the primary measure used to assess 11 of 14 identified students who were gifted/deaf at a state school for deaf and blind students. Other criteria used by this school to identify students who were gifted/deaf included the Rhode Island Test of Language Structure (Engen & Engen, 1983), academic achievement, and Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS) (Renzulli, Smith, White, Callahan, & Hartman, 1976).

Research of the Wechsler Intelligence Scale-Revised (WISC-R) (Wechsler, 1974) with hearing impaired students (Roach & Rosencrans, 1972) indicates that students with “mild to moderate hearing loss obtained spuriously low intelligence estimates when the WISC Verbal IQ was considered” (as cited in Gray, 1987, p. 269-270). Conversely, the same students scored in the average range on the nonverbal portion of the WISC, illustrating the impact of hearing impairments “on verbal/language functioning” (Gray, 1987, p. 270). Tubb’s (1990) research indicated that among the 11 students who are gifted/deaf and had been assessed using the WISC-R, no statistically significant differences were found among the mean subscale scores, but the areas of reported difficulty for these students differed from the results reported for the general deaf population (Sisco & Anderson, 1978 as cited in Tubb). Students who were gifted/deaf illustrated the strongest performance on the Picture Arrangement performance subtest, which differed from prior research, which indicated that Object Assembly was the easiest subset for
gifted/deaf students (Baker, 1985) or gifted students (Sisco & Anderson, 1978).

Vernon (1974) recommends supplementing verbal measures of intelligence with a nonverbal measure of intelligence for deaf or hearing impaired students (as cited in Gray, 1987). One potentially useful nonverbal measure is the *Coloured Progressive Matrices (CPM)* (Raven, 1960), which has been examined for reliability and validity with deaf children (n=52), ages 5 to 12 (Evans, 1980). Evans’ findings indicated strong internal consistency estimates for the CPM, ranging from .95 for 7- and 8-year-olds and .88 for 11- and 12-year-olds. Additionally, findings from correlations between the performance of students on the *CPM* and the Wechsler performance subtests indicate moderate (*r*=.56) correlations for 5- and 6-year-olds, and strong correlations (*r*=.83) for 11- and 12-year-olds. Additionally, students’ performance on the *CPM* and the Certificate of Secondary Education (British achievement-type test) was significantly correlated (*r*=.70), indicating that the *CPM* may be a useful measure with students ranging from 9 to 12 years of age (Gray, 1987).

Blough, Rittenhouse, and Dancer (1999) investigated the use of nonverbal measures for identifying students who are gifted/deaf. Subjects included 11 junior high students attending a residential school for the deaf. None of the students had previously been identified for gifted programming, but all were in the highest level courses for their grade level. All students had a profound hearing loss in both ears. The *Raven’s Advanced Progressive Matrices (APM)* (Raven, 1965) was administered to all students. Teacher checklists were also completed, measuring (a) organizational skills, (b) work habits, (c) creativity, and (d) leadership on a 5-point Likert-type scale. Five students scored at or above the 95th percentile, rendering them eligible for gifted services in most districts.

Another primarily nonverbal measure recommended for the identification of students who are gifted/deaf or gifted/hearing impaired is the *Hiskey-Nebraska Test of Learning Aptitude (HNTLA)*; Hiskey, 1966), which has been standardized on 1,079 deaf children ages 3 to 17 years. This assessment was designed to measure a much wider variety of intellectual functioning than other nonverbal tests (Gray, 1987). Split half reliability estimates were significantly high (in the .90s) for deaf children in the standardization sample. Significant correlations (*r*=.78 and .86) for normal hearing students’ scores were found between the HNTLA and both the Stanford Binet and WISC, respectively. The HNTLA is no longer published.

Although nonverbal measures are advised for screening and identifying the gifted, Gamble (1985) reported that most programs serving students who are gifted/hearing impaired or gifted/deaf utilize verbal measures of intelligence. Gamble surveyed 130 schools and county special education programs available to intellectually and
academically gifted students who are hearing impaired to determine the following: (a) range of educational options provided to these students, (b) the number of students identified, and (c) identification measures used. A response rate of 75% was reported, with 64% usable surveys. Results from this study indicated that the majority (93 percent) of reported gifted programs for learners with hearing impairments using the *WISC-R* (Wechsler, 1974) “to measure general intellectual ability” (Gamble, 1985, p. 511), followed closely by the *Stanford Achievement Test – Hearing Impaired Version* (Madden, Gardner, Rudman, Karlsen & Merwin, 1973), which was the second most frequently used measure for identification. Respondents indicated an average criterion score of 123, with a range of 112 to 132 on the *WISC-R*. For the identification of academically gifted students with hearing impairments, teacher nomination was the most frequently cited identification measure.

**Nominations for Gifted Programming**

MacNeil (1986) surveyed programs serving students who were gifted/hearing impaired and found that nominations were used during the screening process. Based on the responses of 18 of 22 such programs throughout the United States, MacNeil found that teacher nominations were used by all of the respondents; other sources of nominations were also cited, including “specialists (67%), parents, (61%), principal/administrator (56%), and guidance counselors (44%)” (MacNeil, 1986, p. 325). MacNiel did not indicate that student nominations of peers or self-nominations were sources of nominations among respondents.

Research on nominations of students for gifted programs indicates that educators unfamiliar with characteristics of the gifted may overlook more than 50% of students who are gifted in hearing populations (Gear, 1978; Peggato & Birch, 1959). Conversely, educators trained in recognizing characteristics of the gifted (Gear, 1978) or those who use descriptive nomination scales (Borland, 1978) may accurately identify as many as 85% of intellectually gifted children. However, these findings were based on results from investigations involving gifted students without hearing impairments.

Yewchuk and Bibby (1988, 1989) investigated the use of parent and teacher nominations in the screening of 178 hearing impaired students, ages 5 to 20 years, attending either a public school (n=58) or a school for the deaf (n=120). Teachers were given *SRBCSS* (Renzulli et al., 1976). Parents were given a 22-item Parent Nomination Form, adapted from Martinson (1974), which had been used by the public schools in the study. All 178 of the students with hearing impairments who had severe or profound hearing loss were assessed using the *Leiter International Performance Scale* (Leiter, 1969), the Raven’s Progressive Matrices (Raven, 1956), the *WISC-R*
performance scale—hearing norms (Wechsler, 1974), and the *Wechsler Adult Intelligence Scale—Revised (WAIS-R)* (Wechsler, 1981).

Of the 11 students who scored in the 95th-99th percentile on the intelligence measure, 6 students had been nominated by both a parent and teacher, 2 students were nominated only by teachers, and 1 student was nominated by parents only. Of the students scoring within the gifted range for this study (130 or above on an individually administered intelligence test), 1 student scoring at the 99th percentile was nominated only by a parent, and 1 student scoring in the 98th percentile was nominated only by a teacher. Based on these findings, the researchers recommended, “the need for considering both parent and teacher nominations in an identification procedure for the hearing impaired” (Yewchuk & Bibby, 1988, p. 346). Overall, 6.1% of the 178 hearing impaired students in this study “fell within the gifted range, as determined by nonverbal IQ” (Yewchuk & Bibby, 1988, p. 347).

Yewchuk, Bibby, and Fraser (1989) investigated the “effectiveness of 4 nomination forms in identifying intellectually gifted, hearing-impaired children” (p. 87). Subjects were students with hearing impairments attending the Alberta School for the Deaf, with hearing losses greater than 70 decibels, and between the ages of 5 and 20 years. Two groups were utilized; a group of 15 students nominated by their teachers as gifted, and a comparison group of 14 age-matched students who were not nominated by teachers as gifted. Using 4 nomination forms, including the *SRBCSS* (Renzulli et al., 1976), *Rating Gifted Students (RGS)* (Edmonton Public School Board, 1985), *Teacher Observational Items (TOI)* (Plegie, 1982), and *Nomination Form for Potentially Gifted Students (NFPGS)* (Nasca, 1980), educators nominated any student from the schoolwide population whom they thought may be gifted, then completed all four forms for each of the nominated students by comparing these nominees with their hearing impaired peers. Age matches were then selected from among the remaining students who were not nominated, and homeroom teachers completed the four nomination forms for this second group. Data sheets were compiled for all students in both groups 1 and 2, including background information about each student’s hearing loss, IQ scores, achievement test scores, subject grades, and teacher comments pertaining to school performance.

Analysis of the collected data revealed that there was a wide range of IQ percentile scores on the *WISC-R* (Wechsler, 1974), *Wechsler Adult Intelligence Scale-Revised (WAIS-R)* (Wechsler, 1981), *Leiter* (Leiter, 1969), or the *Raven’s Standard Progressive Matrices* (Raven, 1956), within each group, but a smaller range of scores was evident among the students nominated as gifted: group 1 IQ percentile scores ranged from 45-97 (mean =79.4), while group 2 scores ranged from 8-96 (mean = 48.9) (Yewchuk, Bibby, & Fraser, 1989). T-test results indicated...
that the mean IQ scores for those nominated as gifted were significantly higher than the mean IQ scores of the students with hearing impairments who were not nominated as gifted.

Yewchuk, Bibby, and Fraser (1989) also examined the relationship between IQ scores and each of the nomination forms. No significant relationship was found between IQ percentile scores and scores on each of the nomination forms for either group 1 or group 2. However, in examining the differences between forms, a significant difference was found in favor of the students nominated as gifted on the SRBCSS (except in the category of music), RGS, TOI, and NFPGS. After studying the relationship among the four nomination forms, the RGS was found to “correlate most highly with each of the other three [forms]” (Yewchuk et al., 1989, p. 93) when considering students nominated as gifted. High correlations were also found for the RGS, TOI, and NFPGS for students in group 2, but the “SRBCSS did not correlate significantly with any of the other three forms” (Yewchuk et al., 1989, p. 93).

Ultimately, of the 15 students nominated as gifted, 4 had scored in the 95th percentile or above on an intelligence measure, but 3 students who scored within this range were not nominated by their teachers as gifted, rendering the teacher nomination process 42.8% effective in identifying students who are intellectually gifted/hearing impaired. The students not nominated as gifted evidenced characteristics frequently associated with gifted underachievers as well as students who were gifted/disabled (Nasca, 1980, as cited in Yewchuk et al., 1989), including “withdrawal, lack of cooperation, disruptiveness, inattentiveness, and apathy” (Yewchuk et al., 1989, p. 95).

Rittenhouse and Blough (1995) acknowledge a disparity of screening practices in the United States for students with hearing impairments who may be gifted. They note that teachers of the hearing impaired typically compare these students to their peer group; but the dilemma faced by educators is to which group these students should be compared: “gifted students, hearing students, or other students with hearing impairments in the same school” (Rittenhouse & Blough, 1995, p. 51). However, a few educators of students who are deaf and are in programs only pose this concern when they believe that “deaf students may also be gifted and talented” (Rittenhouse & Blough, 1995, p. 51). To address issues of screening and identification, Rittenhouse and Blough recommend choosing a definition of giftedness (intellectual, leadership, artistic, or creative), selecting methods and measures for identification, and determining a reference group (hearing impaired, gifted, or hearing students).

Although Rittenhouse and Blough (1995) did not specify any particular comparison group, school teams should analyze all possible comparisons for the best fit with the definition selected. For example, if a gifted program
is designed for students with gifts in math and science, language scores should not be considered in the determination for gifted programming. Furthermore, use of English and reading achievement scores, which are historically low for hearing impaired students, may result in the exclusion of these students from gifted programs (Rittenhouse & Blough, 1995; Sarnecky & Michaud, 1979).

Tubb (1990) utilized case study methodology to examine 14 students identified as gifted/deaf and enrolled in a residential program in the Southeast. These students had been identified for gifted programming through performance IQ scores, primarily on the *WISC-R* (Wechsler, 1974). Results from Tubb’s (1990) study indicated that self-reports and interviews may be helpful tools in learning about the wide range of gifts among this population. The self-reports of giftedness revealed that all students considered themselves gifted. Students also indicated an awareness that their perception of learning was different than the learning experiences of peers who were not gifted. Results of the interviews and self-reports also revealed individual strengths and weaknesses among this group, which led Tubb to conclude that “an expanded view of intelligence might ease identification of abilities in areas suggested as being least likely to be observed in deaf students,” including linguistic and musical abilities (1990, p. 882).

**Instruction**

Sarnecky and Michaud (1979) surveyed 14 schools in the Washington, D. C. area regarding the number of students identified as gifted/hearing impaired. Of the 5 schools that returned surveys, no students with hearing impairments were reported as identified in these gifted programs, which did serve gifted students with disabilities. Sarnecky and Michaud suggest that students with hearing impairments may be overlooked for screening and identification for gifted programs because “educators are unaware that hearing impaired children can be gifted and talented” (1979, p. 191).

In a national survey of programs for intellectually and academically gifted students with hearing impairments, Gamble (1985) found that 16 residential programs, 4 day programs, and 6 county programs served a total of 134 students with hearing impairments (44% females and 56% males), indicating an incidence rate of 4.2% of giftedness among learners with hearing impairments within this study. Curricular modifications were reported to address the unique learning needs of gifted students served in programs for students with hearing impairments. Specific requirements for the selection of teachers of the gifted in these programs were reported by 4 of 15 program supervisors, thus impacting only 19 (15%) of the identified 134 gifted/hearing impaired students in this study. The
primary screening and identification methods used to identify students who are gifted/hearing impaired were the same as those used in assessing gifted hearing students: teacher nomination, achievement tests, and intelligence measures, although parent nominations were not mentioned as an identification practice in programs for gifted/hearing impaired students (Gamble).

MacNeill (1986) surveyed 22 identified gifted/hearing impaired programs throughout the United States to ascertain the categories of giftedness recognized, identification and assessment procedures, characteristics of the students served, teaching models utilized, program components not found in typical gifted programs, preparation of the teachers and administrators working with students who were gifted/hearing impaired, and the nature of parental support and involvement in the program. Results from 18 schools indicated that the most frequently recognized types of giftedness were intellectually (100%) and academically (78%) gifted, followed by creatively gifted (72%), visual/performing arts (44%), leadership (39%), and psychomotor ability (17%). Multiple identification procedures were reported by all schools responding; criteria reported included nominations (100%), tests (titles not reported) (94%), evaluation summary (72%), screening (67%), descriptive case study (28%), portfolios (22%), and auditions (11%); however, self-concept, language, and sensory motor considerations were not part of assessment procedures listed by these 18 respondents. Of 22 programs for the gifted/hearing impaired 56% utilized teaching models; 78% of those incorporating teaching models used Bloom’s Taxonomy. Of the teachers in 17 of the surveyed programs, only 12% have credentials to teach both gifted and hearing impaired students, and only 24% of the teachers must attend gifted in-services. Only 38% of the programs reported having a parent component.

MacNeill (1986) outlined several suggestions for gifted/hearing impaired programs that mirror issues for the gifted hearing population. In addition to academically gifted and intellectually gifted programs, other types of gifted programs should be considered. Identification and assessment measures should be expanded to include a greater variety and address various types of giftedness. The curricula for students who are gifted/hearing impaired should include teaching-learning models that enhance the education of the gifted. Advisory committees comprised of community members and parents of the gifted should be formed and should become an integral part of program planning. Regular education and gifted education teachers should work more collaboratively to provide appropriate academic opportunities for gifted/hearing impaired students. Lastly, gifted program quality could be enhanced through more teacher preparation in educating the gifted.

MacDonald and Yewchuk (1994) provided several suggestions for providing appropriate education for a
student who is gifted/deaf. They outlined ideas from several researchers (Gallaudet University, 1983; Maker, 1977; Pollard & Howze, 1981; Texas School for the Deaf, 1980) who provide ideas for designing and implementing programming and materials for this population. Flexibility should be a mainstay of such programming design and use, allowing students to achieve goals but also providing opportunities for complex problem solving. The selection of materials should reflect their use in developing higher-level thinking skills, and the materials should be flexible enough to allow for a broad range of responses at advanced levels of thinking rather than for specific, convergent types of responses. Materials used with learners who are gifted/hearing impaired should highlight the gifts possessed by these students, challenge them to achieve at higher levels, and be individualized to meet their unique cognitive skills. Programming should extend the learning of students who are gifted/hearing impaired, and allow for the development of their interests and skills.

Differentiation for students who are gifted/deaf should also be a mainstay of programming for this population; MacDonald and Yewchuk (1994) recommend Kaplan’s (1975, 1986) Differentiated Curriculum Model and a whole-language approach in educating the student who is gifted/deaf. Educators of students who are gifted/deaf will find these two approaches similar in construct, as both provide an outline for teaching while allowing flexibility in meeting the needs of various learners through small and large group interactions. Additionally, affective concerns are priorities in both models, and they also provide the instructor opportunities to facilitate learning opportunities for individual students through thematic units and in an environment that promotes respect for all learners.

Rittenhouse and Blough (1995) addressed the educational preparation of teachers. They noted that educators of students who are gifted/hearing impaired “are not prepared in their teacher education programs to respond to gifted and talented students, and, in fact, may be predisposed to teach in ways specifically determined by the child’s hearing loss and whatever stereotypic needs that loss might suggest” (Rittenhouse & Blough, 1995, p. 52). Hence, teachers and administrators should assume that students who are deaf or hearing impaired have talents that, if developed in the classroom, can maximize the student’s overall learning experience. Curricula should also be individualized to meet the unique instructional needs of students who are gifted/hearing impaired; this may include the creation of thematic units that draw upon the individual gifts and talents of identified students.

Conclusion

Research indicates that few programs for students who are either gifted/deaf or gifted/hearing impaired
exist across the United States. However, several researchers have noted characteristics of students who are either
gifted/deaf or gifted/hearing impaired, which appear to be similar to gifted students without hearing impairments.
However, while the gifted student without a hearing impairment may perform above grade level, students who are
either gifted/deaf or gifted/hearing impaired may work at grade level. While the research indicates that nonverbal
measures of intelligence may be helpful in screening and identifying students who are either gifted/deaf or
gifted/hearing impaired, there is a paucity of current research in the field concerning other screening, identification,
and instructional practices for this population.
References


Evans, L. (1980). WISC Performance Scale and Coloured Progressive Matrices with deaf


Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


Kelly, G. N., & Kelly, J. T. (1978a). Some college students may have difficulty acquiring basic concepts


Appendix A  
Characteristics of Student Who Are Gifted/Deaf or Hearing Impaired

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are more apt to work at grade level</td>
<td>Different from gifted hearing who will be advanced for their chronological age level</td>
</tr>
<tr>
<td>Are self-starters</td>
<td>During testing, they may peek under the cardboard strip to see what test it will be. They may want to control the taking out and putting away of the blocks.</td>
</tr>
<tr>
<td>May evidence a sense of humor</td>
<td>The humor may manifest itself in teasing, play-acting, or pretending. These students enjoy laughter and go about setting up a situation in which to be merry.</td>
</tr>
<tr>
<td>May enjoy manipulating their environment</td>
<td>May pretend to be unable to comprehend a specific task, then complete it successfully and rapidly, and usually with a grin of triumph.</td>
</tr>
<tr>
<td>May appear intuitive</td>
<td>Do not need literal explanations, and the older students usually have the unique ability to know what you are going to “say” – or sign – before you “say” it.</td>
</tr>
<tr>
<td>Are ingenious in solving problems</td>
<td>Even when their test responses are incorrect, there is an explainable reason for why they answered as they did.</td>
</tr>
<tr>
<td>Enjoy the challenge of testing</td>
<td>May see the intelligence test as a game and want to continue, not wanting to give up on hard problems even when told it is “OK” to go on to another task.</td>
</tr>
<tr>
<td>Exhibit clearly symbolic language capabilities</td>
<td>At more than an age-appropriate level, the gifted are at home with inferences and abstractions.</td>
</tr>
</tbody>
</table>

Adapted from Whiting, Anderson, & Ward, 1980
# Appendix B

## Screening/Identification Procedures for Students Suspected of Being Gifted/Deaf or Hearing Impaired

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use nonverbal measures of intelligence</td>
<td>Due to their difficulties with hearing, these students might not be able to fully demonstrate their potential on a verbal measure of intelligence.</td>
</tr>
<tr>
<td>Utilize standardized nomination forms</td>
<td>Using standardized nomination forms ensures that all those involved in this process are looking for the same characteristics.</td>
</tr>
<tr>
<td>Allow for nominations from individuals outside school setting</td>
<td>Many times individuals who work with deaf and hearing impaired students outside the school setting can provide great insight into these children’s abilities.</td>
</tr>
<tr>
<td>Use standardized measure of intelligence</td>
<td>Certainly standardized measures of intelligence are useful, but many times these deaf and hearing impaired students are not used in norming population.</td>
</tr>
<tr>
<td>Make modifications to the testing instrument</td>
<td>Modifying the testing instruments can help to increase the identification of giftedness among the deaf and hearing impaired population.</td>
</tr>
</tbody>
</table>

Adapted from Gray (1987); Hokanson & Jospe (1977); Sattler (1982); and Whitmore & Maker (1985)
### Instructional Strategies for Students Who Are Gifted/Deaf or Gifted/Hearing Impaired

<table>
<thead>
<tr>
<th>Instructional Strategy</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiation of curriculum</td>
<td>This differentiation allows the student to learn at his/her developmental level rather than age level. Furthermore, it allows the instructor the flexibility to provide learning opportunities that are applicable to the real world.</td>
</tr>
<tr>
<td>Collaboration among regular education teachers, special education teachers, and gifted education teacher.</td>
<td>This collaboration helps to ensure continuity in all classroom environments in regards to instructional strategies and content.</td>
</tr>
<tr>
<td>Intellectually challenging academic experience</td>
<td>Avoid perceiving the child as disabled. Gifted/deaf or hearing impaired students require intellectually stimulating material.</td>
</tr>
<tr>
<td>Variety of learning materials</td>
<td>The materials should highlight the gifts and challenge them to maximize their potential.</td>
</tr>
<tr>
<td>Whole-language approach</td>
<td>This approach provides students opportunities to learn various forms of communication.</td>
</tr>
</tbody>
</table>

Gamble (1985); MacNeil (1986); Pollard & Howze (1981)
National and State Associations for Deaf and Hearing Impaired

**Alexander Graham Bell Association for the Deaf and Hard of Hearing**
3417 Volta Place, NW
Washington, DC 20007
(202) 337-5220
(202) 337-5221 TTY
(202) 337-8314 (fax)
The Alexander Graham Bell Association for the Deaf and Hard of Hearing is the world's oldest and largest membership organization promoting the use of spoken language by children and adults with hearing loss. Members include parents of children with hearing loss, adults who are deaf or hard of hearing, educators, audiologists, speech-language pathologists, physicians, and other professionals in fields related to hearing loss and deafness. Through advocacy, publications, financial aid and scholarships, and numerous programs and services, AG Bell promotes its mission: advocating independence through listening and talking.

**American Society for Deaf Children**
P.O. Box 3355
Gettysburg, PA 17325
(717) 334-7922 (Business V/TTY)
(717) 334-8808 (fax)
(800) 942-ASDC (Parent Hotline)
[http://www.deafchildren.org/home/home.html](http://www.deafchildren.org/home/home.html)
E-mail ASDC1@aol.com
ASDC's primary mission is to advocate for the highest-quality programs and services for parents in making sound and informed choices to meet their children’s educational, communication, personal and social needs so that they may fully participate in the global community of the 21st century.

**The University of Southern Mississippi**
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
[http://www.ids.usm.edu/projectOutdoor.htm](http://www.ids.usm.edu/projectOutdoor.htm)
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

**The Council for Exceptional Children**
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
Toll-free:1-888-CEC-SPED
Local: 703-620-3660
TTY: 866-915-5000 (text only)
Fax: 703-264-9494
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.
ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) LET-ERIC (538-3742)
(301) 519-5157
(301) 519-6760 (fax)
E-mail accesseric@accesseric.org
URL: http://www.eric.ed.gov/
ERIC gathers and disseminates professional literature, information, and resources on the educational and
development of individuals of all ages who have disabilities and/or who are gifted.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive
services to Mississippians with disabilities in a timely and effective manner.

National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910-4500
(301) 587-1789 TTY
(301) 587-1788 Voice
(301) 587-1791 FAX
http://www.nad.org/
E-mail NADinfo@nad.org
The National Association of the Deaf (NAD) is the oldest and largest constituency organization safeguarding the
accessibility and civil rights of 28 million deaf and hard of hearing Americans in education, employment, health
care, and telecommunications.

National Theatre of the Deaf
55 Van Dyke Avenue, Suite 312
Hartford, CT 06106
(860) 724-5179 Main Voice/TTY
(800) 300-5179 Toll Free Voice/TTY
(860) 550-7974 Fax
http://www.ntd.org/
E-mail info@ntd.org
Through its art, the National Theatre of the Deaf has created profound social change. The magic of it all has been
The NTD’s remarkable ability to entertain and inform at the same time. As one critic has praised, “Sculpture in the
air.”
Gifted/Developmentally Delayed Students

Definition

According to P.L. 94-142 of the IDEA 1997, the term *child with a disability* for children age 3 through 9 may, at the discretion of the State and LEA and in accordance with 34 CFR 300.313, includes a child

(a) who is experiencing developmental delays, as defined by the State and as measured by appropriate diagnostic instruments and procedures, in one or more of the following areas: physical development, cognitive development, communication development, social or emotional development, or adaptive development; and

(b) who by reason thereof, needs special education and related services (Individuals with Disabilities Education Act Regulations, 1999).

The Mississippi Department of Education defines *developmentally delayed* as a noncategorical disability for children ages birth through five (5). Such a disability is described according to functional and/or developmental levels. Children included in this population have established delays in two (2) or more of the following areas:

(a) Cognitive – the ability to think, which includes processes such as reasoning, problem solving, inferring, conceptualizing, classifying, symbolizing imagery and remembering;

(b) Fine and/or gross motor – motor skills requiring the control of small, coordinated movements or motor skills for body control such as standing, walking, and climbing;

(c) Language – the ability to acquire, use and comprehend symbols utilized in communication; and/or

(d) Social – the ability to build or maintain age-appropriate interpersonal relationships and/or adaptive behavior which is the effectiveness with which the individual meets the standards of personal independence and social responsibility expected of his age; or a diagnosis disorder of known etiology, which will affect development in a negative fashion and has a high probability of resulting in a developmental delay.

The criteria used to determine whether a delay is ‘significant’ can be norm-referenced testing. When using a norm-referenced test, the child who scores 1.5 standard deviations below the norm would be considered developmentally delayed in that area. A developmental delay as indicated on a standardized test is a 25% delay. With each method of testing, the child must have delays in two or more areas to be considered developmentally
delayed according to the law (*Mississippi’s Minimum*, 2003). *Developmentally delayed* is a typically used term for preschoolers or in the early grades (k-1) only. Due to the unreliability of assessment instruments for very young children, it is used as a noncategorical designation until a later date when a more accurate diagnosis can be made.

**Characteristics**

Whitmore (1987) provided characteristics of children who are gifted/developmentally delayed. These characteristics are: “relatively low or high energy levels, poor motor or eye-hand coordination, mild perceptual impairment, general immaturity and/or frequent absences from school” (p. 146). Additionally children who are gifted/developmentally delayed may exhibit creative abilities and intellectual strengths while engaging in subjects of personal interest (Little, 2001). To further explore characteristics that may be present in children who are gifted/developmentally delayed, it is important to understand the characteristics of each delay. The following information will provide a brief description of each category of delay as recognized by the federal government.

**Cognitive Delays**

Cognitive delays are delays in thought processes such as receiving, processing, analyzing, and comprehending information. Students with cognitive delays may have difficulty making inferences, classifying, conceptualizing, and symbolizing. They may also exhibit difficulty or lack of ability to reason, memorize, classify, and solve problems (Mississippi Department of Education, [www.mde.k12.ms.us/special_education/docs/Dev_Delayed.doc](http://www.mde.k12.ms.us/special_education/docs/Dev_Delayed.doc), ¶ 2, 2003). Additionally, these students may have difficulty synthesizing new and old information to apply in real life situations (Hedge & Johnson, 1986). While learning to count, these students may have difficulty making one-to-one connections. They may not be able to transition from one activity to another as quickly as their normally developing peers.

**Language Delays**

Children with language delays have difficulties receiving information and expressing thoughts. With preschool children, a language delay may be present if the student is unable to engage in conversation involving several verbal exchanges, is not responsive to ‘*why*’ questions, and generally speaks very little. They may express thoughts in small phrases or use merely one word. In addition, poor articulation is often noted in children with language delays. These children may express great frustration in response to an inability to express themselves in a way that can be understood by others (Greenspan, 2000).

Not as obvious are receptive language delays. A student may be able to express many thoughts articulately,
but be unable to understand what is being said to him or her (Greenspan, 2000). The student with language delays may become confused when being talked to. Their responses may not be appropriate to the questions asked, due to an inability to process language. Both expressive and receptive delays can interfere with the student’s reading readiness (Owens, 2004).

**Physical Development**

Delays in physical development include delays in fine and/or gross motor skills. A developmental delay in gross motor skills is observable when the student exhibits difficulty walking, skipping, and running. These children may have very or excessively tight muscle tone and become fatigued easily (Gale Encyclopedia, 1998; Greenspan, 2000). In addition, motor delays may be expressed through unstable and/or jerky movement.

Also included, but not as easily identified, are the children who have high levels of energy and enjoy running, threading beads, and other motor activities but are markedly uncoordinated. To detect these less obvious motor delays, more specific observation is needed. For example, the child may not be able to throw and catch a ball or hop on one foot three times and then switch to the other for three hops. These abilities are usually obtained between the ages of three to five (Greenspan, 2000).

Between the ages of three and five a child should also demonstrate continuous improvement with fine motor skills. Fine motor skills consist of abilities to hold a pencil correctly; make lines; draw an X; and progressively form circles, squares, and triangles. More specific delays in fine motor skills are observed when a child is able to hold a pencil correctly, but expresses great difficulty forming lines on the paper (Greenspan, 2000).

**Psychosocial Development**

Psychosocial development includes forming age-appropriate relationships and having the ability to maintain these interpersonal relationships. Children with psychosocial delays have difficulty building friendships with same age peers (Mississippi Department of Education, www.mde.k12.ms.us/special education/docs/Dev_Delayed.doc, ¶ 2, 2003). In addition, a child with psychosocial delays may not be able to play increasingly difficult games with peers as seen during normal childhood development. These children may not be able to respond to parental social cues such as smiling and cuddling (Gale Encyclopedia, 1998).

**Adaptive Development**

The terms *adaptive development* and *self-help skills* are used interchangeably in the literature. Generally, adaptive behavior encompasses a person’s ability to handle various internal and external demands of development.
(Taylor, 1997). During early childhood, these demands may include, but are not limited to, independently using the bathroom, retrieving and eating food, dressing, and playing while unattended. Children with delays in adaptive functioning may be unable to apply such self-help skills. They may also struggle with childhood activities such as occupying themselves, performing routine duties, or successfully operating vehicular toys (Salvia & Ysseldyke, 1991).

Developmental delays may occur for a variety of reasons. Often the label of developmentally delayed is a precursor for a later diagnosis of a disability. For example, children with learning disabilities, low vision, and/or physical disabilities may exhibit developmental delays due to the original disability (Szymanski & Corn, 1988). In addition to those with disabilities, children from impoverished environments with minimal stimulation may demonstrate developmental delays due to their circumstances (Whitmore, 1987). To provide services for these students without prematurely labeling the child with a specific disability, educators have the option of using the developmentally delayed category. Another possible reason for utilizing this category is to avoid misidentification that could occur if the actual cause of the disability is unclear (Concept Paper, 2001). Overall, the eligibility category of developmentally delayed is a broad ruling encompassing children who are delayed due to a specific disability that may or may not be known at the time of the ruling, children who are delayed due to impoverished circumstances, and children who are delayed without a known cause. Of equal importance is the age factor. Due to testing limitations, it is unjust and unreliable to diagnose a very young child with a specific disability.

**Screening and Identification**

The literature pertaining to individuals who are both gifted and developmentally delayed is scarce. Several tests have been designed to determine the existence of developmental delays. For example, the *Bayley Scales of Infant Development- Second Edition* (Bailey, 1993) (*BSID-II*) is administered to diagnose cognitive and motor delays from 1 to 42 months of age. The *Vineland Adaptive Behavior Scales* (Sparrow, Balla, & Cicchetti, 1985) was devised to measure personal and social skills throughout development (Johnson & Portman, n. d.). Intelligence tests such as the Stanford-Binet (Thorndike, Hagen, Sattler, Delaney, & Hopkins, 1986) and the *Wechsler Intelligence Scales for Children-III* (Wechsler, 1991) (*WISC-III*) are noted for reliability when testing both for intellectual giftedness and for developmental delays (Ford-Martin 1999a, 1999b); however, with the Stanford-Binet the “scoring design may not detect developmental problems in preschool-age-children” (Ford-Martin, 1999a, ¶ 3). To date, a test developed specifically for the dual exceptionality of individuals who are gifted/developmentally delayed has not
been published.

Little (2001) noted that the developmental delays are often the primary focus of teachers and professionals in the field of education; thus, children who are developmentally delayed usually go unnoticed as being gifted. A child may have remarkable knowledge about a subject of interest, but be overlooked as gifted because of the emphasis placed on the child’s specific delays (Little, 2001). The literature pertaining to gifted/developmentally delayed children usually lists the delay as a reason for the child’s not being identified as gifted (St. Jean, 1996; Szmanski & Corn, 1988; Whitmore, 1987). In many cases the delay masks the indicators of giftedness (St. Jean, 1996) such as early reading ability, advanced verbal ability, and independent work ability at an early age (Ford, 2003).

In addition, teachers tend to focus on interventions for the areas of delay, rather than emphasizing the strengths of the child. To identify these twice-exceptional students, examine the passion, creative ability, and intellectual force they present regarding their hobbies (Little, 2001). Focus should be placed on the intellectual strength the child demonstrates when engaging in a subject he or she finds interesting.

**Instruction**

Due to the challenges faced by students who are gifted/developmentally delayed, it is best to focus primarily on the strengths of the student. As previously noted, these strengths become visible when expanding on the students’ interests and hobbies (Little, 2001). Thus, instructional activities structured around the interests and passions of the student should greatly promote the child’s giftedness.

Additionally, teachers should be fully aware of the areas of difficulty, showing tolerance and providing an accepting environment to nurture the talents of the student. In focusing on the strengths of the student, teachers will need to be flexible and creative. For example, if a student is unable to write, but can speak elaborately about a topic, assigning speech-related activities for that student will expand his or her abilities (Little, 2001).

Assistive technology or other compensatory measures can teach the student to apply coping strategies that can be used to overcome weaknesses. For example, the child who is experiencing physical delays may not be able to write an essay, but may be highly successful when allowed to use a computer for written expression. Determine the child’s areas of weakness and develop strategies to help the child ‘go around’ their disability. Students with language delays often have difficulty receiving information as quickly as their normally developing peers. Teachers can provide these students with guided notes, graphic organizers, or peer note-takers to ensure the child has every
opportunity to be successful (Little, 2001).

Another important aspect of serving students who are gifted/developmentally delayed is frequent interaction with the child’s parents. Parents can provide information about the student that may not be observable in the classroom environment. Additionally, parents are usually aware of their child’s interests, hobbies, strengths, and weaknesses. The insight a parent can provide is a valuable tool for educators to more efficiently and effectively meet the child’s educational needs (May, 1994).

Gifted children who are diagnosed as developmentally delayed face many social and emotional delays. May (1994) performed a year-long case study of a seventh grade gifted student who had previously been diagnosed as developmentally delayed. During extensive interviews with both of the boy’s parents, they explained how his social and emotional delays affected his entire school experience. From kindergarten to seventh grade, this student encountered continuous rejection and verbal abuse by his peers.

From an early age, his parents provided an array of intervention activities and materials for him to explore at home. They provided mental stimulation and creative outlets for the child. They also involved him in social groups and activities such as the Cub Scouts. To provide social support and protection, his father became the leader of the Cub Scouts. In addition to close involvement with their child’s social and emotional development, the parents also communicated regularly with his teachers (May, 1994).

As educators, providing social experiences must be coupled with close monitoring of the quality of these experiences. More specifically, the student discussed by May (1994) was in social settings on a consistent basis, but the interactions that occurred were harmful to the child. In situations where a child does not ‘fit the norm’ developmentally, other students may tease, bully, and/or exclude that child (May). Regardless of the educational practices implemented to assist a young gifted student, when continuous peer rejection occurs, the student may experience anxiety and dread related to school. In these social situations, the teacher must serve as an ally to the student who is gifted/developmentally delayed. Careful planning of social opportunities, implementation of the social strategies, and consistent close monitoring of the effectiveness of these strategies may alleviate some of the emotional hardships faced by the gifted child with social delays.

**Conclusion**

Although there is a paucity of research regarding students who are gifted/developmentally delayed, some valuable information does exist and may be useful in guiding educators toward a better understanding of this dual...
exceptionality. Currently, identification of these students as gifted relies heavily upon their teachers’ ability to recognize their giftedness. This requires school districts to provide staff development concerning twice-exceptional children. Common characteristics shared by these students are general immaturity, poor coordination, high or low energy levels, and creative and intellectual strengths when engaging in hobbies or interests. After the students who are gifted/developmentally delayed have been identified, educators are responsible for providing programs to advance their gifts and talents. When working with these students, teachers first need to focus on the strengths of the children. One way to elicit their creative and intellectual strengths is by engaging the students in exploration of their own personal interests. Additionally, educators should explore ways to help the children develop compensatory strategies to overcome their weaknesses. Finally, teachers should be allies to these children by providing a safe and nurturing environment for them to develop their gifts.
References


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http://www.mde.k12.ms.us/special_education/pdfs/New_Att_A.pdf.


National Association of State Directories of Special Education Inc. (2000, February). Developmental
Linehan, P.

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### Appendix A

**Characteristics of Students Who Are Gifted/Developmentally Delayed**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowered responsiveness to the academic program</td>
<td>These students may not respond to environmental stimuli as expected with normally developing students.</td>
</tr>
<tr>
<td>Poor motor or eye-hand coordination</td>
<td>As a result of the developmental delay or possibly an unidentified disability, fine or gross motor impairments can occur.</td>
</tr>
<tr>
<td>General immaturity</td>
<td>Students with developmental delays may behave more like children younger than themselves, lacking the overall maturity levels of their peers.</td>
</tr>
<tr>
<td>Demonstration of creative abilities and intellectual strengths while engaged in subjects of interest</td>
<td>These students often have extensive knowledge and/or creative ability concerning areas of great interest to them.</td>
</tr>
</tbody>
</table>

Adapted from Little (2001); Whitmore (1987)
### Appendix B
Screening/Identification Procedures for Students Suspected of Being Gifted/Developmentally Delayed

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>WISC-IV</td>
<td>The WISC-IV has been noted for measuring both intelligence level and developmental delays.</td>
</tr>
<tr>
<td>Sanford-Binet</td>
<td>As with the WISC-IV, the Stanford-Binet determines intellectual level while detecting developmental delays; however, it is not effective in determining developmental delays in preschoolers.</td>
</tr>
<tr>
<td>Observation of knowledge and creativity while the student is engaged in a hobby or topic of interest</td>
<td>Often students who are gifted/developmentally delayed exhibit intellectual strength and high levels of creativity when involved in hobbies or activities of great interest to them.</td>
</tr>
</tbody>
</table>

Adapted from Ford-Martin (1999a); Ford-Martin (1999b); Little (2001)
Appendix C  
Instructional Strategies for Students Who Are Gifted/Developmentally Delayed

<table>
<thead>
<tr>
<th>Instructional Strategies</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan instruction based on student’s personal interests and/or hobbies</td>
<td>When given the option of exploring hobbies and personal interests, these students will develop their strengths and creative abilities.</td>
</tr>
<tr>
<td>Teach compensatory strategies</td>
<td>Employing assistive technology and specific strategies to overcome weak areas will allow the students to focus on their strengths.</td>
</tr>
<tr>
<td>Provide a supportive environment</td>
<td>Showing tolerance and acceptance of the delays these children experience will provide a nurturing environment, conducive to learning and exploration.</td>
</tr>
<tr>
<td>Increase and monitor social opportunities</td>
<td>By planning and implementing social experiences that are closely monitored to ensure positive interactions, educators can assist the child with social development.</td>
</tr>
<tr>
<td>Collaborate continuously with parents</td>
<td>Parents can provide valuable information regarding their children’s interests, hobbies, strengths, and weaknesses.</td>
</tr>
</tbody>
</table>

Adapted from Little (2001); May (1994)
National and State Organizations for Developmental Delays

Center on Human Development and Disability (CHDD)
Box 357920
Seattle, WA 98195-7920
(206) 543-7701
http://depts.washington.edu/chdd/
E-mail chdd@u.washington.edu
The Center on Human Development and Disability at the University of Washington makes important contributions to the lives of people with developmental disabilities and their families, through a comprehensive array of research, clinical services, training, community outreach, and dissemination activities.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(703) 620-3660
(866) 915-5000 (TTY; text only)
703-264-9494 (fax)
www.cec.sped.org
E-mail membership@cec.sped.org
The Council for Exceptional Children (CEC) is the largest international professional organization dedicated to improving educational outcomes for individuals with special needs.

The Division for Early Childhood
634 Eddy Avenue
Missoula, MT 59812
Phone: (406) 243-5898
Fax: (406) 243-4730
www.dec-sped.org
E-mail dec@selway.umt.edu
The Division for Early Childhood (DEC) is a division of the Council for Exceptional Children advocating for individuals who work with or on behalf of children with special needs, birth through age eight, and their families.

The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
http://www.ids.usm.edu/projectOutdoor.htm
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.
National Association for Child Development
549 25th Street
Ogden, Utah 84401-2422
(801) 621-8606
http://www.nacd.org/
E-mail info@nacd.org
The National Association for Child Development is an international organization of professionals and parents dedicated to helping children and adults reach their full potential through the implementation of innovative individual programs, research, and the dissemination of information.

The National Information Center for Children and Youth with Disabilities (NICHCY)
P.O. Box 1492
Washington, DC 20013
(800) 695-0285 (v/TTY)
(202) 884-8441 (fax)
www.nichcy.org
E-mail nichcy@aed.org
NICHCY is a national information center that provides information on disabilities and disability-related issues. Their special focus is on children and youth, birth to 22.

University of Michigan Health System (UMHS)
1500 E. Medical Center Drive
Ann Arbor, MI 48109
(734) 936-4000
http://www.med.umich.edu
E-mail EHAP@umich.edu
The University of Michigan Health System provides information about developmental delays, developmental milestones, and suggested resources, as well as a list of sites with additional information.
Gifted/Emotional-Behavioral Disability Students

Definition

According to the federal definition, *emotional disturbance* is defined as a condition in which the individual exhibits one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:

(a) an inability to learn that cannot be explained by intellectual, sensory, or health factors;
(b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers;
(c) inappropriate types of behavior or feelings under normal circumstances;
(d) a general pervasive mood of unhappiness or depression; and/or
(e) a tendency to develop physical symptoms or fears associated with personal or school problems;

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (Individuals with Disabilities Education Act, 1997).

Mississippi defines *emotional disability* as:

a child who has an emotional disability exhibits one or more of the following characteristics that adversely affects their educational performance over a long period of time and to a marked degree

(a) an inability to learn that cannot be established by intellectual, sensory, or health factors;
(b) an inability to build or maintain satisfactory interpersonal relationships with peers and/or teachers;
(c) inappropriate types of behavior or feelings under normal circumstances;
(d) a general pervasive mood of unhappiness or depression; and/or
(e) a tendency to develop physical symptoms or fears associated with personal or school problems.

The term includes children who are schizophrenic. The term does not include children who are socially maladjusted, unless it is determined that they have an emotional disturbance. (Mississippi Department of Education, 2003, p. 6).

Numerous terms have been used to describe an emotional/behavioral disability including: (a) emotional disturbance, (b) emotional handicapped, and (c) emotionally/behaviorally disordered (Gable & Bullock, 1995;
Flanagan, Hart, McLoughlin, & Murray, 1984). Developing one true definition has been problematic for many years. An emotional/behavioral disability may be defined as any emotions or behaviors that are considered by sociocultural authority figures to be inappropriate or deviating from the standards for conduct. This means that some emotions or behaviors exhibited by children with disabilities are viewed as absolute abnormalities in all cultures while others are very relative (Andrews, 2000; Baldwin & Vialle, 1999; Bullock & Gable, 1999; Friedrichs, 2001; Gable & Bullock, 1995; Gallucci, Middleton, & Kline, 1999; Lerner, Lowenthal, & Egan, 1998; Saunders, 2003; Zabel, 1988).

Emotional/behavioral disabilities are only considered to be a mild disability. This is because the learning difficulties experienced by other more severely disabled students are considered to be more severe than those experienced by children in the emotional/behavioral disability category. Even so, the mild disability label does not exclude these students from experiencing extreme hardship with both academic and nonacademic endeavors (Andrews, 2000; Baldwin & Vialle, 1999; Bullock & Gable, 1999; Friedrichs, 2001; Gable & Bullock, 1995; Gallucci, Middleton, & Kline, 1999; Lerner, Lowenthal, & Egan, 1998; Saunders, 2003; Zabel, 1988).

Though schizophrenia is included in the federal and state definitions for emotional/behavioral disabilities, very few reported cases are found in school-age children. This is due to the disease’s course and onset which “typically occurs between the late teens and the mid-30s” (p. 307) as outlined in DSM-IV-TR (2000). These severe expressions of emotional/behavioral disabilities are often found in conjunction with other disabilities. Such disabilities or disorders include but are not limited to Attention-Deficit Hyperactivity Disorder (ADHD), pervasive developmental disorders (PDD), autism, depression, and other anxiety disorders (Knoblock, 1980; Lerner, et al., 1998; Silverman, LaGreca, & Wasserstein, 1995).

Descriptions and definitions used to describe children who have emotional/behavioral disabilities often include words with only negative connotations which lead to unnecessary stereotypes, stigmas, and segregation (Bullock & Gable, 1999; Cullinan & Epstein, 1986; Gallagher, 1988; Torrence, 1980). It should further be noted that discussions and descriptions of behaviors exhibited by students who are emotionally/behaviorally disabled should be the basis for an understanding of the disability but should not take the place of a definition. They should be considered as the mere descriptions that they are (Kauffman, 1993). Through all the discussions, descriptions, and definitions, professionals should maintain the notion that all children, whether disabled or not, are humans and not simply irrational or helpless beings who should be isolated from society (Knoblock, 1980; Silverman, 1994).
Characteristics

Giftedness has been documented as occurring in persons with emotional/behavioral disabilities. Children who find themselves in the rare position to be considered twice-exceptional for displaying both giftedness and emotional/behavioral disabilities face many challenges in their educational path. There is a lot of diversity when considering characteristics of the gifted/emotional-behavioral disabled population (Hallenbeck & Kauffman, 1995 & Kauffman, 1993).

To compile an exhaustive list of characteristics for children who are gifted/emotional-behavioral disabled is nearly impossible. Some characteristics of this population may include the following: (a) withdrawal, (b) hyperactivity, (c) aggression, (d) impulsivity, (e) defiance, (f) depression, (g) distractibility, (h) loneliness, (i) self-rejection, (j) anxiety, (k) low self-esteem, (l) violence, or (m) immaturity. In addition, children who are gifted/emotional-behavioral disabled are often at risk for juvenile delinquency or perfectionism. These twice-exceptional students experience conflict, criticism, stress, humiliation, isolation, and other problems in socialization, but it may not persist throughout their lifespan. These conflicts often result from distortions, disorganization, and complexities within the mind of the student who is gifted/emotional-behavioral disabled. Since the characteristics associated with the disabling condition generally far outweigh those of giftedness, teachers and other related professionals must look for alternative forms of giftedness such as artistic, leadership, or athletic abilities and potential in addition to the traditional intellectual abilities (Benge & Montgomery, 1996; Buruss & Kaenzig, 1999; Epstein & Cullinan, 1994; Friedrichs, 2001; Gable & Bullock, 1995; Garland & Zigler, 1999; Hallenbeck & Kauffman, 1995; Kauffman, 1993; Lerner, et al., 1998; Muscott, 1996; Roeper, 2003; Schuler, 2002; Taylor, 1997; Walker & Horner, 1996).

Fredrichs (2001) asserted that there are four different categories of students who are gifted/emotionally disabled. These categories included: (a) withdrawn and depressed, (b) suicidal, (c) underachievers with behavioral problems, and (d) delinquents (only if they have an emotional disturbance). Furthermore, students who are gifted/emotional-behavioral disabled usually have trouble adapting to social settings, although some delinquents may rise to leadership positions within their group of friends (Fredrichs, 2001).

Screening and Identification

Current assessments are not intended to merely label an individual, but rather to enable teachers and other
related professionals to provide the necessary instruction. Proper assessment allows opportunities for specialized instruction as well as for the recognition of gifts and talents as displayed by students with emotional/behavioral disabilities (Kauffman, 1976; Knoblock, 1980; Rizzo & Zabel, 1988; Maker, 1977; Saunders, 2003).

According to Friedrichs (2001), as individuals who are gifted/emotionally-behaviorally disabled age, teachers may notice increased amounts of anger or depression, resulting from the loss of friends, changing schools, or interpersonal difficulties. Since emotional-behavioral disabilities are so diverse, they often create great problems for those professionals attempting to identify gifted students experiencing them (Saunders, 2003). This is just the beginning of the discrepancies that occur with regard to this population. Available literature mentioned that there is very little agreement between the educational and psychological fields concerning a precise definition of this condition. There are certain characteristics that frequently occur, but there is no one accepted definition due to the subjective nature of emotional/behavioral disabilities. Professionals must rely on personal judgments and opinions located within social and cultural contexts to identify impairments (Andrews, 2000; Flanagan, et al., 1984; Meyer & Dusek, 1979; Muscott, 1996; Torrence, 1980). It appears that a large portion of the mildly disabled population is seldom assessed for either giftedness or having a disability due to their mediocre academic performance (Friedrichs, 2001). Most often, the recognition of giftedness in this disabled population occurs only after the student is referred for another problem which is possibly more apparent. (Rizza & Morrison, 2002).

The effects of cultural or societal values, expectations, and norms are evident when trying to identify gifted children with emotional/behavioral disabilities. The sheer nature of such a disabling condition is extremely diverse and may prove very frustrating for related professionals (Andrews, 2000; Cullinan & Epstein, 1986; Gallucci, et al., 1999; Patton, et al., 1987; Sabornie, et al., 1987-1988). Greater complexity is apparent when related professionals understand and realize that deviant behaviors displayed by children with emotional/behavioral disabilities are often present in nondisabled children as well, without such severity (Rizzo & Zabel, 1988; Torrence, 1980).

When searching for giftedness within the emotional-behavioral disabled population, children should be viewed and considered on an individual basis for several reasons (Gallagher, 1988; Hallenbeck, Kauffman, & Lloyd, 1993; Klein, 1984). First, similarities in behaviors do not necessarily point to similar causes. Second, previous history regarding emotional/behavioral disabilities does not always coincide with current conditions. Third, isolated events of trauma rarely cause the severity of emotional or behavioral maladjustments as are referred to by the disability title (Torrence, 1980). Finally, children do not always exhibit equivalent behaviors and emotions in all
settings at all times (Rizzo & Zabel, 1988). Normal and abnormal behaviors and emotions should be considered on a continuum created by social, cultural, situational, and developmental expectations (Flanagan, et al., 1984; Meyer & Dusek, 1979).

A thorough evaluation to determine the presence of some form of giftedness should include not only standardized tests, but also discussions, interviews, and observations involving teachers, parents, and the student. This comprehensive approach is necessary because professional judgments may significantly differ from cultural, social, or familial judgments (Gallagher, 1988; Getzels & Jackson, 1962; Hallenbeck & Kauffman, 1995; Kauffman, 1985; Kauffman, 1993; Rizzo & Zabel, 1988). Such a comprehensive approach should involve consideration of other forms of giftedness such as creativity, including artistic, and psychic or paranormal abilities (Getzels & Csikszentmihalyi, 1976; Torrence, 1980). General intelligence assessment of students with emotional-behavioral disabilities is difficult, so the identification of giftedness is subsequently more difficult. Other assessments that prove problematic are those relating to mental health or the relationship between undesirable classroom behavior and underachievement (Baldwin & Vialle, 1999; Lewis & Doorlag, 1991).

A proper response for identification is to view children in the context of their environments to better understand the presence of giftedness among emotionally/behaviorally disabled children as well as to make appropriate classifications (Gable & Bullock, 1995; Patton, et al., 1987; Rizzo & Zabel, 1988; Torrence, 1980). Deficits should not be the only measure of a student’s worth; rather, focus should be placed on the presence of various abilities (Kauffman, Bantz, & McCullough, 2002).

**Instruction**

Since the attitudes of teachers and other related professionals could impede the proper identification of giftedness in students with emotional-behavioral disabilities, it is important to consider modifying the instructional methods for these children (Kauffman, Lloyd, & McGee, 1989). Often the mere presence of the disability creates a situation in which professionals have lowered standards for the student regardless of the presence of giftedness (Maker, 1977). These lower standards lead to experiences of great inner conflict by students who are gifted/emotionally-behaviorally disabled as does their own awareness of personal abilities (Benge & Montgomery, 1996). An inability to learn due to related personality problems or conduct disorders may be exhibited and may lead to instructional conflict (Benge & Montgomery, 1996; Hallenbeck, et al., 1993; Lewis, & Doorlag, 1991; Patton, et al., 1987; Rizzo & Zabel, 1988). This decreased learning ability displayed by children with emotional/behavioral
disabilities should not be considered the sole cause of intellectual deficits when they do occur (Taylor, 1997). Alternative forms of instruction may be utilized that will encourage creativity as well as other forms of giftedness. Although there is not an exact method for teaching creativity, it should be considered in addition to the traditional problem-solving mode of instruction (Getzels & Csikszentmihalyi, 1976; Getzels & Jackson, 1962; Zabel, 1988).

Unfortunately, there is not one universally agreed upon method for instructing children who are gifted/emotionally-behaviorally disabled. Early interventions are considered to elicit the most positive results when working with children in general education environments. However, for early interventions to be effective with this twice-exceptional population, they should actually reverse the current developmental trends instead of merely avoiding a worsening of the problem. Among the most commonly used methods are modeling, imitation, inclusion, and observational and other vicarious learning methods (Cartwright, et al., 1984; Epstein & Cullinan, 1994; Hallenbeck & Kauffman, 1995; Kauffman, 1999). Maker (1977) reported several general instructional principles that may be utilized for all students who are gifted/disabled including those with emotional/behavioral disabilities. Suggestions include placing more educational focus on developing a child’s strengths to effectively endure and positively modify the disability, considering the relationship of a child’s talent or potential to the disability, and viewing the disability as a motivation for greater achievement. Teachers and other related professionals must also recognize the impact or importance that affective development and development of self-concept have on the educational abilities of a child who is gifted/emotionally-behaviorally disabled (Maker, 1977).

It appears that most schools are ill prepared for the formidable task of educating children who are gifted/emotionally-behaviorally disabled. Research reveals that there is a significant lack in availability of professionals adequately trained for work with this population (Benge & Montgomery, 1996; Gable & Bullock, 1995; Kauffman, 1976; Muscott, 1995). This is a problem because one main goal of schools is to prepare students to be positively functioning citizens (Rizzo & Zabel, 1988; Walker & Horner, 1996). The school must provide a safe and nurturing environment as well as encouragement for the social and emotional development of all children. Students who are gifted/emotionally-behaviorally disabled must be challenged to improve such aspects of life as self-understanding, self-esteem, and self-control as an effort to reduce potential risk for twice-exceptional students whose gifts and talents are easily overlooked (Betts, 1986; Davis & Rimm, 2004; Lewis & Doorlag, 1991; Rizza & Morrison, 2002; Zabel, 1988).

An important first step in instructing children who are gifted/emotionally-behaviorally disabled is to
acknowledge how complex their dual exceptionality is and how much it differs from the rest of society. Teachers and other related professionals should be willing to change behaviors in order to provide the most adequate instruction to this population (Cross, 2001; Davis & Rimm, 2004; Kauffman, 1993; Kauffman, et al., 2002; Knoblock, 1980). Specialized instruction for social skills could facilitate the implementation of these students into mainstream society (Davis & Rimm, 2004; Sabornie, et al., 1987-1988). Teachers and other related professionals should be aware of the fact that their expectations and tolerances can have a significant impact on the inclusion of students who are gifted/emotionally-behaviorally disabled into the general education system. The feedback that these professionals offer has a direct influence on students (Gallagher, 1988; Kauffman, 1985; Kauffman, et al., 1989; Muscott, 1996).

Another drastic improvement to the instructional methods would be for teachers and related professionals to increase their sensitivity toward these twice-exceptional students in order to improve the delivery of special education services. One way to improve instruction is to focus on the creative pursuits of the twice-exceptional students (Friedrichs, 2001). Related professionals must also assist the twice-exceptional student in untangling the chaos often found within themselves as a result of both the disability and the giftedness (Patton, et al., 1987). Professionals should consider several potential influences in the child’s life when developing instructional methods. These influences include not only psychiatric, but medical and neurological ones as well (Bullock & Gable, 1999). Though instruction of gifted/emotionally-behaviorally disabled children may prove to be extremely challenging and thought-provoking, this experience can also be exhilarating and rewarding (Baldwin & Vialle, 1999).

A list of some suggested traits and patterns for communicating with students who are gifted/emotionally-behaviorally disabled is as follows: (a) hold a positive regard for yourself and the students, (b) demonstrate patience, (c) be as fair and consistent as possible in all instructional endeavors, (d) show no partiality, (e) use praise frequently, (f) convey honesty, (g) implement clear and precise goals, (h) display a sense of humor, and (i) utilize common sense in all aspects of instruction. Certainly these are appropriate communication strategies to employ with all students; however, teachers working with this population need to realize that students who are gifted/emotionally-behaviorally disabled are a little more sensitive. Teachers and other related professionals should modify their expectations of this special population group in order to illicit a more positive response (Dolce, 1984; Stainback & Stainback, 1980).

Interagency collaboration may be an integral part of instruction for children who are gifted/emotionally-
behaviorally disabled. Psychological treatment including group therapy may be considered a necessary component of instruction. Other supportive therapies include, but are not limited to, music, art, exercise, and relaxation techniques. Parents can prove to be yet another integral aspect of service provision. (Andrews, 2000; Bland, Sowa, & Callahan, 1994; Bullis & Walker, 1998; Cullinan & Epstein, 1986; Dolce, 1984; Friedrichs, 2001).

Conclusion

It has been proven that students who are gifted/emotionally-behaviorally exist. These students require and deserve specialized instruction as well as increased sensitivity from related professionals. There appears to be limited research conducted regarding the specific topic of giftedness occurring among children or adults with emotional/behavioral disabilities. This fact demands that professionals modify their current practices in order to increase awareness to adequately serve this population. Until that occurs, children who are gifted/emotionally-behaviorally disabled are at risk for being drastically underserved and overlooked.
References


decisions are made: Two case studies. *Journal of Emotional & Behavioral Disorders, 1* (2).

Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


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on December 2, 2003.


on December 2, 2003.


## Appendix A

### Characteristics of Students Who Are Gifted/Emotionally-Behaviorally Disabled

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defiance</td>
<td>This defiance can manifest itself in many forms including aggression, violence, juvenile delinquency, or conflict with peers and adults.</td>
</tr>
<tr>
<td>Loneliness</td>
<td>This loneliness is often experienced and demonstrated in ways such as withdrawal, depression, and isolation. More serious results include low self-esteem, self-rejection, or suicidal ideation and behaviors.</td>
</tr>
<tr>
<td>Stress</td>
<td>Common ways this stress is displayed in this population include hyperactivity, impulsivity, distractibility, and anxiety.</td>
</tr>
<tr>
<td>Problems in socialization</td>
<td>These problems may result from such factors as immaturity leading to criticism and humiliation.</td>
</tr>
<tr>
<td>Underachievement</td>
<td>Often these students do not perform academically or otherwise to their highest potential.</td>
</tr>
</tbody>
</table>

### Appendix B

**Screening/Identification Procedures for Students Who Are Suspected of Being Gifted/Emotional-Behavioral Disabled**

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilize standardized tests</td>
<td>Current tests for giftedness may be used if they are modified according to the student’s disabilities.</td>
</tr>
<tr>
<td>Conduct interviews</td>
<td>Interviews should be conducted with teachers, parents, students, and related professionals to determine the true abilities of these students.</td>
</tr>
<tr>
<td>Make observations – formal and informal</td>
<td>These students may display potential giftedness in various aspects of their lives other than just academic arenas and must be observed closely to determine it.</td>
</tr>
<tr>
<td>Consider nontraditional conceptions of giftedness</td>
<td>Professionals should consider other forms of giftedness such as creativity, including artistic, or leadership abilities to be displayed by this population.</td>
</tr>
<tr>
<td>Consider environmental and historical context</td>
<td>Professionals should consider the environment and history of individuals when attempting to screen or identify this population.</td>
</tr>
<tr>
<td>Employ subjectivity</td>
<td>Professionals should be aware of the extremely subjective nature of identification of this population.</td>
</tr>
</tbody>
</table>

### Appendix C

**Instructional Strategies for Students Who Are Gifted/Emotional-Behavioral Disabled**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilize a multidisciplinary approach</td>
<td>Suggestions are made to utilize the skills of several disciplines including educational professionals, child development services, medical professionals, and psychotherapeutic professionals. Along with professional skills, those of parents and students should also be included.</td>
</tr>
<tr>
<td>Build upon strengths</td>
<td>Related professionals should focus on students’ strengths instead of only focusing on the disability.</td>
</tr>
<tr>
<td>Modify attitudes and expectations</td>
<td>This will help alleviate conflict that often occurs between the students and related professionals and will help shape the self-concept of this population.</td>
</tr>
<tr>
<td>Modify in appropriate behaviors</td>
<td>Professionals may need to change certain behaviors or body language in order to better instruct this population.</td>
</tr>
<tr>
<td>Initiate early interventions</td>
<td>When used, these should actually attempt to reverse current developmental trends.</td>
</tr>
<tr>
<td>Provide positive school and home environment</td>
<td>Both must be positive to encourage the social and emotional development of this population.</td>
</tr>
<tr>
<td>Create challenging activities</td>
<td>Instructional methods must challenge the student for improvement of self-esteem and self-control as much as is possible.</td>
</tr>
<tr>
<td>Be sensitivity to the disability</td>
<td>Professionals and parents should heighten their sensitivity toward these students.</td>
</tr>
</tbody>
</table>

National and State Associations for Emotional-Behavioral Disabilities

**American Medical Association**
515 N. State Street  
Chicago, IL 60610  
(800) 621-8335  
E-mail [www.ama-assn.org/cgi-bin/x-check/feedtool.pl](http://www.ama-assn.org/cgi-bin/x-check/feedtool.pl)

This organization provides patients and doctors with a vast array of medical information including treatment, research, and descriptions of multiple disabilities.

**American Psychological Association**
750 First Street, NE  
Washington, DC 20002-4242  
(800) 374-2721; (202) 336-5510  
(202) 336-6123 (TDD/TTY)  
E-mail [www.apa.org/about/contact.html](http://www.apa.org/about/contact.html)

This is a scientific and professional organization that represents psychology in the United States. It is the largest association of psychologists worldwide. This organization provides information for both professionals and the public concerning psychological issues such as emotional-behavioral disabilities.

**Centers for Disease Control and Prevention**
Public Inquiries/MASO  
Mailstop F07  
1600 Clifton Road  
Atlanta, GA 30333  
[www.cdc.gov/](http://www.cdc.gov/)
E-mail [www.cdc.gov/netinfo.htm](http://www.cdc.gov/netinfo.htm)

Hotlines, departmental telephone numbers, and other helpful links may be found at [www.cdc.gov/doc.do?id=0900f3ec80093d70](http://www.cdc.gov/doc.do?id=0900f3ec80093d70). This governmental agency is responsible for many issues related to public health. This Web site lists various types of disabilities including multiple disabilities and provides descriptions. Genetic factors and susceptibility are also discussed. The information is easily accessible and understandable.

**The Council for Exceptional Children**
1110 North Glebe Road Suite 300  
Arlington, VA 22201-5704  
(888) CEC-SPED  
(866) 915-5000 (TTY; text only)  
[www.cec.sped.org/](http://www.cec.sped.org/)
E-mail service@cec.sped.org

This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.
The Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201
Telephone: (202) 619-0257; (877) 696-6775
www.hhs.gov/
This governmental agency is the principal one responsible for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves including those with multiple disabilities.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) LET-ERIC (538-3742)
(301) 519-5157
(301) 519-6760 (fax)
E-mail accesseric@accesseric.org
URL: http://www.eric.ed.gov/
ERIC gathers and disseminates professional literature, information, and resources on the educational and development of individuals of all ages who have disabilities and/or who are gifted.

The Family Village
Waisman Center
University of Wisconsin-Madison
1500 Highland Avenue
Madison, WI 53705-2280
(608) 263-1656
(608) 263-0802 (TTY)
(608) 263-0529 (fax)
www.familyvillage.wisc.edu
E-mail familyvillage@waisman.wisc.edu
The Family Village integrates resources and communication opportunities on the Internet for people with disabilities, their families, and those who support and serve them.

Family Voices
3411 Candelaria NE, Suite M
Albuquerque, NM 87107
(505) 872-4774; (888) 835-5669
(505) 872-4780 (fax)
www.familyvoices.org
E-mail kidshealth@familyvoices.org
Family Voices is a national grassroots network of families and friends speaking on behalf of children with special health care needs.
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

MayoClinic.com
200 1st St. S.W.
Rochester, MN 55905
www.mayoclinic.com/index.cfm
E-mail comments@mayoclinic.com
This organization strives to empower people to manage their health by providing useful and up-to-date information and tools reflecting the expertise and standard of excellence of Mayo Clinic. There is helpful information related to cerebral palsy and other multiple disabilities. There are links to other helpful websites including www.mayoclinic.org/ which gives more information about the Mayo Clinic.

MEDLINEplus
www.medlineplus.com/
E-mail custserv@nlm.nih.gov
This organization can also be contacted by E-mail at www.nlm.nih.gov/cgi/medlineplus/feedback.pl?from=&lang=EN
This is a division of the National Library of Medicine that provides health professionals and consumers with authoritative and current information. This site includes extensive information on over 600 diseases and conditions as well as other helpful information including lists of hospitals and physicians, a medical encyclopedia and a medical dictionary, health information in Spanish, extensive information on prescription and nonprescription drugs, health information from the media, and links to thousands of clinical trials.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
www.mdrs.state.ms.us
This organization can be contacted directly by e-mail at www.mdrs.state.ms.us/contact/index.html
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

NAMI (National Alliance for the Mentally Ill)
(800) 950-NAMI (6264); (888) 344-6264
(703) 524-7600
(703) 516-7227 (TTY)
E-mail info@nami.org
www.nami.org/
NAMI Mississippi
411 Briarwood Dr. Ste. 401
This organization is dedicated to the eradication of mental illnesses and to the improvement of the quality of life of all whose lives are affected by these diseases. It is a nonprofit, grassroots, self-help, support and advocacy organization of consumers, families, and friends of people with severe mental illnesses, such as schizophrenia, schizoaffective disorder, bipolar disorder, major depressive disorder, obsessive-compulsive disorder, panic and other severe anxiety disorders, pervasive developmental disorders, and other severe and persistent mental illnesses that affect the brain.

National Alliance for Research on Schizophrenia and Depression (NARSAD)
60 Cutter Mill Road, Suite 404
Great Neck, NY 11021
Telephone: (516) 829-0091; (800) 829-8289
Fax: (516) 487-6930
www.narsad.org/
E-mail info@narsad.org
This is a private, not-for-profit public charity 501(C)(3) organized for the purpose of raising and distributing funds for scientific research into the causes, cures, treatments and prevention of severe psychiatric brain disorders, such as schizophrenia and depression.

NICHCY
P.O. Box 1492
Washington, DC 20013
(800) 695-0285 (Telephone & TTY)
(202) 884-8441 (fax)
www.nichcy.org
E-mail nichcy@aed.org
The National Center for Children and Youth with Disabilities provides information on disabilities and disability-related issues for parents, educators, and other professionals.

National Institutes of Health
9000 Rockville Pike
Bethesda, MD 20892
(301) 496-4000
www.nih.gov/
This governmental agency is responsible for distributing information related to all health issues. They have several sites that deal specifically with multiple disabilities and include definitions and treatment options, as well as contact information for referral sources.
National Library of Medicine
8600 Rockville Pike
Bethesda, MD 20894
(888) FINDNLM; (888) 346-3656
Local and International: (301) 594-5983
(703) 684-5968 (fax)
www.nlm.nih.gov/nlmhome.html
This governmental agency’s Web site includes lists of different disabilities including multiple disabilities and also gives helpful descriptions. The information is easily accessible and understandable.

National Mental Health Association
2001 N. Beauregard Street, 12th Floor
Alexandria, VA 22311
Telephone: (703) 684-7722
Mental Health Resource Center: (800) 969-NMHA
(800) 433-5959 (TTY)
www.nmha.org/
This organization can be contacted directly by e-mail at www.nmha.org/guest/index.cfm.
For an emergency, call the National Hopeline Network at (800) 784-2433.
This is the country's oldest and largest nonprofit organization addressing all aspects of mental health and mental illness. It works to improve the mental health of all Americans, especially the 54 million people with mental disorders, through advocacy, education, research and service. This organization provides much valuable information for professionals, individuals, and families.

Office of Special Education Programs (OSEP)
Office of Special Education and Rehabilitative Services
U.S. Department of Education
400 Maryland Ave., S.W.
Washington, DC 20202
Telephone: (202) 205-5507
www.ed.gov/offices/OSERS/OSEP/index.html
The Office of Special Education Programs (OSEP) is dedicated to improving results for infants, toddlers, children and youth with disabilities ages birth through 21 by providing leadership and financial support to assist states and local districts.

PACER Center
8161 Normandale Blvd.
Minneapolis, MN 55437
(952) 838-9000
(952) 838-0190 (TTY)
(952) 838-0199 (fax)
www.pacer.org/index.htm
E-mail pacer@pacer.org
The PACER Center expands opportunities and enhances the quality of life of children and young adults with disabilities and their families, based on the concept of parents helping parents. This national center responds to thousands of parents and professionals each year. Services provided include assistance to individual families, workshops, materials for parents and professionals, and leadership in securing a free and appropriate public education for all children.
This is a web community dedicated to providing high-quality information, support and education to the family members, caregivers and individuals whose lives have been impacted by schizophrenia. It is a nonprofit organization that is registered as a project for the Tides Center, an independent nonprofit organization registered with the Internal Revenue Service as a 501(c)(3) public charity. The mission is to quickly improve the lives of families suffering from schizophrenia by providing high-quality (scientifically based) information, support and education, research and discussions on the subject.
Gifted/Multi-Disabled Students
Definition

There is a slight variation between the Federal and Mississippi definitions for multiple disabilities. According to the federal definition, *multiple disabilities* means concomitant impairments (such as mental retardation-blindness, mental retardation-orthopedic impairment), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf-blindness.

The state of Mississippi defines a child with multiple disabilities as one who has a combination of disabilities that adversely affects a child’s educational performance. The disability must also cause such severe educational needs that the child cannot be accommodated in a special education program designed solely for one of the disabilities. The term does not include a deaf-blind disability. (Mississippi Department of Education, 2003, p. 13).

Though the idea of an individual being both gifted and having multiple disabilities seems to be contradictory, it is a concept that deserves significant attention. There is a considerable amount of concern for those attempting to identify children as gifted/multi-disabled (Gallagher & Gallagher, 1994). In order to provide equitable opportunity for individuals with multiple disabilities to be classified as gifted, Hagen (1980) proposed viewing giftedness as an abstract trait as opposed to an absolute one. In other words, giftedness should be viewed as a relative quality based on one’s ability within their specific population. Furthermore, Gallagher and Gallagher (1994) argued that a person who is gifted/multi-disabled is one who qualifies for the minimum federal standards of the definitions of these two very dissimilar conditions.

Often, students who are gifted/multi-disabled are described in terms of their weaknesses rather than their strengths. However, a more optimum approach for educators and professionals may be to describe them in terms of both their giftedness and their disability (Friedrichs, 2001). Students who are gifted/multi-disabled have, in addition to their outstanding mental abilities, an identifiable disabbling condition (Gallagher & Gallagher, 1994). Cartwright, Cartwright, and Ward (1984) suggested employing a broad definition of giftedness among the multi-disabled population. They called for to educators to expand their paradigm of precociousness and look beyond traditional IQ and creativity measures as the sole determinate of giftedness. This new paradigm must encompass the characteristics unique to the multi-disabled population and attempt to determine exceptional ability within that realm (Cartwright,
et al. 1984).

Although there is documentation of persons who are gifted/multi-disabled, Shore, Cornell, Robinson, and Sward (1991) acknowledged that they are not easily identified. Throughout history, educators have had great interest in individual differences, special talents, and disabilities, yet the pairing of the adjectives gifted and disabled tends to cause amazement and disbelief among both professionals and the general public (Maker, 1977). Though it often occurs, a child who is gifted/multi-disabled should not be viewed as a mere contradiction. Awareness and acceptance of this type of dual exceptionality has not always been so publicized. According to Maker (1977), “…only recently have persons who are both gifted and handicapped begun to be widely noticed by the public and by those concerned with federal and state funding” (p. 8). Thus, the number of children who are recognized as fitting the description of gifted/multi-disabled seems to be growing (Gallagher & Gallagher, 1994).

Though the precise number of persons who are gifted/multi-disabled will probably remain unknown, individuals possessing both gifts and disabilities can have a significant impact on society (Johnson, Karnes, & Carr, 1991). Davis and Rimm (2004) present an excellent point when stating that most disabling conditions do not preclude or prevent giftedness, so it is logical to expect an equal percentage of gifted and talented students among students with disabilities as in the general population (Davis & Rimm; Karnes, 1984). Ford and Ford (1981) further suggested that the prevalence of identified giftedness among the multiply disabled population is limited by the simple fact that people with disabilities are a minority. Therefore, the identification of gifted individuals in this population actually is locating a minority within a minority.

Karnes (1984) suggested that the range of abilities among children with disabilities is as vast as that of their nondisabled peers. Unfortunately, it is far more difficult to identify the former because the disabling conditions often mask the gifts and talents (Karnes, 1984). If this is true and there are in fact equivalent numbers of students who are gifted/multi-disabled as there are gifted students who are not, then they are being drastically underserved. The current failure to recognize and encourage giftedness among the disabled causes a great injustice not only to them but also to society (Johnson et al., 1991). Johnsen and Corn (1989) proposed that even though only a small percentage of gifted children have multiple disabilities, the low occurrence is not sufficient rationale for the lack of services available to this population. One reason suggested for this lacking recognition and service availability may be that the general education system is focused on screening large numbers of children as opposed to considering individual differences (Johnsen & Corn, 1989). There is a great need for pedagogical practices that recognize both
strengths and disabilities because services for persons with dual exceptionalities do not exist (Shore, et al., 1991).

Johnsen and Corn (1989) reported that most of the research conducted on the gifted/multi-disabled has been case studies. Therefore, additional research on the topic of children who are gifted/multi-disabled is imperative, specifically in the area of creativity. Ford and Ford (1981) charge that if we are to recognize creativity as such a critical “quality or spectrum of skills” (p. 115), then educators and professionals working with multi-disabled children should investigate this valuable trait. Actively searching for creativity and creative personality characteristics could open possibilities for discovering giftedness among children with multiple disabilities (Ford & Ford, 1981).

**Characteristics**

Though characteristics of gifted children are available for educators and parents, children with multiple disabilities may not express them in the same manner as other gifted children. Due to the wide variety of disabilities, it is difficult to catalog a precise list of gifted/multi-disabled characteristics. Obviously, children with disabilities will exhibit a reduced amount of giftedness in areas related to their disability, but they may exhibit other unique abilities in the remaining areas of giftedness (Cartwright, et al., 1984). Perla and Ducret (1999) asserted that during testing, the responses of the students with multiple disabilities will vary drastically depending on how comfortable and safe they feel with the evaluator, evaluation process, and peers. Children who are multi-disabled and require the use of communication aids may hesitate to voluntarily respond to questions during testing (Davis & Rimm, 2004). Children who are gifted/multi-disabled may desire a sense of normalcy and connection with their peers both with and without similar disabilities and giftedness (Davis and Rimm, 2004; Friedrichs, 2001).

As previously stated, giftedness among this population should be viewed as a relative quality based on one’s ability within the specific population. Thus, instead of looking for exact gifted characteristics to be displayed by an individual with multiple disabilities, it would behoove educators and parents to consider giftedness as a continuum of behaviors in relation to the unique qualities of that particular population. Karnes (1984) asserted that students who are gifted/multi-disabled may display both subtle and blatant behaviors that can be interpreted as indicators of precocious talent. The spectrum of observable behaviors displayed by students who are gifted/multi-disabled include: (a) high performance, regardless of the disability; (b) exceptional ability or potential (Gallagher & Gallagher, 1994); and (c) acute self-awareness of their own gifts, learning style, or other skills. This self-awareness of their extraordinary capabilities may also contribute to the intense frustrations they experience when attempting to
complete academic tasks (Friedrichs, 2001).

Since a child may display talents in nonacademic areas, those talents may interfere with the planned curriculum or be seen as a nuisance due to their unusual or unconventional nature (Maker, 1979). These nontraditional talents are frequently due to creativity, which seems to be a vital concomitant of any behavior underlying gifted performance in all behavioral aspects. Creativity is customarily presented as an activity of artists, writers, research scientists, or others; however, it is also critical in business and industry where technological developments and advancements necessitate creative inventions and modifications (Ford & Ford, 1981).

For educators and related professionals working with children with multiple disabilities, an investigation into creativity and the characteristics of the creative personality could provide a definition of this quality or continuum of skills making it easier to recognize potential. Educators working with children who are multi-disabled should systematically search for potential talent in their students (Ford & Ford, 1981). It is imperative for professionals and educators to recognize this potential so as to facilitate the development of these gifts and alleviate unnecessary stress and frustration which leads to adverse effects on the child’s self-esteem and mental health (Maker, 1977).

Hagen (1980) states, “Characteristics of people who contribute to outstanding achievement in one area are not identical to those that contribute outstanding achievement in another area” (p. 5). Often, they display creativity in areas such as finding alternative ways to communicate or accomplish tasks (Willard-Holt, 1998). According to Maker (1977), these observable behaviors may indicate a child’s potential. During early childhood, certain actions and reactions by children with limited oral skills may indicate average or above-average cognitive ability. Later in life, adults who are gifted/multi-disabled may have acquired an outstanding body of knowledge, an excellent memory, or amazing problem-solving skills. For example, a child who grins at humorous comments or puns is demonstrating mature verbal comprehension; or watching the clock when told the time of an event demonstrates understanding of cause-and-effect relationships (Willard-Holt, 1998).

According to Johnsen and Corn (1989), the characteristics of children who are gifted/multi-disabled results from merging independent characteristics from both groups. A significant source of information regarding characteristics of gifted/multi-disabled children has been the personal reflections of gifted/disabled adults on their childhoods. Another great source for locating characteristics of gifted/multi-disabled children may also be biographies and autobiographies published by adults with similar or related conditions (Willard-Holt, 1998). Since
Characteristics most often reported by adults who are gifted/multi-disabled are that they learned or developed certain skills to compensate for their situation which enabled them to achieve their current level of success (Willard-Holt, 1998). Similar to their gifted/nondisabled peers, students who are gifted/multi-disabled tend to set a higher standard for goal attainment. Failure to reach their sometimes unrealistic goals often causes extreme frustration and stress resulting in disruptive behavior (Gallagher & Gallagher, 1994). A common characteristic unique to students who are gifted/multi-disabled is that they are often not willing or able to volunteer information, answer questions, or perform tasks independently upon request (Perla & Ducret, 1999). Generally, these students who are gifted/multi-disabled exhibit incredible persistence when attempting educational feats such as developing effective communication means, achieving academic goals, or continuing to maintain a sense of humor (Friedrichs, 2001). Ford and Ford (1981) provide an extensive listing of key behaviors and traits which were generated from the work of several authors. The list includes but is not limited to: (a) adaptability, (b) curiosity, (c) delight in the beauty of theory, and (d) an eagerness to resolve disorder.

**Screening and Identification**

While governmental regulations provide the necessary foundation for assisting children with diverse abilities and disabilities, many difficulties in the identification and assessment of multi-disabled children still linger, especially when a physical impairment is present (Johnson et al., 1991; Willard-Holt, 1998). Due to the fact that assessment of this group of children is particularly difficult, careful evaluation of underlying functional issues is crucial to the screening and identification process (Cass, Price, Reilly, Wisbeach, & McConachie, 1999). Contributing to the difficulty in identification is the lack of available teachers trained to work with disabled children who also have appropriate training in the specific area of giftedness (Davis & Rimm, 2004). Johnson et al. further suggested that educators often do not receive much if any formal training for instructing children with either disabilities or giftedness.

Current methods for improvement of the recognition of the gifted/multi-disabled population include: (a) adaptation of formal tests, (b) development of accurate checklists for identifying, (c) comparing the performance of the gifted-disabled child to peers with similar disabilities, (d) providing classroom activities to develop potential...
talents, and (e) implementing the use of multidisciplinary teams in the identification process (Jonnsen & Corn, 1989). Identification techniques should include the careful observation of the child’s reactions to people and situations in the surrounding environment (Willard-Holt, 1998). Since checklists often assist in the identification process, these checklists may be used as a guide to recognize and locate various behaviors. Researchers also suggest documenting the frequency of such behaviors to create a more accurate picture of each student’s most typical functioning level and abilities (Ford & Ford, 1981; Johnsen & Corn, 1989). A vital concept for consideration is that assessment for giftedness or potential giftedness in children with multi-disabilities should be viewed as a constant process or a systematic search contained within the context of developing relationships between parents and professionals (McConachie & Sinason, 1989; Ford & Ford, 1981). Though not always apparent, the educational needs of students who are gifted/multi-disabled must receive scrutiny, recognition, and priority within educational circles (Johnsen & Corn, 1989). Drastic modifications must be made to the regularly used identification methods to accurately reveal special talents and abilities of children who are both gifted and multi-disabled (Willard-Holt, 1998).

Identifying children who are gifted/multi-disabled is not an easy well-defined task. The reasons for the difficulty include the following: (a) disbelief among educators that individuals with multiple disabilities can be gifted; (b) unfair screening and identification practices; and (c) no standardized tests that have been normed on this population (McConachie & Sinason, 1989; Johnsen & Corn, 1989).

Disbelief among educators

A factor that may distort the perception of gifted characteristics in a multi-disabled child is the viewpoint of parents, educators, and other professionals. Many people, including education professionals, believe that persons with severe or multiple disabilities are incapable of making choices or decisions. Since multi-disabled students must fully rely on others for many daily needs, they are at a disadvantage in regards to independent function and self-expression of giftedness (Perla & Ducret, 1999). According to Johnsen and Corn (1989), “There is a societal tendency to regard persons with severe or multiple disabilities as less than competent” (p. 14). Incorrect assumptions are often made about the cognitive abilities of a child based only on the difficulties or inability related to verbal communication.

These assumptions may prove to be even more ominous barriers if they are paired with the lack of sensitivity and awareness often exhibited by educators and professionals. Even in the best schools for disabled
students, numerous instances of giftedness go unnoticed and gifted/multi-disabled students are inadequately and inappropriately served in general education classrooms (Johnsen & Corn, 1989). Often, professionals have the irrational expectation that children with multiple disabilities will present similar characteristics of giftedness as gifted/nondisabled children (Johnson, et al., 1991).

Adding to difficulties with characteristic recognition is the fact that most gifted/disabled children are recognized only for their disability, while their gifts and talents are ignored (Davis & Rimm, 2004; Shore, et al., 1991). Literature on the topic of giftedness and multiple disabilities coexisting as a dual exceptionality only came to surface in the 1970s. This literature began exploring the unique needs and complications faced by this group of students (Johnsen & Corn, 1989). The focus and attention placed on the existence of creativity in multi-disabled students is definitely lacking in both educational settings and research (Ford & Ford, 1981). Additional problems in identifying gifts and talents are generated by the amount of time and energy required to care for the disabling conditions. A child’s creative, artistic, intellectual or scientific talents may be ignored or overlooked in the daily routine of care for the multiple disabilities (Davis & Rimm, 2004). Renzulli (2002) notes that another problem is that students who find themselves in this situation do not always have access or encouragement to engage in suitable educational situations that enhance their performance to an easily recognizable level.

Professionals must put aside their misgivings about children with disabilities in order to detect their potential for giftedness (Davis & Rimm, 2004). Professionals must be especially aware when attempting to identify gifted/multi-disabled children because the disability may obscure the outstanding talent of the child (Gallagher & Gallagher, 1994). The common conceptions of giftedness are not always seen in the profile of gifted/multi-disabled children, but their profiles include rather unconventional strengths (VanTassal-Baska, 1991). Johnsen and Corn (1989) go so far as to suggest that there should be a major focus of study, acknowledgment, and an educational agenda placed on those specific educational needs of gifted/multi-disabled students. They challenge educators and related professionals to comprehend the implications of dual exceptionalities (Johnsen & Corn, 1989).

According to Ford and Ford (1981), creativity may be stimulated in any and all children regardless of the presence of any disabling conditions. It is the duty of educators and professionals to modify their practice and belief systems accordingly. The effects on the multi-disabled child may be harmful when educators choose not to recognize giftedness or the potential for such including nontraditional creativity (Johnsen & Corn, 1989; Smith, Gast, Logan, & Jacobs, 2001).
Unfair screening/identification practices

As with recognizing or defining characteristics for this particular population, the assessment, identification, and evaluation processes to determine giftedness may be significantly distorted by the multiple disabilities of the child. It is imperative to understand the special problems that are related to properly identifying children who are gifted/multi-disabled (Gallagher & Gallagher, 1994). Willard-Holt (1998) mentions that since most classifications of multiple disabilities include some form of physical impairment, certain difficulties may ensue when attempting to identify giftedness.

Unfortunately, no method has been agreed upon as the best to be used for identification of giftedness in either disabled or nondisabled students. To ensure the most accurate assessment possible, a multiple criterion approach is favored over a single test approach and is outlined in Mississippi guidelines (Cartwright, et al., 1984). Identification of nonhandicapped gifted students utilizes multidimensional techniques including multiple talent screening checklists. Therefore, it is only fitting that screening for giftedness in disabled populations involves more than merely an IQ score (VanTassal-Baska, 1991).

Davis and Rimm (2004) suggest that identification of students who are gifted/disabled be based on a comparison with others who have the same disability. Furthermore, more weight should be placed on the specific areas where a child effectively compensates for the disabilities. Similarly, Maker (1977) advocates including “those particular abilities and/or characteristics which enable a person with a disability to function at a superior level in a world composed mainly of persons who are not disabled” (p. 29). The basis for this suggested practice is the supposition that similar patterns of abilities, and/or level of abilities, will allow both disabled and nondisabled children to thrive in educational and non-educational situations (Maker, 1977).

According to Perla and Ducret (1999), informal assessments based mainly on observations of individual students in several settings have been found to be the best approach to determining giftedness among multi-disabled children. Certain observable behaviors may be considered indicators of a child’s potential to develop gifts or talents when they receive adequate opportunity (Maker, 1977). The most comprehensive source of information about a child comes from informal observations, interviews of parents and related professionals, and thorough reviews of current records. It is important to remember that forced interactions with multi-disabled children may not always elicit the desired response. If a child is given a choice of accepting or rejecting an interaction, the child is allowed a sense of control over the situation and is more likely to function naturally (Perla & Ducret, 1999). This natural
interchange allows for better performance in informal settings than in clinical ones where the accuracy of findings is uncertain (Cass, et al., 1999). An essential responsibility of educators is to consider the futures of their students in order to provide appropriate education to all students displaying special gifts or talents (Johnsen & Corn, 1989).

_Lack of normed standardized tests_

The most common approach to determining intellectual giftedness is an individually administered standardized intelligence test that typically identifies high-achieving students. This approach is not suitable for identifying other types of giftedness including those that may be exhibited by multi-disabled children such as artistic, social, or leadership abilities (Cartwright, et al., 1984). In order to accurately uncover the skills, abilities, and talents of this special population of children, the customary identification methods require extensive modification (Willard-Holt, 1998). Overall, identification and assessment methods for determining giftedness in this population must be extended to include more than tests alone. Other forms of identification must be introduced, recognized, and practiced in order to fully determine the appearance of gifts or talents in multi-disabled children (Renzulli, 2002).

Though several tests have been modified and adapted to use for identifying giftedness in disabled populations, not much research has been conducted regarding the validity of such tests. Johnsen and Corn (1989) suggest that tests be “selected not only to accommodate a handicapping condition but also to explore a child’s strengths” (p. 17). Another suggestion is to locate and utilize instruments matching the student’s strengths rather than adapting instruments mainly used in identifying gifted children only (Johnsen & Corn, 1989). Though the *Wechsler Intelligence Scale*, are the most frequently used intelligence tests and are often modified for children with disabilities, other tests may be more appropriate if they are specifically designed for children with disabilities (Davis & Rimm, 2004). Several tests mentioned by Johnsen and Corn (1989) would have to be matched appropriately with the multiple disabling conditions of the students in question. These tests include *Stanford Achievement Test-Hearing Impaired Version* (Madden, Gardner, Rudman, Karlson, & Merwin, 1973), *Durrell Analysis of Reading Difficulty* (Durrell, & Catterson, 1980), *Structure of the Intellect Learning Abilities Test* (Meeker & Meeker, 1975), *Torrance Tests of Creative Thinking* (Torrence, 1974), *Assessment for Program Planning Instrument* (Karnes & Steinberg, 1983), *Nurturing Talent Guide* (Karnes & Associates, 1987a), *Preschool Talent Checklist Manual* (Karnes & Associates, 1987b), and *Piers-Harris Children’s Self-Concept Scale* (Piers & Harris, 1969).
Instruction

Over the past several years, educational practices concerning children with multiple or severe disabilities have been greatly modified (Siegal-Causey & Bashinski, 1997). The difficult situation experienced by gifted/multi-disabled students is heightened because appropriate programs continue to be unavailable despite legal stipulations (Davis & Rimm, 2004). Educators must help this population of students learn how to use their strengths to help them overcome their weaknesses (Shore, et al., 1991).

Educators must reject the deficit-oriented model of instruction (Salzer, 1986). Ideally, students who are gifted/multi-disabled should receive individualized instruction that emphasizes the use of strengths to overcome weaknesses. However, Van Tassal-Baska (1991) stated that this ideal situation is unrealistic due to limited resources. Another obstacle is insufficient qualified teachers to work with multiply disabled children (Johnsen & Corn, 1989).

Johnsen and Corn (1989) noted that instructional plans for gifted/multi-disabled students should address the actual educational needs of these students. Instructional goals should include creative learning opportunities to promote independence (Salzer, 1986). There are several important factors to consider when planning educational programs for gifted/multi-disabled children. Such factors include: (a) a stable foundation for nurturing confidence and motivation, (b) a supportive home atmosphere, (c) an optimistic expectations and attitudes of both parents and professionals, and (d) interaction with age-like peers during scholastic portions of classroom activities (Erickson & Koppenhaver, 1997).

Willard-Holt (1998) encourages teachers to be flexible when designing learning activities. For example, teachers should allow adequate time and multiple mediums for the students to express what they have learned. Additionally, educators are encouraged to exhibit leniency when considering the student’s form of response (Willard-Holt, 1998).

Along with flexibility, Maker (1979) emphasized teaching specific skills. For instance, many creative thinking and problem-solving skills can actually be taught in order to improve measurable creative performance. Moreover, Maker (1979) contends that practicing such skills could actually develop and refine creativity since it is considered a reinforced behavior. Ford and Ford (1981) noted an apparent discrepancy between the incorporation of problem solving and other creative techniques across the education lines. In special education classrooms, little weight is placed on problem-solving skills and most of the focus is placed on remediation. However, in the gifted
classroom creative thinking and problem-solving techniques are routine (Ford & Ford, 1981). Due to the fact that many gifted/multi-disabled students often lack age-appropriate social skills, it is imperative that educators integrate specific social skills instruction with remediation (Davis & Rimm, 2004).

**Building Confidence/Motivation**

One of the main goals in educating children who are gifted/multi-disabled is to help them become aware of their own gifts, talents, and abilities (Smutny, 1998). Though the abilities and gifts found among students with multiple disabilities are vast, the students possess a common need for thorough and constant support from various outlets. This support enables students to be included in activities in all settings such as home, school, and the community (Siegal-Causey & Bashinski, 1997). Johnsen and Corn (1989) noted that since educators and related professionals are to consider the futures of students, they may very well be instrumental in shaping the self-concept of gifted/multi-disabled students. Their duty of providing adequate and appropriate education to all students, especially those who exhibit giftedness, includes consistently motivating and encouraging these students to understand and utilize their potential and gifts (Johnsen & Corn, 1989). One example of such motivational efforts is to include students who are gifted/multi-disabled in classroom discussions to convey the importance and value of their idea sharing (Willard-Holt, 1998).

Students who are gifted/multi-disabled should be allowed, within the realms of their ability, to experience similar program opportunities as other gifted students. Davis and Rimm (2004) suggested that the “primary emphasis should be on the recognition and facilitation of the child’s strengths” (p. 390) while a secondary focus should be “to prevent the disability from becoming a deterrent to the development and expression of a child’s talent” (Davis & Rimm, 2004, p. 390). For educational purposes, a recommended practice is one that identifies and appreciates both the strengths and limitations of a child who is gifted/multi-disabled. A good approach to educating gifted/multi-disabled children involves equally focusing on the giftedness and the disabilities, instead of focusing only on the weaknesses (Shore, et al., 1991; Johnsen & Corn, 1989). If educators and related professionals will focus on developing the potential giftedness in multi-disabled children, the students would begin to be recognized more for their strengths than their disabilities (Pledgie, 1982; Maker, 1977).

An additional focus of overall education must be placed on fostering independence among children who are gifted/multi-disabled so they can learn to cope with their situation (Davis & Rimm, 2004). In order to accommodate students who are gifted/multi-disabled, Willard-Holt (1998) proposed making certain instructional modifications.
These included: (a) adequate communication time and modalities, (b) independence as much as possible, and (c) alternate forms of response (Willard-Holt, 1998). Ford and Ford (1981) reported that creativity training has been proven to be successful and beneficial for children with disabilities. This type of educational motivation has practical implications in special education settings in that the students will be encouraged to have learning opportunities that may be unavailable elsewhere (Ford & Ford, 1981).

Maker (1979) discussed several positive outcomes of focusing on the development of talents in students who are gifted/multi-disabled. These positive outcomes include: (a) developing talents into gratifying hobbies or possible career interests; (b) improving student self-concepts through individual perception of activities; (c) improving student self-concepts through peer interaction and perception of activities; and (d) working through strength areas to improve or alleviate the deficit areas. Positive outcomes may also result from implementing creative thinking and problem-solving skills into educational programs for children who are gifted/multi-disabled. In doing so, educators and related professionals will build confidence, enable this special population to maximize their potential, and, therefore, fulfill a vital part of their professional responsibility (Ford & Ford, 1981).

Supportive Home/School Environment

Johnsen and Corn (1989) reported that since educators and related professionals are not often knowledgeable about the specific needs of children who are gifted/multi-disabled, these students are not always given an opportunity to develop their gifts and talents. To gain the optimum insight for care of a child who is gifted/multi-disabled, it is necessary to include parents, child development services, and professionals in educational, medical, and psychotherapeutic fields (McConachie & Sinason, 1989; Smith et al., 2001). Johnson et al. (1991) stated that related fields of special education and gifted education should work more closely together in order to better serve children who are gifted/multi-disabled. They continued by suggesting that this close partnership occur at multiple levels including the federal, state, and local levels (Johnson et al.).

Educators and other related professionals hold the responsibility for the future educational practices of this population and must use creative problem-solving abilities to develop an adequate plan for gifted/multi-disabled education (Johnsen & Corn, 1989). Teachers and educators should posses both positive attitudes and more highly developed skills when working with this special needs population (Johnson et al., 1991). Professional learning experiences, such as staff development, are instrumental in promoting good teaching practices for working with gifted/multi-disabled children (Pledgie, 1982; Johnsen & Corn, 1989). Aside from learning how to recognize and
develop the child’s giftedness, it is good educational practice for teachers to alter their perceptions. Davis and Rimm (2004) stated that educators and professionals should adapt the same view toward “developing a child’s strengths, promoting high achievement, and enhancing creative and other high-level thinking skills” (p. 350) among children with multiple disabilities as they exhibit toward other nondisabled gifted students. This may be accomplished by encouraging self-determination in all educational endeavors including learning and problem solving (Smutny 1998).

Another responsibility of teachers of children who are gifted/multi-disabled is to arrange the educational and social environment in a manner that encourages students to interact across boundaries of difference and disability (Sapon-Shevin, Ayres, & Duncan, 1994). As a result of the positive perceptions and practices of implementing programs focused on students who are gifted/disabled and the combined focus on students’ strengths, the overall atmosphere of the school may be greatly improved. The attitude and mindset of educators or related professionals begins to shift, and heightened awareness and expectations about the abilities of the students will ensue (Johnsen & Corn, 1989). Educators and related professionals must uphold their responsibility and obligation to be mindful of the futures of their students while providing appropriate educational opportunities to these students who are gifted/multi-disabled (VanTassal-Baska, 1991). According to Johnsen and Corn (1989), the overall result will be that these students develop a new, more positive outlook on life and have increased motivation for skill development that leads to a more positive life experience.

VanTassal-Baska (1991) stressed the role of parents in planning and implementing an educational program for their child. Erikson and Koppenhaver (1997) concurred that a supportive home environment is vital to the educational experiences of children who are gifted/multi-disabled. Parents can contribute to the education of their students who are gifted/multi-disabled by allowing and creating child-appropriate opportunities for decision making (Smutny 1998). Parents of these children are responsible for consistently determining how they can best meet the special needs of their children including both the giftedness and the disabilities (Karnes, 1984). Parents must also help watch for the emergence of gifts in their children because the identification of giftedness is an ongoing process (Johnson et al., 1991).

Johnsen and Corn (1989) gave an example of a female with spina bifida who was born in the 1950s when educational opportunities were not as they are now. She attended a special school for students with physical disabilities until the age of nine. During this time, teachers held low expectations that denied her the experience of academic progress. Her father was constantly fighting with school boards to have this girl included in a regular
classroom educational setting. The family moved repeatedly when these simple services were not allowed to the girl. She went on to continue her education by receiving her doctorate from Columbia University, and in doing so, became a rare exception (Johnsen & Corn, 1989).

Whitmore (1981) cited an example of a female born with extreme visual impairments and slowly developing cognitive function. Placed in a state school at an early age, she was burdened with low expectations and minimal opportunities for intellectual development. In this case, the individual’s disability was significantly amplified to far outweigh any personal strengths, gifts, or talents. The significant family and environmental support offered to this individual allowed her to reach her full potential by furthering her education at the collegiate level.

**Optimistic Expectation and Attitudes**

Students who are gifted/multi-disabled are more likely to attain their skills and goals with the strong support of both positive environments and positive parental and professional expectations (Erickson & Koppenhaver, 1997). Since children who are gifted/multi-disabled may experience extreme social problems, lack of confidence, and inadequate or negative feelings of personal respect, educators and parents should take appropriate sensitivity measures when dealing with the psychosocial issues of this population (Davis & Rimm, 2004). Including trained counseling professionals to assist these students with developing a more positive and accurate self-concept is a vital part of service provision (Johnson et al., 1991).

Since Willard-Holt (1998) stated that the optimism of educators and professionals can significantly encourage students, professionals from each discipline involved have the responsibility to modify their instruction to sufficiently provide for the needs of students who are gifted/multi-disabled (Smith, et al., 2001). The types and degrees of modification are endless but one major change would be to allow these students adequate time for communication, alternative forms of response, and active participation in classroom discussions (Willard-Holt, 1998). According to Ford and Ford (1981), other modifications could include encouraging creativity and flexibility which may prove beneficial by enhancing the optimism, self-esteem, and self-concept of students who are gifted/multi-disabled. Furthermore, it is suggested that educators or related professionals implement a systematic process to determine and develop potential talent. This will also increase the optimism of professionals and subsequently assure that these students will receive unique educational opportunities unavailable elsewhere (Ford & Ford, 1981).

**Peer Interaction**
Peer interaction may be improved if the teacher or other professionals will provide nondisabled classmates with a brief, age-appropriate explanation of the disabling conditions and also describe behaviors and actions that may make interaction with a multi-disabled student difficult or frightening (Willard-Holt, 1998). Gifted/multi-disabled students can significantly benefit from the educational circumstances that often occur in regular classrooms (Downing & Eichinger, 1996). There are several ways that this population could benefit from inclusion such as improving social cognition and positive self-efficacy and developing cordial and attentive relationships with peers. Inclusion seems to alleviate some of the common fears and misconceptions regarding human diversity and disabilities by increasing comfort and awareness in those situations (Staub & Peck, 1994).

Staub and Peck (1994) claimed that inclusion is generally defined as “the full time placement of children with mild, moderate, or severe disabilities in regular classrooms” (p. 36). This particular definition implies that placement in regular classrooms must be taken into consideration as an appropriate option for all students, despite the severity or variety of their disabilities. Self-contained settings and special instruction are still appropriate in certain situations and should be utilized accordingly (Staub & Peck, 1994).

Certain stimulations may not be provided for gifted/multi-disabled students by self-contained special education classrooms due to the inherent nature of that setting. Generally, regular education classrooms provide many opportunities for informal or formal peer interaction during times when educators are unavailable for individual instruction. General education classrooms are able to offer certain stimulation, challenges, and learning opportunities which may be nearly impossible to recreate in a self-contained classroom. Gifted/multi-disabled students should be an integral part of the classroom and acknowledged as permanent members and allowed to enhance the overall activities of the educational atmosphere (Downing & Eichinger, 1996).

Johnsen and Corn (1989) cautioned that inclusion has not been proven acceptable for all conditions and combinations of multiple disabilities. In fact, some conditions may limit the possibilities for students to be included in regular gifted or special education programs. For example, data concerning the inclusion of gifted students with sensory and/or physical disabilities in gifted programs and the necessary provision of services by special education programs is very limited (Johnsen & Corn, 1989).

Erickson and Koppenhaver (1997) conducted a longitudinal qualitative single case study to analyze the evolution of the communication and literacy skills of a student with multiple disabilities in an inclusion setting. The study also attempted to evaluate the classroom environment, the usage of various instructional techniques, and the
effects of peer interaction. The study determined that benefits of inclusion for multi-disabled students include the emergence of gifts and talents resulting from encouragement. The identified subject was an 11-year-old male with spastic cerebral palsy, limited hand usage, mild to moderate visual difficulties, and an inability to communicate verbally. He used a motorized wheelchair and required assistance at times for mobility. As a result of the subject’s communication and physical limitations, the child was perceived to have moderate to severe cognitive impairments (Erickson & Koppenhaver, 1997).

Erickson and Koppenhaver (1997) reported the study was conducted during the subject’s fourth- and fifth-grade years in an inclusion setting. Both the fourth- and fifth-grade general education classrooms contained 25 students, three of whom had mild to moderate disabilities, in addition to the subject. Erickson and Koppenhaver (1997) explained the qualifications of the professionals involved with the subject in the following way. The fourth-grade teacher had an elementary education degree, one year of classroom experience, and no formal training or practice with special student populations such as those with disabilities. The fifth-grade teacher worked the past several years as a journalist before acquiring an elementary education degree. A full-time aide assisted the student as she had for several years but had no special training or previous work experience with children with severe or multiple disabilities before the subject. The aide was responsible for attending to the student’s personal care needs, modifying the teacher’s instructions for the student, instructing the student directly in certain subject areas including literacy, facilitating social exchanges between this student and the other students, and functioning as a teacher assistant for the entire class. A special education teacher acted as a consultant, wrote and coordinated the subject’s IEP, and had some direct instructional contact with the subject. Erickson and Koppenhaver (1997) further reported that the subject’s mother was directly involved with his learning progress and educational path.

Erickson and Koppenhaver (1997) stated prior to the study, the subject was provided with a Dynavox assistive communication technology device that utilized auditory scanning methods and slight head movements for control and communication. After a short time, the subject attempted to directly select messages on the device without the auditory assistance. Erickson and Koppenhaver (1997) reported that both his parents and the related professionals were shocked by this behavior because he was using skills thought to be absent.

In order to facilitate progress, the Dynavox was modified and manipulated several times as the subject demonstrated skill mastery. According to Erickson and Koppenhaver (1997), the subject actively participated in classroom reading exercises by eye pointing and the Dynavox. The related professionals and his mother encountered
difficulty maintaining the device’s programs at a pace to meet the needs and demands of subject’s skill level and the increasing educational information (Erickson & Koppenhaver, 1997).

According to Erickson and Koppenhaver (1997), all formal educational testing and assessments indicated that the subject’s inability was much greater than that of his ability in the area of literacy skills. Previous language assessments determined significant delays, such as the Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1981) ranking his ability similar to that of a 5.6-year-old student. The classroom communication ability demonstrated by the subject caused the related professionals to question the accuracy of such scores and to consider the effects or limitations that would be created by his multiple physical impairments (Erickson & Koppenhaver, 1997).

Erickson and Koppenhaver (1997) reported that the sheer nature of the subject’s severe speech and physical disabilities created difficulties in testing. Because standardized tests for reading skills do not apply, assessment tools were adapted as informal measures of reading and comprehension skills. Through assessments including the modified Basic Reading Inventory (Johns, 1994) and a developmental spelling test, the subject demonstrated some understanding of “initial and final letter-sound correspondences in words” (¶ 28). Erickson and Koppenhaver (1997) reported that this occurrence greatly surpassed the expectations and increased the interest of both his mother and the related professionals leading to further tests. The subject’s reading comprehension level at the time of the study was determined and resulted in the realization that listening comprehension was a relative strength for the subject. Erickson and Koppenhaver (1997) note that there was some “discrepancy between the [subject’s] performance on the PPVT-R and the assessment of text-based listening comprehension” (¶ 33), which substantiated the belief that certain aspects of the PPVT-R contributed to the low scores in the past.

Erickson and Koppenhaver (1997) reported that the subject was expected to increasingly participate in class and his Dynavox was constantly upgraded to maximize his ability. This study concluded by stating that the process of education and inclusion with this subject must continue for his benefit and could possibly produce more positive outcomes (Erickson & Koppenhaver 1997).

The practices of cooperative learning may be an ideal delivery method for inclusive education programs (O’Connor & Jenkins 1996). According to Murray (1994), “Cooperative learning refers to a family of instructional practices in which the teacher gives various directions to groups of pupils about how to work together” (p. 6). Based on one of the cooperative learning methods, students learn in groups as opposed to individual learning or in
competition with each other, in order to vitally enhance regular learning practices (Murray, 1994). The cooperative learning methods encourage students to work collectively with every student given the opportunity to experience the roles of teacher and learner. It also formalizes and encourages peer support and connection (Sapon-Shevin, et al., 1994). The students who make up each group must arrange their individual behaviors in an effort to accomplish the group goal. Since the group goal can only be reached with the students in the group working collectively (Rynders & Schleien, 1993), a main focus is on the students and teachers working together to help and support each other and relationships are viewed as complementary instead of well-defined duties. Another main focus is on natural support, which connects classroom members and ultimately nourishes supportive communities (Stainback & Stainback, 1994). These group learning practices stimulate and encourage critical thinking skills (Augustine, Gruber, & Hanson, 1989).

The success of cooperative learning depends on a complex variety of conditions, as with any other educational practice. A major factor in the successful execution of cooperative learning appears to be dependent on the academic, behavioral, and attitudinal characteristics of the students with disabilities and their peers. A definite consensus exists in regards to the intrinsic value of teamwork in combination with group learning activities for practical use in the classroom that are promoted in the cooperative learning educational method (O’Connor & Jenkins 1996). Students, both with and without disabilities, should learn and work in settings where their personal strengths and needs are recognized and addressed. Similarly, both disabled and nondisabled students should learn within the boundaries of a supportive community (Sapon-Shevin, et al., 1994). Since comparable situations occur throughout life, a cooperative learning environment encourages students to help and support one another in both formal and informal settings (Stainback & Stainback, 1994). Benefits of cooperative learning experienced by gifted/disabled children may include the promotion of higher achievement, a heightened awareness and acceptance of differences, better school attitudes, and increased self-esteem. Cooperative learning continues by developing social skills and shifts responsibility for learning from the instructor to the learner. Students develop a mutual respect for each other and various learning styles as well as an awareness of functioning as a group when in a cooperative learning setting. It is often beneficial that students learn positive interaction skills even though they may be capable of completing the assignments alone (Augustine, et al., 1989).

Some disabled children appeared to thrive in a cooperative learning classroom, while others clearly did not. Some factors that distinguish more and less successful outcomes included the ways that classroom teachers prepared
students, organized groups, and monitored performance. Special education practices do not always blend well with cooperative learning but rather must strive to adapt to those practices. Restructuring classroom learning activities using a cooperative learning model may result in a better quality educational atmosphere for disabled students as it would have characteristics such as higher student involvement levels, increased task commitment, and more challenging assignments (O’Connor & Jenkins 1996).

**Conclusion**

It is crucial to develop programs that promote the potential of children who are gifted/multi-disabled (Johnson, et al., 1991). Developing these efficient, integrated, and outcome-focused educational programs for multi-disabled students can prove to be extremely challenging and complex for both educators and other related professionals. This is due in great part to the fact that there is tremendous difficulty detecting a single voluntary response, such as an eye gaze or small movement of the hand, arm, or head, in these students (Smith, et al., 2001). Along with the special care needed for their disabilities, their giftedness must also be nurtured (Karnes, 1984). Perla and Ducret (1999) emphasized the need for consistency when working and caring for gifted/multi-disabled children. One way this consistency may be incorporated is by providing the child with basic information regarding treatment, activities, and travel to help the child prepare for an upcoming task or event (Perla & Ducret, 1999).

Since the number of gifted/multi-disabled students is growing, professionals must make an effort to increase both their awareness and sensitivity to this twice-exceptional population. Due to the extreme difficulty in defining and identifying giftedness in this population, many current educational practices should be modified accordingly. Forms of giftedness other than academic and intellectual should receive increased recognition and research in order to better serve the gifted/multi-disabled population. If professionals choose to overlook this significant need, there will be a large population of America’s students being drastically underserved.
References


Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


Champaign, IL: University of Illinois, Institute of Child Behavior and Development.


## Appendix A

### Characteristics of Students Who Are Gifted/Multi-Disabled

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unwillingness to offer information</td>
<td>These students are often unable to willingly offer information during testing or other interviews due to the complications of their multiple disabilities.</td>
</tr>
<tr>
<td>Unwillingness to independently perform tasks as requested</td>
<td>These students are often unable to correctly perform requested tasks due to the complexities of their multiple disabilities.</td>
</tr>
<tr>
<td>Curiosity</td>
<td>These students are often curious regarding their environment.</td>
</tr>
<tr>
<td>Desire for normalcy and connection</td>
<td>These students would like to experience connections to other students and teachers in a manner similar to those experienced by nondisabled peers.</td>
</tr>
<tr>
<td>Exceptional ability, performance, or potential</td>
<td>These students seem to display unique abilities in areas not affected by the disabilities. Determining potential in these students may yield more talent than looking for definite characteristics.</td>
</tr>
<tr>
<td>Alternative communication patterns</td>
<td>These students often display unique methods of communication but may demonstrate excellent verbal comprehension.</td>
</tr>
<tr>
<td>Compensatory and adaptability skills</td>
<td>These students usually develop ways to accomplish tasks regardless of their multiple disabilities.</td>
</tr>
<tr>
<td>Persistence</td>
<td>These students display extreme persistence when attempting academic and non-academic tasks.</td>
</tr>
<tr>
<td>Higher standards</td>
<td>These students generally desire to achieve to their highest ability.</td>
</tr>
<tr>
<td>Frustration</td>
<td>These students often experience great frustration when attempting such formidable tasks as mentioned above.</td>
</tr>
<tr>
<td>Self-awareness</td>
<td>These students are often very aware of their own abilities and gifts as well as their disabilities and limitations.</td>
</tr>
<tr>
<td>Eagerness to resolve disorder</td>
<td>These students often attempt to resolve disorder in their surrounding environments.</td>
</tr>
</tbody>
</table>

Adapted from Cartwright, Cartwright, & Ward (1984); Davis & Rimm (2004); Ford & Ford (1981); Friedrichs (2001); Gallagher & Gallagher (1994); Karnes (1984); Maker (1977); Maker (1979); Perla & Ducret (1999); Willard-Holt (1998)
### Screening/Identification Procedures for Students Suspected of Being Gifted/Multi-Disabled

<table>
<thead>
<tr>
<th>Methods</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple criterion approach</td>
<td>Suggestions are made to utilize more than one identification method with this population due to the complexity of the disabilities and giftedness.</td>
</tr>
<tr>
<td>Observation – formal and informal</td>
<td>These students may display potential giftedness in various aspects of their lives other than just academic arenas and must be observed closely to determine it.</td>
</tr>
<tr>
<td>Checklists</td>
<td>Current checklists for giftedness may be used if they are modified according to the student’s multiple disabilities.</td>
</tr>
<tr>
<td>Standardized tests</td>
<td>Current tests for giftedness may be used if they are modified according to the student’s multiple disabilities.</td>
</tr>
<tr>
<td>Interviews</td>
<td>Interviews should be conducted with teachers, parents, students, and related professionals to determine the true abilities of these students.</td>
</tr>
<tr>
<td>Documentation child’s behaviors</td>
<td>Behaviors exhibited by these students should be documented to determine the frequency and occurrence of such gifts and talents.</td>
</tr>
</tbody>
</table>

Adapted from Cartwright, Cartwright, & Ward (1984); Ford & Ford (1981); Gallagher & Gallagher (1994); Johnsen & Corn (1989); Maker (1977); McConachie & Sinason (1989); MS gifted ed act 1989; Perla & Ducret (1999); Renzulli (2002); VanTassal-Baska (1991); Willard-Holt (1998)
## Appendix C
### Instructional Strategies for Students Who Are Gifted/Multi-Disabled

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multidisciplinary approach</td>
<td>Suggestions are made to utilize the skills of several disciplines including educational professionals, child development services, medical professionals, and psychotherapeutic professionals. Along with professional skills, those of parents and students should also be included.</td>
</tr>
<tr>
<td>Teach to their strengths</td>
<td>Related professionals should reject the deficit-oriented model of instruction that is currently used for this population.</td>
</tr>
<tr>
<td>Build confidence and motivation</td>
<td>Related professionals should create an atmosphere that nurtures confidence and motivation.</td>
</tr>
<tr>
<td>Supportive home environment</td>
<td>Parental involvement is essential and encouraged for this population.</td>
</tr>
<tr>
<td>Optimism of parents and professionals</td>
<td>Both should alter their current perceptions and expectations of this special population in order to provide a more positive environment and outcome.</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Professionals and parents should heighten their sensitivity toward these students.</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Related professionals should be flexible in their expectations and acceptance of responses as well as in their teaching styles.</td>
</tr>
<tr>
<td>Independence</td>
<td>Parents and professionals should encourage these students to be as independent as possible.</td>
</tr>
<tr>
<td>Creativity</td>
<td>Related professionals should encourage creative thinking and problem-solving skills, as well as other forms of creativity such as artistic and musical.</td>
</tr>
<tr>
<td>Consistency</td>
<td>Parents and professionals should develop a consistent pattern for communication and instruction.</td>
</tr>
<tr>
<td>Social skills training</td>
<td>This training should be an important part of instruction so that these children may function more positively in society.</td>
</tr>
<tr>
<td>Inclusion</td>
<td>This method is useful and beneficial in certain settings and allows for peer interaction.</td>
</tr>
<tr>
<td>Cooperative learning</td>
<td>This method is useful and beneficial in certain settings and allows for peer interaction.</td>
</tr>
</tbody>
</table>

Adapted from Augustine, Gruber, & Hanson (1989); Davis & Rimm (2004); Downing & Eichinger (1996); Erickson & Koppenhaver (1997); Ford & Ford (1981); Johnsen & Corn (1989); Johnson, Karnes, & Carr (1991); Karnes (1984); Maker (1977); Maker (1979); McConcachie & Sinason (1989); Murray (1994); O’Connor & Jenkins (1996); Perla & Ducret (1999); Pledger (1982); Rynders & Schleien (1993); Salzer (1986); Sapon-Shevin, Ayres, & Duncan (1994); Shore, Cornell, Robinson, & Sward (1991); Siegal-Causey & Bashinski (1997); Smith, Gast, Logan, & Jacobs (2001); Smutny (1998); Stainback & Stainback (1994); Staub & Peck (1994); VanTassal-Baska (1991); Willard-Holt (1998)
National and State Associations for Multiple Disabilities

American Medical Association
515 N. State Street
Chicago, IL 60610
800-621-8335
www.ama-assn.org/
This organization can also be contacted directly by e-mail at www.ama-assn.org/cgi-bin/x-check/feedtool.pl. This organization provides patients and doctors with a vast array of medical information including treatment, research, and descriptions of multiple disabilities.

Centers for Disease Control and Prevention
Public Inquiries/MASO
Mailstop F07
1600 Clifton Road
Atlanta, GA 30333
www.cdc.gov/
This organization can also be contacted directly by e-mail at this address www.cdc.gov/netinfo.htm. This governmental agency is responsible for many issues related to public health. This Web site lists various types of disabilities including multiple disabilities and provides descriptions. Also genetic factors and susceptibility are discussed. The information is easily accessible and understandable.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(866) 915-5000 (TTY; text only)
(703) 264-9494 (fax)
www.cec.sped.org/
E-mail service@cec.sped.org
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

The Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201
(202) 619-0257; (877) 696-6775
www.hhs.gov/
This governmental agency is the principal one responsible for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves including those with multiple disabilities.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) 328-0272
www.ericc.org
ERIC gathers and disseminates professional literature, information, and resources on the education and development of individuals of all ages who have disabilities and/or who are gifted.
The Family Village
Waisman Center
University of Wisconsin-Madison
1500 Highland Avenue
Madison, WI 53705-2280
(608) 263-1656
(608) 263-0802 (TTY)
(608) 263-0529 (fax)
www.familyvillage.wisc.edu
E-mail familyvillage@waisman.wisc.edu
The Family Village integrates resources and communication opportunities on the Internet for people with disabilities, their families, and those who support and serve them.

Family Voices
3411 Candelaria NE, Suite M
Albuquerque, NM 87107
(505) 872-4774; (888) 835-5669
(505) 872-4780 (fax)
www.familyvoices.org
E-mail kidshealth@familyvoices.org
Family Voices is a national grassroots network of families and friends speaking on behalf of children with special health care needs.

The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
www.ids.usm.edu/projectOutdoor.htm
This organization can be contacted directly by e-mail at www.ids.usm.edu/contactUs.htm. The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

MayoClinic.com
This site is owned by the Mayo Foundation for Medical Education and Research, which is located at 200 1st St. S.W.
Rochester, MN 55905
www.mayoclinic.com/index.cfm
E-mail comments@mayoclinic.com
This organization strives to empower people to manage their health by providing useful and up-to-date information and tools reflecting the expertise and standard of excellence of the Mayo Clinic. There is helpful information related to cerebral palsy and other multiple disabilities. There are links to other helpful Web sites including www.mayoclinic.org/ which gives more information about the Mayo Clinic.
MEDLINEplus
www.medlineplus.com/
E-mail custserv@nlm.nih.gov
This organization can also be contacted directly by e-mail at www.nlm.nih.gov/cgi/medlineplus/feedback.pl?from=&lang=EN. This is a division of the National Library of Medicine that provides health professionals and consumers with authoritative and current information. This site includes extensive information on over 600 diseases and conditions as well as other helpful info including lists of hospitals and physicians, a medical encyclopedia and a medical dictionary, health information in Spanish, extensive information on prescription and nonprescription drugs, health information from the media, and links to thousands of clinical trials.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
www.mdrs.state.ms.us
This organization can be contacted directly by e-mail at www.mdrs.state.ms.us/contact/index.html. It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

NICHCY
P.O. Box 1492
Washington, D.C. 20013
(800) 695-0285 (Telephone & TTY)
(202) 884-8441 (fax)
www.nichcy.org
E-mail nichcy@aed.org
The National Center for Children and Youth with Disabilities provides information on disabilities and disability-related issues for parents, educators, and other professionals.

National Institute of Health
9000 Rockville Pike
Bethesda, MD 20892
(301) 496-4000
www.nih.gov/
E-mail nihinfo@od.nih.gov
This governmental agency is responsible for distributing information related to all health issues. They have several sites that deal specifically with multiple disabilities and include definitions and treatment options, as well as contact information for referral sources.

National Institute of Neurological Disorders and Stroke
NIH Neurological Institute
P.O. Box 5801
Bethesda, MD 20824
(800) 352-9424; (301) 496-5751
(301) 468-5981 (TTY)
www.ninds.nih.gov/index.htm
This organization can be contacted directly by e-mail at www.ninds.nih.gov/contact_us.htm. This governmental agency is responsible for health issues related to neurological and stroke-related disorders. There are pages of information related to cerebral palsy and other multiple disabilities.
National Library of Medicine
8600 Rockville Pike
Bethesda, MD 20894
(888) FINDNLM; (888) 346-3656
(301) 594-5983 (Local and International)
www.nlm.nih.gov/nlmhome.html
E-mail custserv@nlm.nih.gov
This governmental agency’s Web site includes lists of different disabilities including multiple disabilities and also gives helpful descriptions. The information is easily accessible and understandable.

Office of Special Education Programs (OSEP)
Office of Special Education and Rehabilitative Services
U.S. Department of Education
400 Maryland Ave., S.W.
Washington, DC 20202
(202) 205-5507
www.ed.gov/offices/OSERS/OSEP/index.html
The Office of Special Education Programs (OSEP) is dedicated to improving results for infants, toddlers, children and youth with disabilities ages birth through 21 by providing leadership and financial support to assist states and local districts.

PACER Center
8161 Normandale Blvd.
Minneapolis, MN 55437
(952) 838-9000
(952) 838-0190 (TTY)
(952) 838-0199 (fax)
www.pacer.org/index.htm
E-mail pacer@pacer.org
The PACER Center expands opportunities and enhances the quality of life of children and young adults with disabilities and their families, based on the concept of parents helping parents. This national center responds to thousands of parents and professionals each year. Services provided include assistance to individual families, workshops, materials for parents and professionals, and leadership in securing a free and appropriate public education for all children.

United Cerebral Palsy Association
1660 L Street, NW, Suite 700
Washington, DC 20036
(800) 872-5827; (202) 776-0406
(202) 973-7197 (TTY)
(202) 776-0414 (fax)
www.ucpa.org
E-mail webmaster@ucp.org
As one of the largest health charities in America, UCP's mission is to advance the independence, productivity and full citizenship of people with cerebral palsy and other disabilities, through our commitment to the principles of independence, inclusion and self-determination. UCP is the leading source of information on cerebral palsy and is a pivotal advocate for the rights of persons with any disability.
Gifted/Physically or Orthopedically Impaired Students

Definition

Orthopedic impairment means a severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures) (Individuals with Disabilities Act, 1997).

Children with physical disabilities are those with severe orthopedic impairments or other health impairments that adversely affect their educational performance. The child who makes normal educational progress without special education, even though he or she has an impairment as defined below, shall not be identified as having a physical disability.

The state of Mississippi defines a child with a physical disability as those with severe orthopedic impairments or other health impairments that adversely affect their educational performance. The child who makes normal educational progress without special education, even though he or she has an impairment as defined below, shall not be identified as having a physical disability.

Orthopedic impairments include those caused by a congenital anomaly (e.g., clubfoot or absence of one or more members), impairments caused by disease (e.g., poliomyelitis or bone tuberculosis) and impairments resulting from other causes (e.g., cerebral palsy, amputation and fractures or burns causing contractures).

Other health impairments means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that is due to chronic or acute health problems such as a heart condition, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, diabetes, attention deficit disorder (ADD) or attention deficit hyperactivity disorder (ADHD) (Mississippi Department of Education, 2003, p. A-13).

Characteristics

There is no all encompassing description of gifted/physically disabled individuals. Characteristics of children who are gifted/physically disabled have been gathered, not by observation of such individuals, but by
gifted/physically disabled adults remembering their childhood. Gifted/physically disabled adults attribute success in life to the compensatory behaviors learned as a child (Whitmore & Maker, 1985). Like their gifted counterparts, the traits of students who are gifted/physically disabled include: a) an advanced lexicon, (b) a broad knowledge base, (c) advanced memory skills, (d) excellent abstract-thinking skills, (e) high level of determination, and (f) an elevated curiosity (Willard-Holt, 1993). Yet, these characteristics describe giftedness as a whole and do not necessarily depict the unique qualities of children who are gifted/physically disabled.

Due to a multitude of physical disabilities, the gifted/physically disabled possess positive and negative traits of people who are gifted and physically disabled. Positive characteristics of students who are gifted/physically disabled include: (a) persistence in achieving the best results possible with a given task; (b) the ability to set and achieve long-term goals; (c) the use of compensatory behaviors which allow the individual to overcome physical and societal obstacles; (d) the ability to read at an early age (Whitmore & Maker, 1985); (e) prefer placement in gifted programs over special education programs (Maker, 1977); (f) creative problem solvers; (g) and non-traditional means of expression to convey their intellectual ability (Willard-Holt, 1993). Negative characteristics common among non-handicapped gifted students are seen within this population as well. These characteristics include: (a) excessive demands and expectations of family members; (b) perfectionism; and (c) limitations associated with the physical disability leading to emotional stress, self-criticism, and dissatisfaction. According to Willard-Holt (1993) many times teachers will misperceive the negative characteristics as either immaturity or a lack of precociousness.

In addition to being highly intelligent, students with physical disabilities can be creatively gifted. Creatively gifted children with physical disabilities benefit socially from creative expression because it instills confidence and banishes stigmas associated with their disability. In order to appropriately screen, identify, and instruct the creatively gifted/physically disabled students, educators and parents must longitudinally observe performance and be knowledgeable of the characteristics unique to this population (Ford & Ford, 1981).

Characteristics of creatively gifted children with physical disabilities include: (a) high concentration abilities, (b) high IQ, (c) artistic/visual appreciation, (d) active imagination (Ford & Ford, 1981), (4) self-directed compensatory behaviors, (e) use of unconventional means of communication, (f) alternative task accomplishment, (g) memory skills, (h) high scholastic ability, (i) theoretical perspectives, (j) mental maturation, (k) goal-oriented, (l) swift comprehension of new ideas, (m) sense of humor, (n) determination, (o) tolerance, (p) desire to succeed, (q) high level of curiosity, (r) perfectionism (Willard-Holt, 2002), and (s’) adjustment skills (Ford & Ford, 1981). In
addition, Ford and Ford (1981) state that both creative and intellectual giftedness can occur among the physically disabled population.

Whether intellectually gifted or creatively gifted, not all persons who are gifted/physically disabled will exhibit the exact same characteristics (Whitmore & Maker, 1985). The presence and extent of these characteristics will vary depending on the limitations resulting from the disability itself (Willard-Holt, 1993). Even though the extent of a physical disability has little relation to the cognitive abilities of an individual, stereotypical views by the general public and professionals often prevent recognition of a child’s giftedness. An example of this viewpoint is the idea that mental retardation coincides with a physical disability (Whitmore & Maker, 1985).

Students with physical disabilities often have difficulty communicating. Assistive equipment is available to aid communication and other deficits. ‘Low’ technology can be as simple as a pencil grip to facilitate writing (Cline & Schwartz, 1999). Advanced, or ‘high’, technology may consist of computerized voice synthesizers (Cline & Schwartz, 1999) and/or computerized interactive devices. These augmentative and alternative communication (AAC) mechanisms allow the child to express herself/himself.

Alternative means of communication allow the child to gain confidence and independence. The child is now able to bring to fruition his once suppressed abilities. With a communicative device, the child can function more successfully in the academic and social environment of school. The cognitive ability exhibited with this technology will allow teachers to better identify giftedness of a physically disabled student (Cline & Schwartz, 1999).

Adjustment strategies displayed by a student with physical disabilities often influence other people’s opinions of the physical disability. The use of compensatory behaviors, such as AAC devices, gives rise to viewpoints by other people that the affected person is easily able to cope with the disability. Nondisabled people do not realize the cognitive abilities needed to employ these adjustment strategies, and are thus unable to recognize the level of giftedness needed to operate an AAC device (Willard-Holt, 1999).

Hence, the cognitive ability of this group often goes unnoticed through elementary and middle school grades, only to be discovered later as problem solving and abstract thinking become requirements to succeed academically (Whitmore & Maker, 1985). Although modest research exists on the specific characteristics of most physical disabilities, there is extensive research on appropriate practices for screening, identification, and instruction of gifted/cerebral palsy and gifted/ADHD children.
Cerebral Palsy

Cerebral palsy is characterized by impaired motor function related to the area of brain damage. Baldwin and Viale (1999) stated that prevalence of giftedness increases when the severity of the impairment decreases. Sigelman (1977) estimates that 33% of cerebral palsy persons have at least an average IQ and an additional 5% have higher intellect, but are in need of a stimulating environment. Despite the fact that traditional IQ tests may not accurately determine their level of intelligence, modifications (e.g., allowing a nonverbal child to point to a picture instead of requiring a verbal response, modifying oral directions for a hearing-impaired child) can be made to accommodate their disability and increase the probability of success; however, steps must be taken to ensure that reliability and validity of the test remains intact.

Precociousness among cerebral palsy children is often overlooked because of the difficulty in accurately assessing the intellect of cerebral palsy children (Baldwin & Viale, 1999). Giftedness can reveal itself in this population through: (a) the individual’s realization of the boundaries related to the physical disability; (b) a strong desire for self-sufficiency and freedom from hi-tech mechanisms and human assistance; and (c) the use of intelligence to overcome the limitations of the disability (Willard-Holt, 1998). Only by knowing what characteristics to look for can educators and parents precisely determine the potential of a child with cerebral palsy.

Willard-Holt (1998) conducted a study to determine the characteristics of gifted students with cerebral palsy. The purpose was to discover techniques the students used to exhibit their academic capacity, which could lead to a more resourceful method of identification. Two subjects, a 6-year-old first grader and a 14-year-old high school freshman, took part in the study. The first subject has athetoid and spastic cerebral palsy. Subject 1 skipped kindergarten before he even started school because he reached the ceiling score on the Peabody Picture Vocabulary Test (PPVT) and the Peabody Individual Achievement Test (PIAT). The first subject began to read at age three and, shortly afterwards, began writing poetry. Subject 1 used body movement and augmentative communication (e.g. alphabet board) to express himself (Willard-Holt, 1998).

The second subject also has athetoid and spastic cerebral palsy. He was enrolled in regular education classes. A member of the student council, selected to the honor roll, and participant in extracurricular activities, the second subject communicated through eye movements directed toward an alphabet board. He also used a head switch to key Morse code into a computer for expression since the cerebral palsy left him without speech and the use of his hands (Willard-Holt, 1998).
Both subjects displayed many common gifted characteristics (e.g., maturity, curiosity, and quick learning). However, their limitations due to cerebral palsy resulted in atypical demonstrations of these characteristics while other characteristics seemed to be exclusive of children who are gifted/disabled (e.g., sense of humor used to ease others’ discomfort). These unique characteristics appear to be vital for the progression of giftedness paired with a disability (Willard-Holt, 1998).

Willard-Holt (1998) suggested allowing students who are gifted/physically disabled extra time to complete assignments requiring motor function skills and to accelerate subjects to meet the intellectual needs. It is not necessary to simplify complex material, but to shorten lengthy material (Willard-Holt, 1998). It is also important to encourage positive school experiences and self-confidence. Instructors should also be willing to accept responses in a way that is compatible with the disability (Willard-Holt, 1998).

**ADHD**

Giftedness can also be found among those children diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD). Distinguishing behaviors of ADHD include constant inattentiveness and/or impulsive/hyperactive conduct atypical of a similarly developing child (*DSM-IV-TR*) without a definitive medical rationale of cause. Children diagnosed with ADHD and gifted children share many of the same attributes. Such attributes include: (a) intense focus, (b) eagerness, (c) hyperactivity (Willard-Holt, 2002), (d) fidgety, (e) minimal need of sleep, (f) sensitivity, and (g) strong-mindedness since early childhood (Mendaglio, 1995). Mendaglio asserted that a considerable number of parents have described their gifted children as having an extraordinary amount of energy as compared to typically developing children. Thus, according to Mendaglio, distinguishing between giftedness and ADHD can be difficult.

When a child is identified as both gifted and ADHD, the outcome may adversely affect the child’s outlook on the academic setting as well as academic success. According to Mendaglio (1995), gifted children with ADHD may feel they now have an excuse not to do their best. In addition, a child who is gifted/ADHD will exhibit assertive and argumentative behavior toward instructors and parents. Children who are gifted and ADD/ADHD are more likely to express themselves through intense outbursts directed toward teachers and family.

Zentall, Moon, Hall, and Grskovic (2001) conducted a study of nine male students from one school district in the Midwest who were previously diagnosed with ADHD, giftedness, or ADHD and giftedness. The purpose of the study was to evaluate the academic characteristics of these three groups in order to determine similarities. A
qualified interviewer gathered information from parents, teachers, and the students involved in the study. In addition, parents and teachers completed the Conners Rating Scales-Revised (CRS-R) (Conners, 1997) used to assess existing characteristics of children with ADHD, and the School Situations Questionnaire-Revised (SSQ-R) (Barkley, 1991), used to calculate total scores for a number of problems and the severity of problems after observations of the students during classroom activities.

Zentall et al. (2001) found that giftedness presented advantages within certain areas of academics for the child with ADHD, but did not shield him/her from the unconstructive behaviors associated with ADHD (e.g., lack of concentration and unwillingness to complete homework assignments). Zentall et al. reported that inattentiveness among the nongifted ADHD and gifted ADHD groups occurred twice as often when compared to the purely gifted group.

Each group struggled to complete low-level, lengthy, or timed classroom assignments. All three groups demonstrated disinterest in handwriting assignments; however, students with ADHD and gifted students with ADHD revealed abysmal writing skills. Comparison of the two latter groups also illustrated similar views on reading tasks. Although students with ADHD and gifted students with ADHD expressed boredom with reading assignments, they stated that reading “made learning fun” (Zentall, et al., 2001, p. 506).

The students with ADHD and the gifted students with ADHD reported that the presentation style of material for math and science classes determined their opinion of the coursework. Math assignments proved to be a stimulation area for each of these groups, but only if the tasks were not too time-consuming or too simple and examples were shown on the chalkboard. Students from each of these groups also preferred the assignments to be graded by the instructor (Zentall, et al., 2001).

All three groups of students stated that when a teacher shows an individual interest in each student, he/she instills enthusiasm and motivation. Nongifted students with ADHD and gifted students with ADHD reported a preference for group activities in the classroom with a chance for debate to stimulate learning. In contrast, students in the gifted group stated a preference for independent work (Zentall, et al., 2001).

Zentall et al. (2001) established effective and ineffective approaches for students with ADHD and giftedness through consultation with teachers and parents. Teachers recommended group activities that allow the ADHD student to take on the role of group leader or assistant to the teacher. To ensure completion of homework assignments, teachers advised parents to double check their child’s work, which would also help him/her deal with...
the lack of organizational skills associated with ADD/ADHD. To compensate for poor handwriting, teachers suggested the use of computers by these students to complete their assignments. Unsuccessful approaches reported by instructors and parents alike included the elimination of enjoyable activities (e.g., recess) as a means of punishment for undesirable behavior, resulting in additional negative behavior (Zentall et al., 2001). Zentall et al. asserted the importance of teaching students with ADHD organizational skills. List-making allows the student to ‘check off’ completed tasks while simplifying and prioritizing assignments.

**Screening and Identification**

The talents of students who are gifted/physically disabled are often overlooked because attention is placed on what they cannot do rather than what they can do. The percentage of individuals identified as gifted/physically disabled is considerably low. Whitmore and Maker (1985) signified the absence of precise statistical information regarding the occurrence of giftedness among the physically disabled population. However, it is estimated that giftedness exists in 2 to 5% of the physically disabled population (Whitmore & Maker, 1985). The difficulty in accurately assessing the intelligence of persons who are physically disabled lies in the fact that many times giftedness is overlooked in students with physical disabilities (Baldwin & Vialle, 1999). Early identification of exceptional needs and coinciding intervention is imperative to educational success and achievement.

The child’s best interest should be a priority when attempting to identify a gifted child with a physical disability. According to Whitmore and Maker (1985), the challenge in identifying children who are gifted/physically disabled lies in four areas: (a) stereotypic expectations that disabled children are not mentally capable of excelling, (b) developmental delays preventing early detection of mental abilities despite the existing capacity to learn, (c) incomplete information about the child, which can be remedied through consultation of all involved personnel to establish an appropriate IEP, and (d) no opportunity to indicate superior mental abilities when the child uses nonverbal behaviors to communicate. Children with physical disabilities must be given appropriate and equal opportunities to fully demonstrate their full potential.

One assessment method that unfairly discriminates against children with physical disabilities is standardized tests. Robinson and Fieber (1988) discuss the absence of motor-impaired children in the norming group of standardized tests, violating the validity of such tests with this population. Standardized test scores are discouraged for identification and placement purposes of students who are gifted/physically disabled (Robinson & Fieber, 1988). Traditional special education programs are directed toward remediation of the disability and the
associated problems. A child’s strengths can easily go unnoticed through this medical approach (Seeley, 1998).

Children with physical disabilities cannot be evaluated appropriately with testing instruments requiring bodily responses. Therefore, standardized tests and observational checklists typically used for gifted assessment will not reveal true gifted characteristics of this population. In fact, according to Willard-Holt (1999), because of the low numbers of children who are gifted/physically disabled, they are rarely included in the sample population of standardized tests. Thus, cognitive ability must be determined only after overlooking a person’s outward appearance, rate of response, and deftness (Willard-Holt, 2002), as well as realizing the child is doing his own work and not the assistant provided by the local school district to accommodate his disability (Willard-Holt, 1998). In order to increase the probability of success for children with physical disabilities, Baldwin and Vialle (1999) suggest that modifications to the instrument be made so as to accommodate their disability. Furthermore, since standard testing procedures typically do not identify children who are gifted/physically disabled, it is necessary to utilize tests with alternate response modes (Seeley, 1998).

Modified administration of the PPVT can be used to calculate a standard score of receptive vocabulary, but expressive vocabulary is much more difficult to assess (Willard-Holt, 1998). In Willard-Holt’s (1998) study on the characteristics of children who are gifted/cerebral palsied, the first subject was administered the PPVT and was able to move his entire body to letters taped to the floor to indicate his answer. Only after modifying the PPVT was Willard-Holt able to accurately assess the subject’s potential.

In addition to utilizing modified standardized test scores to determine giftedness among the physically disabled population, Willard-Holt (2002) suggested that educators, parents, therapists and anyone else involved with the rearing of the child meet to discuss the student’s strengths and weaknesses. A complete portfolio of the child’s abilities needs to be cumulated. It takes a team effort to be able to correctly discover the exceptionalities of a physically disabled child.

From an early age, children with physical disabilities interact with a variety of medical professionals. Therapists work with these children often and become aware of exceptional characteristics, such as communication through eye gaze and eagerness to respond (Baldwin & Vialle, 1999). Professionals who are familiar with the student’s abilities are more apt to recognize exceptional or gifted traits. They can help to identify compensatory characteristics for the disability and talents unrelated to the disability should positively influence the child’s overall profile more so than what the child cannot do (Willard-Holt, 2002). Nonverbal communication should also be
assessed. For example, a child who smiles after a joke is displaying a mature verbal understanding of the humor (Willard-Holt, 1998). Identification may be best accomplished when compared to other children with comparable disabilities (Willard-Holt, 2002).

Assessment of the physical competences of a child with physical disabilities is necessary in order to be aware of ways he/she can respond to test questions. Identification of expressive and receptive communication, reading and writing skills, torso/limb control, and the use of verbal or nonverbal cues for ‘yes’ and ‘no’ can help determine which test measurement is suitable for the individual child (Sattler, 1982). According to Sattler, testing of children with physical disabilities brings about many problems. One such problem involves communication deficits and the misinterpretation of the academic ability of the student. Also, the extended testing time required for administration may cause the student to experience exhaustion or difficulty sustaining attention. Lastly, establishing a rapport with the physically disabled child may prove problematic because of his/her dependence on other people (Sattler, 1982).

Seeley (1998) recommended the Raven’s Standard Progressive Matrices (SPM), a nonverbal intelligence test that can be administered to children as young as 8 years old, and the Performance Section of the Weschler Intelligence Scale for Children-Revised (WISC-R) for ages 6-16 years as valuable tools in assessment of children who have minimal oral capabilities. However, Brown (1984) states that the WISC-R should not be used as the chief assessment measure of children with physical disabilities because this population was not included in the standardization group. In turn, Brown (1984) suggests the Pictorial Test of Intelligence (French, 1964) because of its multiple choice design requiring minimal motoric response.

Instruction

Every child deserves appropriate educational opportunities; however, the needs of the gifted/physically disabled often go unnoticed. Whitmore (1987) stated that students with physical disabilities make up a large percentage of the underachieving gifted population. A major reason is that educators tend to focus on remedial activities for the disability itself without attending to the child’s intellectual needs (Bacto, Milan, Litton, Rotatori, & Carlson, 1991). Stereotypical notions of giftedness and physical disabilities lead to academic negligence and an improper curriculum (Whitmore, 1987). Whitmore added that the misconceptions of instructors must be transformed into ideas allowing assessment of an individual’s extraordinary capabilities and provide one-on-one instruction as necessary without stereotypical views. Furthermore, parents are not utilized as a tool to help provide appropriate
instruction. All of these factors help contribute to underachievement among students who are gifted/physically disabled.

In order to assure that students who are gifted/physically disabled are not left uneducated or, as adults, unemployed, suitable curricula must be developed that focus on the following: (a) intellectual stimulation in the gifted, regular, and special education classroom; (b) modification of assignments to allow for extra time and freedom to express learned knowledge in a variety of ways; and (c) parental involvement in the education of the child.

According to Corn, (1986) appropriate intellectual stimulation is the key to expanding the cognitive abilities of students who are gifted/physically disabled. Maker (1977) concluded that future success and development of gifted/physically disabled students is dependent on the intellectual stimulation received in gifted classes. However, students who are gifted/physically disabled must also receive intellectual stimulation in the regular and special education classrooms as well.

Students with physical disabilities are often placed in remedial classrooms to habilitate the disability without expansion of their intellectual strengths. Classroom underachievement can be attributed to frustrations stemming from the slow pace at which they are able to express their written and verbal intentions. Also, the lack of academic stimulation can attribute to low levels of desire to succeed (Willard-Holt, 2002). Recent trends in the education of students with physical disabilities include placement in regular education classrooms in order to focus on educational instruction (Best, 1999). Best also stated that students with physical disabilities performed better in a regular classroom setting that had been modified to accommodate their needs. It has been suggested that this setting not only encourages academic success of disabled students, but also social success, thus providing ‘real world’ functional independence (Best). Success attained through creative problem solving as a child will likely enable him/her to be better able to deal with problems as an adult (Ford & Ford, 1981).

Willard-Holt (2002) also suggested that instructors follow a fundamental path utilizing receptive and expressive language when teaching students who are gifted/physically disabled. First, educators should determine the language capabilities of students who are gifted/physically disabled in the classroom and establish other, if unconventional, ways they can exhibit giftedness. Secondly, teachers should encourage theoretical and imaginative explorations, as well as analytical methods of thought. Lastly, it is important for instructors to be open-minded to task completion. These individuals should complete class work at a pace conducive to the disability, but at the same
time complementary of their strengths (Willard-Holt, 2002).

Researchers (Whitmore & Maker, 1985, Willard-Holt, 1993) stated that physical disabilities can greatly limit success in school, if coping skills are not developed. Thus, individuals who are gifted/physically disabled must be empowered with the ability to use their strengths to help them overcome their weaknesses. Creativity as a coping skill helps the child learn alternative ways to accomplish everyday tasks.

Another important aspect of the curriculum is the home environment. Any appropriate curriculum must require parental attention to the child’s needs and participation in the intervention (Whitmore, 1987). It is important to note that the parent is not being asked to do the work for the child. Since many individuals with physical disabilities often become dependent on family members to cope with their disability, Maker (1977) asserted that the main goals of children who are gifted/physically disabled should primarily include independence and self-direction.

Project High Hopes, a federally funded Javits program, conducted a week-long program comprised of 27 disabled middle school students from the northeast identified as gifted in at least one area (Gentry & Neu, 1998). The primary goal of the program was to elicit actions from the students that would imply behaviors characteristic of giftedness. This was achieved by involving the students in specific tasks, accommodating their needs to enable concentration, and encouraging class participation by limiting the number of students in each class. Additionally, visual cues were encouraged while less stress was placed on reading and writing. The students were encouraged to use their problem-solving abilities with practical experiences. As part of the program, students were challenged with the problem of an on-site polluted pond and asked to resolve the issue. The students were then divided into companies of five to six members and encouraged to determine the solution using their critical-thinking abilities (Gentry & Neu, 1998).

Throughout this study, teacher-facilitators were able to observe student interactions, gather statements from students, and watch videotape student presentations. Each student’s placement in the company was specific to his particular area of strength. The student’s actions spotlighted his/her strengths, during which teacher-facilitators were able to notice a higher level of confidence in each student. For many of these students with disabilities, this was the first time to be appreciated and acknowledged for their giftedness (Gentry & Neu, 1998).

Although no pre- or post-test measures were administered, the students’ academic outlook and self-confidence became apparent when they returned to school in the fall. Of the 27, 17 students were selected for the gifted and talented program. Three were repositioned to regular education classrooms from resource rooms. Many
others participated in school presentations, science fairs, and art exhibits. The results of Project High Hopes indicated that with the proper program of study and an encouraging support team, students can focus on their strengths with an end result of academic success (Gentry & Neu, 1998).

The Chapel Hill Gifted-Handicapped Preschool Program was developed to provide the needed academic services for this often overlooked population (Blacher-Dixon & Turnbull, 1978). The concept of this program was to establish a way to identify these children and also establish a program of study, all with inclusion of the family. As a result, the team developed a slide presentation that would first educate the teachers on identifying gifted characteristics in the classroom. Also, the teachers were given a performance checklist to use as an identification technique with their students. The staff’s justification of this teacher-training method was that if the teachers are trained to detect signs of giftedness, then they would be an important aspect of the screening process (Blacher-Dixon & Turnbull, 1978).

In addition to checklists, formal and informal observations of the child are recommended. Formal observations would include a predetermined activity during a designated time frame. Informal observations would be casual everyday observances in the classroom or at home. The teachers were also exposed to sociometric measurements as an identification tool to use with other methods. In this situation, other children are asked to recommend classmates who would be an asset in a predetermined setting or activity (Blacher-Dixon & Turnbull, 1978).

The program’s core curriculum centered on the unit-topic approach. This method focused on a fundamental concept applied with various content (e.g., animals, holidays) advancing from basic to upper levels. Another method used in the program was a modification of Bloom’s Taxonomy of Learning Objectives presented by Bailey and Leonard (1977). Bailey and Leonard applied the theory to preschool education based on a range of skills for the child (Blacher-Dixon & Turnbull, 1978), rather than Bloom’s six distinct functioning levels. The Chapel Hill gifted-disabled staff incorporated the unit-topic approach along with individualized instruction in music, art, and recreation to provide a diverse educational structure (Blacher-Dixon & Turnbull, 1978).

The Chapel Hill program also involved professionals in the community (e.g., doctors, social workers) to help in identification of gifted/disabled children. The project staff also made every effort to include the families of children who were gifted/disabled in the program through parent-teacher conferences, newsletters, and progress reports. Classroom observation was encouraged by the staff to allow parents to gather ideas to implement related
activities at home (Blacher-Dixon & Turnbull, 1978). As noted earlier, the family has an important role in recognizing giftedness in their child who is physically handicapped.

The Retrieval and Acceleration of Promising Young Handicapped Talented (RAPYHT) program (Karnes, 1984) targets children aged 3-5 years who have a mild or moderate physical, sensory, emotional disability, and/or learning disability. Children were selected to participate in this program after being evaluated by a multidisciplinary team. Once identified, each child’s strengths were determined through a detailed assessment process. Instead of comparing children with disabilities to their typically developing peers, the goal was to measure potential giftedness with other children who were disabled (Karnes, 1984).

Teachers and parents learned how to identify and plan for students who are gifted/physically disabled through the seven designated areas of the RAPYHT program. The areas included: (a) general programming, (b) talent identification, (c) talent programming, (d) parent involvement, (e) interagency collaboration, (f) transitional procedures, and (g) evaluation (Johnson, Karnes, & Carr, 1997).

Identifying preschool children who are gifted/physically disabled was a multifaceted procedure (Karnes, 1978). Screening for placement in a special education program initiated the identification process, but was an ongoing process during intervention. The child benefited greatly from an ongoing assessment process. Previously unseen gifted characteristics of a physically disabled child were discovered for the first time after the disabling condition had been habilitated to a level that allowed the gifts to shine (Karnes, 1978).

The RAPYHT program used two educational approaches. The first approach is the open classroom or informal approach. In this method, the instructors were considered to share control with the child in his/her learning environment. The student took the initiative through explorative and inquisitive behaviors while relating new skills and understanding. This system permitted the child to make choices while interacting with his surroundings (Karnes, 1978).

The second, more structured approach administered by the RAPYHT program was based on Guilford’s Structure of the Intellect (SOI) (Karnes, 1978). The SOI approach was teacher-directed and, as stated, revolved around a structured environment, yet was adaptable to students’ needs and social development. The results of each child’s diagnostic testing created the focus of the curriculum by using various lesson plan activities (e.g., prearranged activities, activities involving a particular child’s curiosity) (Karnes, 1978).

The RAPYHT program was successful in many areas. The children benefited from the educational goals...
within the program. In addition, the parents gained confidence in their ability to work effectively with their child. Classroom experiences were enhanced for the child who was gifted/physically disabled for the reason that the instructor now recognizes the child for his academic potential, not for his/her disability (Johnson et al., 1997).

The Executive High School Internship Program (EHIP) (Baken & Benner, 1978) offers gifted high school students the opportunity to work in a position to gain ‘real world’ experience in decision-making and responsibility. During one semester, a trial inclusion project was conducted to determine if students who were gifted/disabled could be included in the continuing internship program. The number of students who were gifted/disabled in the participating school districts was minimal. Twelve gifted high school students with varying degrees of visual, auditory, or physical disabilities were chosen to participate. Students with a good foundation in inclusion activities were thought to benefit most from the project. Lack of work experience was the common denominator among the chosen students. Although the students who were gifted/disabled were selected to participate in this trial internship program, their performance expectations were the same as those of nondisabled interns (Baken & Benner, 1978).

For most students, the moderate to severe disability did not prevent functional independence within their work setting. The major obstacle involved transportation to and from their job placement. Most school districts were able to reschedule bus routes to assist with students’ needs (Baken & Benner, 1978).

With objectives involving increased confidence levels and personal development, along with gaining work experience, the mainstreaming project was deemed a success. Only one job site sponsor indicated hesitance in subsequent participation in the internship program involving disabled students. This sponsor’s reluctance was due to his intern’s lack of prerequisite skills that became apparent during the trial semester. Another goal of the EHIP internship project centers on the overall regard of disabled students by the nondisabled group of interns (Baken & Benner, 1978).

Normal performance variability among individuals was noted, but without relation to the disability. Pre- and post-test data measurements completed by interns, job site sponsors, and/or coordinators, as well as job site interviews, were evaluated. Pre- and post-test measures included the *Attitude Toward Disabled Person Scale* (*ATDP*) (Yuker, 1966) and End-of-Term Inventory. Because of the low number of students completing the *ATDP*, the results were inconclusive. Results of the EHIP End-of-Term Inventory, completed by the students’ supervisors, however, indicated overall satisfaction with the effort put forth by students who were gifted/disabled. Evaluation of on-site interviews also revealed that students with disabilities were able to satisfy all requisite demands of the
internship position. Each group of interns learned new responsibilities through their work experience. It was concluded that interns who were gifted/disabled were as competent as their nondisabled counterparts in achieving success in the real world work environment (Baken & Benner, 1978).

Conclusion

While there is an immense amount of research documenting the characteristics of gifted and talented children, there is a paucity of research involving children who are gifted/physically disabled. Children who are gifted/physically disabled may exhibit similar personality, behavior, and intellectual characteristics. However, a definable list was not available due to the breadth of etiologic uniqueness associated with each physical disability.

A vital instrument in the identification of a child who is gifted/physically disabled is the classroom teacher. As someone who frequently interacts with the student with physical disabilities, the teacher can detect qualities that are associated with giftedness. The ability of the teacher to look beyond the physical disability in order to recognize hidden potential is of utmost importance. Classroom instruction that acknowledges the individuality of a child who is gifted/physically disabled will provide a nourishing environment in which the student can thrive academically and socially.
References


Corn, A.L. (1986). Gifted students who have a visual handicap: Can we meet their educational needs? *Education of the Visually Handicapped, 18*(2), 71-83.


Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


### Characteristics of Students Who Are Gifted/Physically Disabled

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compensatory behaviors</td>
<td>These individuals are adept at coping with their disability in order to succeed.</td>
</tr>
<tr>
<td>Ability to use augmentative and alternative</td>
<td>High-tech AAC devices require high cognitive abilities.</td>
</tr>
<tr>
<td>communication (AAC) devices</td>
<td></td>
</tr>
<tr>
<td>Superior memory skills</td>
<td>Although common among nondisabled gifted, individuals who are gifted/physically disabled use this trait to compensate for modality impairment specific to their disability.</td>
</tr>
<tr>
<td>Highly developed vocabulary</td>
<td>As with most gifted students who are not disabled, the gifted/physically disabled population has a mature lexicon.</td>
</tr>
<tr>
<td>Excellent abstract-thinking skills</td>
<td>They possess a superb ability for problem-solving tasks.</td>
</tr>
<tr>
<td>High level of determination</td>
<td>Despite the impairment, individuals who are gifted/physically disabled have an unwavering frame of mind.</td>
</tr>
<tr>
<td>Elevated curiosity</td>
<td>Items/topics of interest are especially interesting to individuals who are gifted/physically disabled.</td>
</tr>
<tr>
<td>Goal-oriented</td>
<td>They have a great ability to remain on-task through completion of activity.</td>
</tr>
<tr>
<td>Early reading ability</td>
<td>This characteristic is also common among gifted/nondisabled.</td>
</tr>
<tr>
<td>Emotional stress</td>
<td>Unfortunately, the limitations due to the disability can lead to high levels of anxiety.</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>A constant need to excel is common among most gifted individuals and can lead to emotional stress.</td>
</tr>
<tr>
<td>Artistic/visual appreciation</td>
<td>Creative giftedness is also prevalent among the gifted/physically disabled population.</td>
</tr>
<tr>
<td>Pronounced comprehension</td>
<td>Students who are gifted/physically disabled are able to quickly comprehend new material.</td>
</tr>
</tbody>
</table>

Adapted from Maker (1977); Ford & Ford (1981); Whitmore & Maker (1985); Willard-Holt (1993); Willard-Holt (2002)
### Appendix B

**Screening/Identification Procedures for Students Suspected of Being Gifted/Physically Disabled**

<table>
<thead>
<tr>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized tests</td>
<td>When attempting to screen and identify giftedness, use tests that can accommodate the disability without sacrificing validity.</td>
</tr>
<tr>
<td>Observational checklists</td>
<td>A typical checklist for giftedness will not reveal true giftedness of the gifted/physically disabled population; therefore, awareness of their characteristics is recommended.</td>
</tr>
<tr>
<td>Team approach</td>
<td>Parents, teachers, therapists, and students must be observant of strengths and weaknesses within this population.</td>
</tr>
<tr>
<td>Nonverbal communication measure</td>
<td>The ability to communicate through an alternative modality indicates a high level of cognitive ability.</td>
</tr>
</tbody>
</table>

Adapted from Robinson & Fieber (1988); Seeley (1998); Baldwin & Vialle (1999); Willard-Holt (1999); Willard-Holt (2002)
## Appendix C
### Instructional Strategies for Students Who Are Gifted/Physically Disabled

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual stimulation</td>
<td>Teachers need to realize that this is a key concept for future success.</td>
</tr>
<tr>
<td>Modification of assignments</td>
<td>Students who are gifted/physically disabled benefit when they are allowed to complete an assignment at a rate conducive to their disability.</td>
</tr>
<tr>
<td>Parental involvement</td>
<td>A supportive family encourages success.</td>
</tr>
<tr>
<td>Inclusion in regular education classroom</td>
<td>A classroom that accommodates for the student who is gifted/physically disabled will promote academic success and functional independence.</td>
</tr>
</tbody>
</table>

Adapted from Maker (1977); Corn (1986); Whitmore (1987); Best (1999); Willard-Holt (2002)
National, State, and Local Organizations for Physically Disabled

The Council for Exceptional Children
1110 North Glebe Road Suite 300
Arlington, VA 22201-5704
1-888-CEC-SPED (Toll-free)
703-620-3660 (Local)
866-915-5000 (TTY: text only)
703-264-9494 (fax)
http://www.cec.sped.org/
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionality, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

The Consortium for Citizens with Disabilities
1331 H Street, NW, Suite 301
Washington, DC 20005
(202) 783-2229
(202) 783-8250 (Fax)
http://www.c-c-d.org/
The Consortium for Citizens with Disabilities is a coalition of approximately 100 national disability organizations working together to advocate for national public policy that ensures the self determination, independence, empowerment, integration and inclusion of children and adults with disabilities in all aspects of society.

Easter Seals
230 West Monroe Street, Suite 1800
Chicago, IL 60606
(312) 726-6200
(312) 726-4258 (TTY)
(800) 221-6827 (Toll-free)
(312) 726-1494 (Fax)
http://www.easter-seals.org
Whether through a birth condition, injury or illness or because of functional limitations experienced in aging, Easter Seals medical rehabilitation services — including physical therapy, occupational therapy, speech-hearing therapy and early intervention — are the first step toward helping people with disabilities gain greater independence.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) 328-0272
http://www.eric.ed.gov/
E-mail accesseric@accesseric.org
ERIC gathers and disseminates professional literature, information, and resources on the education and development of individuals of all ages who have disabilities and/or who are gifted.

Family Village
Waisman Center
University of Wisconsin-Madison
1500 Highland Avenue
Madison, WI 53705-2280
http://www.familyvillage.wisc.edu/
The Family Village Web site is an attempt to bring together valuable information for parents of individuals who have disabilities.
The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
http://www.ids.usm.edu/projectOutdoor.htm

The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

March of Dimes Birth Defects Foundation
1275 Mamaroneck Avenue
White Plains, NY 10605
(914) 428-7100
Publications available in Spanish
Spanish speaker on staff
http://www.marchofdimes.com/home.asp
March of Dimes researchers, volunteers, educators, outreach workers and advocates work together to give all babies a fighting chance against the threats to their health.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us

It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

National Dissemination Center for Children with Disabilities (NICHCY)
P.O. Box 1492
Washington, DC 20013
(800) 695-0285 (Voice/TTY)
(202) 884-8200 (Voice/TTY)
(202) 884-8441 (Fax)
http://nichcy.org/

The new Dissemination Center is part of the U.S. Department of Education, Office of Special Education Programs (OSEP) to improve results for children with disabilities. The Center is a clearinghouse for information on disabilities and disability-related issues concerning children and youth (birth to age 22).

National Library Services for the Blind and Physically Handicapped
The Library of Congress
1291 Taylor Street N.W.
Washington, D.C. 20542
(202) 707-5100
(202) 707-0744 (TTY)
(800) 424-8567 (Toll-free)
http://lcweb.loc.gov/nls/

The National Library Service for the Blind andPhysically Handicapped (NLS), Library of Congress, administers the free program that loans recorded and Braille books and magazines, music scores in Braille and large print, and specially designed playback equipment to residents of the United States who are unable to read or use standard print materials because of visual or physical impairment.
National Limb Loss Information Center
Amputee Coalition of America
900 East Hill Avenue, Suite 285
Knoxville, TN 37915
(423) 524-8772
(888) 267-5669 (Toll-free)
http://www.amputee-coalition.org/
The Amputee Coalition of America (ACA) is a national, nonprofit amputee consumer educational organization representing people who have experienced amputation or are born with limb differences.

National Organization on Disability
910 Sixteenth Street, N.W., Suite 600
Washington, DC 20006
(202) 293-5960
(202) 293-5968 (TTY)
(202) 293-7999 (Fax)
http://www.nod.org/about/
The mission of the National Organization on Disability (N.O.D.) is to expand the participation and contribution of America’s 54 million men, women and children with disabilities in all aspects of life.

National Spinal Cord Injury Association
8300 Colesville Road, Suite 551
Silver Spring, MD 20910
(301) 588-6959
(800) 962-9629 (Toll-free)
http://www.spinalcord.org/
The National Spinal Cord Injury Association is the nation's oldest and largest civilian organization dedicated to improving the quality of life for hundreds of thousands of Americans living with the results of spinal cord injury and disease (SCI/D) and their families.

TASH (formerly the Association for Persons with Severe Handicaps)
29 W. Susquehanna Ave., Suite 210
Baltimore, MD 21204
(410) 828-8274
(410) 828-1306 (TTY)
http://www.tash.org/
TASH is an international association of people with disabilities, their family members, other advocates, and professionals fighting for a society in which inclusion of all people in all aspects of society is the norm.

United Cerebral Palsy Association Inc.
1660 L Street, N.W., Suite 700
Washington, DC 20036
(202) 776-0406
(202) 973-7197 (TTY)
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The United Cerebral Palsy Association is the leading source of information on cerebral palsy and is a pivotal advocate for the rights of persons with any disability.
Gifted/Specific Learning Disabled Students
Definitions

The IDEA 1997 explicitly defines learning disability as a disability in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

The State of Mississippi has defined a specific learning disability as a disability 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, think, speak, read, write, spell or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. A child may be determined to have a specific learning disability if there is a severe discrepancy between achievement and intellectual ability in one or more of the following areas: oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, mathematics calculation or mathematics reasoning (Mississippi Department of Education, 2003, p. 8).

Characteristics

By knowing the characteristics of learning disabilities, teachers, parents, and students can more accurately identify a problem and individualize curriculum to meet the student’s needs. It is troublesome for students with learning disabilities to perceive, process, retain, and express information (Bergert, 2000). Certainly any child may have difficulty with one or all of these skills from time to time, yet for children with learning disabilities these problems persist over a significant period of time.

In reality, students who are gifted/learning disabled possess many gifted and learning disabled characteristics. Those characteristics manifest themselves in such a way that academic performance may be diminished and students may become frustrated. Beckley (1998) stated that students who are gifted/learning disabled tend to display the following behaviors: (a) aggression, (b) anxiety, (c) defensiveness, (d) disruption in class, (d) inability to stay on task, and (e) poor self-esteem. Additionally, these students lack academic confidence because they have to struggle with basic academic skills such as: (a) organization, (b) study skills, (c) graphomotor speed, (d)
perceptual scanning, and (e) sequencing (Beckley, 1998).

Paradoxically, students who are gifted/learning disabled possess many strong intellectual skills that are not seen in typical students with learning disabilities. Baum, Owens, and Dixon (1991) stated that students who are gifted/learning disabled have strong abstract reasoning skills. They can make astute generalizations, yet have difficulty expressing themselves “…through organized written products because of difficulties in sequencing and lack of attention to detail” (Baum, Owen, & Dixon, p. 19). They can acquire information, yet lack the mental organizational ability to access it at a later date.

Through a study in 1989, Barton and Starnes compared 80 gifted students with 41 students who were gifted/learning disabled in order to isolate the unique gifted/learning disabled characteristics. The culturally diverse subjects were selected from an urban school district. Each group had been identified as either gifted or gifted/learning disabled according to the district’s criteria. Although the 41 students who were gifted/learning disabled students were ruled either verbally or nonverbally intelligent, they all had been diagnosed with a learning disability. All students ranged in age from 8 years, 1 month to 14 years, 2 months. The mean gifted IQ score was 134 and the mean gifted/learning disabled score was 127.

Barton and Starnes (1989) used the following instruments to collect data: (a) Weschler Intelligence Scale for Children – Revised (WISC-R) (Wechsler, 1974); (b) California Achievement Tests, subtests: Mathematics Concepts, Mathematics Computation, Reading Comprehension, and Spelling; (c) Woodcock Johnson Achievement Battery (Woodcock & Johnson, 1986); (d) Peabody Individual Achievement Test (PIAT) (Dunn & Markwardt, 1985); (e) Beery Visual Motor Integration Test (Beery, 1989); and (f) Bender Gestalt Visual Motor Test (Bender, 1983).

Barton and Starnes (1989) extracted many conclusions from the results of the study. In particular, they found that the gifted/learning disabled population is a heterogeneous group. On one hand, the gifted/learning disabled population tends to share many characteristics with their gifted peers, such as high scores on verbal conceptualization. Conversely, their scores drastically differed on measures of sequencing and perceptual organization (Barton & Starnes, 1989).

It appears that students who are gifted/learning disabled possess strong cognitive skills and are able to acquire the necessary resources to function in school. Unfortunately, they are disorganized in applying the abilities that they have. In other words, they are metacognitively deficient. Sternberg (2003) refers to a gifted person as one
who is a good mental manager. Although they are gifted, it appears that the learning disability depresses their mental managerical skills.

Hannah and Shore (1995) proclaimed that students who are gifted/learning disabled suffer from stereotypes. Their giftedness implies that they have metacognitive prowess, yet their learning disability suggests that they lack strong metacognitive skills. These stereotypes make accurate identification and appropriate instruction difficult. Hannah and Shore studied 48 male students (grades 5, 6, 11, and 12) identified as gifted/learning disabled, gifted/non-learning disabled, learning disabled/non-gifted, and average performing. The study sought to examine the metacognitive skills of all groups and to determine whether or not advanced metacognition is a characteristic of a child who is gifted/learning disabled. These students were nominated by teachers or principals and ultimately selected based on West Virginia’s definitions of each category. Based on the results of this study, Hannah and Shore provided instructional strategies for students who are gifted/learning disabled.

Hannah and Shore (1995) measured the subjects’ metacognitive knowledge and skills through interviews and think-aloud activities. The interview process allowed Hannah and Shore to determine the level of knowledge that the subjects thought they had. During the think-aloud activities, the subjects read a passage and then verbalized their comprehension. Moreover, the subjects explained what they were thinking while they were reading. The think-aloud activity provided Hannah and Shore the opportunity to actually determine the subjects’ thinking process.

Results of the study indicated that “giftedness does not cause metacognition, nor vice versa” (Hannah & Shore, 1995, p. 104). Based on their initial findings, Hannah and Shore purported that at the elementary level, students who were gifted/learning disabled and gifted/non-learning disabled demonstrated more metacognitive knowledge and skills than their non-gifted peers. Conversely, at the secondary level, scores for average performing students closely resembled those of their gifted/learning disabled and gifted/non-learning disabled peers. Finally, at all levels the metacognitive abilities of students who are gifted/learning disabled tended to resemble those of their gifted peers rather than those of their learning disabled peers.

Their findings in this study revealed two interesting facts. First, students who are gifted/learning disabled, once they have been instructed how to do so, can employ metacognitive knowledge and skills for any task. In other words, even though they are not meeting their academic potential, the thinking abilities of students who are gifted/learning disabled mirror their peers who are gifted/non-learning disabled. Second, students who are gifted/learning disabled more closely resembled their gifted peers than their learning disabled peers (Hannah &
Shore, 1995). This is an important finding because Baum (1990) declared that adults become focused on the problem without addressing the gift. In order to minimize frustration and maximize performance, parents and teachers must create programming that harnesses the gift while prescribing strategies that diminish the effects of the weakness.

**Academic Skill Disability**

There are three academic skill disabilities: (a) reading, (b) mathematics, and (c) writing (including spelling). Although each disability in this category manifests itself differently, the effect on the child, parent, and teacher is equally frustrating. Without recognizing the specific problem, children who are gifted/learning disabled may never fully reach their potential (Panov, 2002).

**Reading Disability**

McGuire and Yewchuk (1996) studied four upper-elementary gifted students with reading disabilities to determine their use of metacognitive reading strategies. The subjects were drawn from a large urban school district and, as a result of their learning difficulties, had been identified as learning disabled. Students ranged in age from 10 years, 3 months to 12 years, 1 month. The range of IQ scores on the *Wechsler Intelligence Scale for Children-Revised* (*WISC-R*) was: (a) Full Scale 117 - 125, (b) Performance 104 – 129, and (c) Verbal 102 – 115. The results on the *Woodcock Reading Mastery Tests-Revised* (*WRMT-R*) revealed that word recognition and reading comprehension skills were between ½ year – 3 ½ years below grade placement with a total grade equivalent score from 3-0 to 4-4.

McGuire and Yewchuk’s (1996) data collection method employed an ‘error-detection’ paradigm with an embedded ‘think-aloud’ technique. The subjects read from three passages, each containing 13-17 sentences. McGuire and Yewchuk intentionally manipulated the text to include informational inconsistencies and syntactical sequencing inaccuracies, thus allowing them to assess the students’ metacognitive skills. After silently reading each sentence, subjects underlined the errors they detected. Then the researcher asked the subjects to describe what they were thinking while they were reading. Afterwards, the researchers analyzed the responses to determine the processes and strategies used. Aside from measuring error identification abilities, the method also measured the following metacognitive strategies: (a) evaluation, (b) paraphrasing, (c) regulation, (d) planning, (e) expansion, (f) inference, (g) repetition, (h) miscellaneous, (i) synthesis, and (j) opinion. The research indicated that although gifted/learning disabled students’ metacognitive skills more closely resemble those of their gifted peers, they had
metacognitive deficiencies (Hannah & Shore, 1995).

By examining metacognition of gifted students during the reading processes, McGuire and Yewchuk (1996) were able to ascertain two findings. First, although all students used a variety of reading strategies, there was no attempt to make connections among the sentences. Second, the subjects did not adequately examine the success of their reading strategies.

McGuire and Yewchuk (1996) reported two instructional implications for gifted students with reading disabilities. First, educators should directly teach reading strategies that emphasize metacognitive control. Second, this population of students requires instruction that focuses on the use of organizational and planning strategies in reading. These students should be trained in the use of self-questioning strategies, making and checking both predictions and hypotheses. The purpose of these strategies is to teach the gifted/reading disabled student how to access background knowledge in order to increase textual understanding.

Mathematics Disability

Montague (1991) studied six students who had been identified as gifted or gifted/learning-disabled to determine their cognitive and metacognitive knowledge of mathematical problem solving. The students were drawn from two middle schools in the same southeastern urban school district. Three gifted/non-learning disabled students were randomly selected from among 30 students in one middle school. Two-thirds of the subjects were female and all were in the eighth grade. Their ages ranged from 13 to 14 years 4 months. Three students who were gifted/learning disabled were randomly selected from among 20 students in the second middle school. All subjects in this group were male; two were in the eighth grade, and one in the ninth grade. Their ages ranged from 14 years, 9 months to 16 years, 8 months. The oldest subject was in the ninth grade.

Montague (1991) reported that the school district used the following three criteria for identification and placement of the gifted students: (a) IQ of at least two standard deviations above the mean on an individually administered standardized test of intelligence; (b) evidence of a majority of characteristics of gifted children according to a standard scale or checklist; and (c) documentation of the need for a special program. The criteria for identification as learning disabled included: (a) disability in one or more of the basic psychological processes, such as visual, auditory, or language; (b) significant discrepancy between academic achievement and student’s level of intellectual functioning; (c) learning problems not a result of other handicapping conditions; and (d) the ineffectiveness of general educational alternatives in meeting the student’s educational needs.
Montague (1991) collected data via videotaping the subjects in an observation room as they verbally thought aloud while solving math problems. Then a two-part clinical interview of the subjects was performed. The first part of the interview contained forced-choice questions. In the second part of the interview, Montague employed a comprehensive mathematical problem-solving model that incorporated the following cognitive strategies: (a) reading, (b) paraphrasing, (c) visualizing, (d) hypothesizing, (e) estimating, (f) computing, and (e) checking the problem.

The primary question of the study focused on whether gifted students and gifted/learning-disabled students differed in their use of cognitive and metacognitive skills when solving mathematical problems. Montague (1991) found that gifted students “…possess substantial cognitive and metacognitive knowledge of mathematical problem-solving strategies” (p. 407). They strategically solved the math problems and could verbalize the method used for solving the problems. Conversely, according to Montague, students who were gifted/learning disabled demonstrated only modest knowledge of their cognitive strategies and even less of their metacognitive strategies. More specifically, when compared to their gifted peers, they were less cognizant of their knowledge, less refined in their problem-solving strategies, and less prosperous in their efforts. Finally, students who were gifted/learning disabled were unable to incorporate multiple strategies during their endeavors. Thus, students who are gifted/learning disabled appeared to have mathematical metacognitive deficits not present in their gifted peers.

Montague (1991) proposed several instructional options for improving mathematical metacognitive skills for the population of gifted/learning disabled. These options include: (a) modeling, (b) verbal rehearsal, (c) prompting, (d) performance, (e) feedback, (f) reinforcement, and (g) mastery learning. All of these options should be incorporated into strategy instruction. Aside from the instructional options, Montague suggested identifying the students’ strengths and weaknesses and teaching the students how to take advantage of their strengths, and how to compensate for their weaknesses. Finally, the teacher must be mindful of students’ frustration level. These students need to experience success and receive positive reinforcement from their instructional program in order to develop self-assurance and a strong self-efficacy.

Written Expression Disability

Yates, Berninger, and Abbott (1995) examined 120 students in grades one through six (10 gifted and 10 average per grade) to determine whether some gifted children have specific writing disabilities. The students were drawn from a larger study of 600 students - 100 at each grade level - from five urban and suburban schools. None of
the children were receiving special education services. Both genders were equally represented in the study and 5% were left-handed. This ethnically diverse sample consisted of 13% African-American, 8% Asian-American, 74% Caucasian, 1% Hispanic, and 4% other. More than half (55%) of their mothers had at least one college degree, 24% had some education beyond high school, 18% stopped with high school, 1% had not finished high school, and 2% did not report their mother’s level of education.

Yates et al. (1995) reported that a Verbal IQ score on the WISC-R of 122 or greater was used as the criterion for selecting grade-level intellectually gifted students. Mean scores for grades one through six ranged from 128.1 to 139.0. The 10 subjects in the average ability group were matched to the gifted group in terms of chronological age, gender, and grade. Additionally, they were selected for having WISC-R Verbal IQs as close to 100 as possible. The average ability groups’ mean scores for grades one through six ranged from 99.7 to 100.4. The combined mean Verbal-IQ for all the gifted students was 132.8 (SD = 7.73), and for the average ability students was 100.1 (SD = 2.40).

The study focused on whether gifted writers exhibited more advanced skills than their average IQ peers in both higher-level cognitive writing processes and lower-level writing processes. Yates et al. (1995) reported two findings from their research. First, gifted students, when compared to their average peers, more consistently exhibited high-level skills. Second, gifted students with writing disabilities, when compared to their average peers, did not differ in measures of lower-level compositional fluency skills or low-level sentence complexity. Thus, for gifted students with writing disabilities, the deficit occurs in the low-level skills rather than the high-level skills. Yates et al. indicated that the lower-level skills in question might be fine-motor, orthographic coding, phonological coding, orthographic-motor integration, and letter-sound correspondences in word recognition.

Yates et al. (1995) reported three significant implications for teachers of gifted students with specific writing disabilities. First, gifted students’ text generation ability (high-level skill) may be compromised by their transcription deficiencies (low-level skill). Second, this population of gifted students becomes easily frustrated, experiences low self-esteem, and displays a low motivation to engage in writing. Third, gifted writing disabled students require remediation that specifically deals with the low-level disability without compromising instruction that satisfies their precocious intellectual abilities.

In addition to writing difficulties, many gifted students have a spelling disability. According to Stringer, Morton, and Bonikowski (1999), characteristics of gifted students with spelling disabilities include: (a) low
phonological knowledge; (b) low motor control; (c) low ability to visualize a word; and (d) low auditory and visual memory skills. As with many of the other gifted/learning disabled categories, these students lack specific metacognitive skills, thus making it difficult to maximize their full potential. Gentry (1985) proposed that, in order to be proficient spellers, all students must follow a spelling skill acquisition pattern. These stages include:

(a) Prephonetic Stage: Development of precommunicative writing. During this stage children mimic writing using a writing device.

(b) Semiphonetic Stage: Development of ‘inventing spelling’ is an attempt by the child to simulate writing that has meaning, when in reality it is just scribble.

(c) Phonetic Stage: Development of grammar rules and ‘real spelling.’

(d) Mature Stage: Development of ability to visualize how words look, use of syllables to spell words, and understand ‘exceptions to the rule.’ Furthermore, the writer is able to realize when they have made a spelling mistake.

Generally speaking, students who are gifted/learning disabled with spelling deficiencies have difficulty mastering the mature stage. In order to master this stage, the learner must possess good metacognitive skills.

American schools are filled with a large population of children who are both gifted and learning disabled. Although it is unimaginable for some educators and non-educators to grasp that an individual can possess both a learning disability and giftedness (Brody & Mills, 1997), Baum (1990) asserts that both high ability and learning problems can be present in the same individual. The above research indicated that the gifted/learning disabled population is diverse and cannot be characterized by a single definition.

Despite the fact that there are numerous definitions of giftedness and classifications of learning disabilities, Baum (1990) groups gifted/learning disabled students into one of three categories: “(a) identified gifted students who have subtle learning disabilities, (b) identified learning disabled students who are also gifted, and (c) unidentified students whose gifts and disabilities may be masked by average achievement” (p. 1). Little (2001) estimated that there are between 120,000 and 180,000 learning disabled children in American schools with above-average IQs. The researcher does not estimate the number of unidentified gifted/learning disabled students in the United States, yet it appears that the population is quite large. Over the past 25 years, extensive research has been performed on appropriate screening, identification, and instructional procedures for these students. Nevertheless, before educational institutions can accurately service twice-exceptional students, it is necessary to describe the
Identified Gifted

Gifted students with subtle learning disabilities tend to score high on achievement and IQ tests and thus are easily identified (Baum, 1990). One characteristic of this group is their high verbal abilities (Little, 2001) which helps to explain their gifted identification. From an early age, these students are able to impress their teachers with their depth and command of language. In contrast to their precocious verbal abilities, these students tend to have poor handwriting and spelling (Fetzer, 2000) and are forgetful, sloppy and disorganized (Baum, 1990). Thus, as they matriculate through school, academic achievement slumps and the students become more frustrated with the learning process. Many times teachers and parents, knowing the potential of these students, become extremely frustrated with the students’ underachievement. According to Baum, concerned adults believe that these students only need to try harder in order to meet their potential. However, without appropriate intervention programs, greater effort is not enough.

Brody and Mills (1997) noted that their learning disabilities usually go unrecognized for a majority of their educational career. This oversight is a real issue for these students because they do not have the necessary skills to maximize their talent. According to Baum (1990), whereas increased effort may be required, the real issue for these students is that they have not been taught how to compensate for their disability. By identifying the disability, educators can teach twice-exceptional students appropriate social and educational coping skills.

Identified Learning Disabled

The second group of gifted/learning disabled students is the identified learning disabled students who are also gifted. According to Baum (1990), these students are often failing in school and are only noticed because of what they cannot do. Fetzer (2000) points out that their disability hinders their academic performance; however, their intellectual gifts heighten their awareness of their learning difficulties, which often leads these students to develop a pessimistic attitude toward their academic performance. According to Baum, teachers report that these students are disruptive, off task, inattentive, and frustrated. Additionally, Baum found that they use their creative abilities to avoid tasks. Thus, even though they possess extraordinary gifts, the disability prevents educators from identifying the students’ outstanding talents.

The learning disabled label places these students at-risk for either not completing high school or completing school without the necessary knowledge, skills, and attitude to function in adult life. These students are frequently
placed in learning disabled classes and are rarely referred for gifted services (Fetzer, 2000; Brody & Mills, 1997). Educators and parents should explore for extraordinary abilities in this group of children. Fall and Nolan (1993) suggested if an extraordinary ability is discovered, then that child should be assessed for giftedness.

*Unidentified Gifted or Learning Disabled*

The third group of twice-exceptional students is the unidentified child whose gifts and disabilities may be cloaked by average achievement. Brody and Mills (1997) asserted that this is perhaps the largest group of twice-exceptional students. In reality, their gift masks the disability and the disability masks the gift (Baum, 1990). Although these students might excel in a specific subject such as social studies, they tend to perform at grade level on achievement tests and in coursework. In addition to their grade-level work, these students tend to display appropriate classroom behavior. These two factors make it difficult to identify this population as twice-exceptional. Although the masked talents and disabilities might surface in specific content areas or be exposed by a teacher’s unique teaching methods, Baum states that the disability is generally not discovered until college or adulthood.

Regardless of the gifted/learning disabled category, all twice-exceptional students have distinctive characteristics that must be understood by teachers, parents, and school administrators. To meet their various needs, educators and parents must work together to improve the screening and identification methods for the gifted/learning disabled population (Baum, 1990; Brody & Mills, 1997; & Winebrenner, 2003). Moreover, in order to maximize their potential, gifted/learning disabled students must receive instruction that addresses both their gift and disability.

*Screening and Identification*

The first step in servicing the twice-exceptional population is the screening process. Many of the gifted students with learning disabilities, because of their unique characteristics, never get to or past nomination for gifted services. To aid in the screening of gifted/learning disabled students, McCoach et al. (2001) proposed a longitudinal examination of achievement and academic performance. Although this process is effective, unfortunately it is time consuming and does not immediately address their needs.

Boodoo, Bradley, Frontera, Pitts, and Wright (1989) surveyed 353 (180 responded) special education centers in the state of Texas to determine the number of learning disabled students enrolled in gifted programs, who nominated the children, and reasons why they were or were not admitted into the gifted program. A second survey was sent to 444 (143 responded) directors of gifted and talented programs requesting each district’s gifted definition and types of gifted program criteria used for student selection. Furthermore, the survey inquired about the number of
learning disabled children who had been nominated, who nominated them and the types of modifications made in the criteria to allow these children into the gifted program.

In reporting the findings from the special education survey, Boodoo et al. (1989) found that 23% of the districts nominated above-average aptitude learning disabled students for gifted programs and 18% nominated learning disabled students with high achievement scores. In both cases, classroom teachers were the principal nominators. In addition, Boodoo et al. indicated that none of the special education directors made any large scale modifications of gifted criteria for screening learning disabled students.

In surveying directors of gifted programs, Boodoo et al. (1989) found that great weight was given to general intellectual ability as a criterion for nomination. Additional criteria used for nomination was group administered abilities test scores and teacher ratings. Of the 144 districts that responded, 77% reported that they had no gifted/learning disabled students, 16% had 1 to 9 students, 4% had 10 to 19, 2% had 20 to 29, and 1 district had over 30. Although Boodoo et al. avowed that 7% of the districts modified their selection process, they did not indicate which modifications were made. The survey revealed that only 42% (60 districts) of the districts even had learning disabled students nominated for gifted programs. In those 60 districts, teachers were the primary nominator 43% of the time.

During the screening process, teachers and parents should include any and all noteworthy information about the students. Lidz (2002) promotes the idea of using relevant sources of knowledge pertaining to the individual to make nominations during this process. Relevant sources of knowledge include but are not limited to the following: (a) teacher, parent, and student normed rating scales, (b) academic achievement tests, (c) IQ tests, and (d) student portfolios. Parents and teachers must consider the child’s interests, attempt to assess their performance in those areas, and document underachievement. Beckley (1998) emphasizes that documentation of underachievement is essential to screening for learning disabilities among the gifted/learning disabled population, because it indicates that a discrepancy between high potential and actual achievement exists.

Identification

Although several books and articles have been written on the topic, identifying twice-exceptional students continues to be a challenge. Gifted/learning disabled students have both gifted and learning disabled characteristics, thus making them a unique and difficult population to identify. A major step in properly serving this population is identification; however, it is not a simple or precise task (Daniels, 1983; Dix & Schafer, 1996; Dole, 2000, Fall &
Nolan, 1993). As stated previously, the giftedness and learning disability tend to cloak one another. Thus, identifying evidence of outstanding talent or ability of gifted/learning disabled students requires a trained individual.

Vaidya (1993) asserted that many gifted students with learning disabilities exhibit one or a combination of the following: (a) an auditory processing problem, (b) a visual perception problem, (c) attention deficit disability, or (d) difficulty in following a sequence of verbal instructions. Hence, in a testing situation, these students would not accurately display their full potential. In order to equitably evaluate a child, Vaidya suggests employing a variety of assessments strategies. The assessments include portfolio assessments, psychological tests, and information from parents, students, or any other individual actively involved in the child’s life.

In 1990, the state of Texas mandated that all districts identify and serve gifted students. Tallent-Runnels and Sigler (1995) replicated Boodoo’s et al. (1989) study by attempting to appraise 1,066 gifted program coordinators in the state of Texas to determine whether nomination criteria for students who are gifted/learning disabled were being modified; only 388 responded. Tallent-Runnels and Sigler asked the coordinators for their district’s definition of giftedness, whether they were serving any students who were gifted/learning disabled, and what modifications in the selection process were made to accommodate students who were gifted/learning disabled.

Tallent-Runnels and Sigler (1995) found that 19.7% (75) of the districts said that they had students with learning disabilities enrolled in their gifted programs. Of those districts, 75% (56) responded that they had made modifications to their selection process in order to aid the identification of students who were gifted/learning disabled. Modifications included: (a) alternate forms of tests or alternate tests, (b) open screening, (c) waiving of some criteria, (d) several criteria, (e) product portfolios, (f) nonverbal tests, (g) teacher recommendation, (h) interviews, (i) case studies, (j) probationary status in the program, (k) modified administration of tests, and (l) search for strengths. Tallent-Runnels and Sigler suggested that those districts that identified larger numbers of gifted/learning disabled students were those who modified their selection criteria.

Difficulties with Accurate Identification

Identification of the child’s learning disability and giftedness is crucial to a successful educational career (Dole, 2000; Supplee, 1990). Proper identification, especially at an early age, allows parents and educators to correctly design an IEP that focuses on the student’s strengths and weaknesses. However, a major obstacle to identification of students who are gifted/learning disabled is the classroom teacher (Fall & Nolan, 1993; Fetzer, 2000) because they generally are not trained in recognizing characteristics of these students. Brody and Mills (1997)
asserted that trying to define a pattern of set scores to identify all gifted students with learning disabilities is ineffective. Besides, according to Rivera, Murdock, and Sexton (1995), many times this population of students performs at or near grade level. Due to the complex paradigm of both giftedness and learning disabilities, it is imperative that identification be carried out by trained persons (Panov, 2002). Consequently, untrained teachers fail to correctly nominate a student who is gifted/learning disabled.

In order to improve early identification of students who are gifted/learning disabled, universities and school systems must educate teachers about the characteristics of twice-exceptional students. Sherwood (1996) interviewed six preservice teachers in early childhood education to ascertain their knowledge of and attitudes toward students who are gifted/learning disabled. Each subject had recently completed a university course which focused on young children with special needs. Through face-to-face interviews, the researcher attempted to find out the subjects’ familiarity of the term ‘gifted/learning disabled’ and their awareness of identifiable characteristics.

The results revealed that five of the six subjects felt that a child could be both gifted and learning disabled with one subject reporting that it was possible depending on the severity of the disability. Additionally, the subjects indicated that early identification would be difficult but not impossible (Sherwood, 1996). Finally, five of the six subjects felt confident in their ability to identify a child who is gifted/learning disabled. Unfortunately, there was no follow-up study to determine if these six preservice teachers were able to correctly identify any student who was gifted/learning disabled.

The results of this study indicated that educating teachers about the characteristics of the gifted/learning disabled population raises awareness. Teachers exposed to this population are more likely to accurately identify these students (Sherwood, 1996). Certainly in-service sessions for teachers already in the classroom provide much needed information about this population; however, these sessions come too late. Universities need to do a better job of preparing future teachers about the characteristics of this population so that they can provide appropriate screening, identification, and instructional options.

Identification Strategies

Fall and Nolan (1993) emphasized that since no formula has been created for the identification of students who are gifted/learning disabled, educators must incorporate an array of measures in order to identify these students. The following characteristics should be considered when trying to identify twice-exceptional students: (a) evidence of an outstanding talent/ability, (b) evidence of a discrepancy between expected and actual achievement, and (c)
evidence of a processing deficit. While this list is helpful, many classrooms teachers frequently miss this population because these students are functioning at grade levels. McCoach et al. (2001) proposed that longitudinal examination of achievement and academic performance is a great identification strategy. Through assessment portfolios; student, parent, and teacher interviews; achievement test scores; and academic performance, accurate assessment is possible.

Outstanding Talent/Ability. Identifying evidence of outstanding talent or ability of students who are gifted/learning disabled requires a keen eye. Due to their learning disabilities, many students cannot demonstrate their giftedness on standardized intelligence tests. Willard-Holt (1999) stated that the customary identification methods, such as standardized tests and observational checklists, are insufficient without major alterations. Some have proposed that cutoff scores be lowered for this population. Brody and Mills (1997) recommend cutoff scores may have to be adjusted downward to accommodate the discouraging effect of students’ learning disability. However, before cutoff scores can be adjusted, an outstanding talent or ability must first be identified. Fetzer (2000) suggests using a multidimensional approach to identify students with gifts and learning disabilities. Aside from using test scores, measures such as questionnaires for parents and teachers, self-concept scales for the child, talent checklists, and interviews with adults associated with the child are good tools in assessing whether a child has outstanding talents or abilities. Using a multidimensional approach helps to ensure that educators look at what the student can do rather than what he or she cannot do.

Expected vs. Actual Achievement Discrepancy. Another characteristic to consider when attempting to identify students who are gifted/learning disabled is evidence of a discrepancy between expected and actual achievement. Ingleheart (1998) stated that educators must concentrate on specific strengths and weaknesses, so as to recognize the existence of a learning discrepancy. Many times a student’s abilities and disabilities are in isolated disciplines. Brody and Mills (1997) reported that students whose talents and disabilities are in unrelated areas may be considered twice-exceptional. For example, a student scoring low in the reading comprehension part of a test but exceptionally high on the math portion may be gifted in math and have a learning disability in reading comprehension (Fetzer, 2000). Only those educators who take into account the whole student, or look at what the student can and cannot do, will be able to identify a learning inconsistency.

To help with the identification process of the twice-exceptional population, educators and parents should focus on a child’s interests. Children tend to excel in areas of interest. Little (2001) described a young first-grade student who was identified with a learning disability. In school, the student was disruptive, often off task, and not
achieving at an appropriate level. However at home, she had some high-level interests. Not only did she have the ability to build complicated structures, but she organized a neighborhood campaign to save endangered animals. Instead of focusing on her accomplishments at home, Little noted that early on the child was not identified as twice-exceptional because educators and parents only focused on weaknesses at school and ignored her interests at home. However, after focusing on the child’s interests, an IEP could be written that addressed both her gifts and disabilities.

*Processing Deficit.* A third characteristic to consider when identifying a student who is gifted/learning disabled is evidence of a processing deficit. Brody and Mills (1997) argued that evidence of a processing deficit can indicate a learning disability rather than simple underachievement. Examples of processing deficits include difficulty with memorization, computation, phonics, spelling, or sequential tasks (Willard-Holt, 1999). In order to best serve the gifted/learning disabled population, educators must identify the area of the learning problem. Brody and Mills argued that without identifying the learning disability, it is problematic to properly place these students.

*Summary of Identification Methods*

Accumulating evidence that a child is both gifted and a learning disabled is difficult. McCoach et al. (2001) proposed that the school psychologist should amass information pertaining to a child’s current functioning level. In order to accumulate authentic data, it is suggested that the information be collected within the classroom environment as well as standardized measures of achievement. There is an assortment of in-class methods for determining a child’s functioning level. McCoach et al. suggested “curriculum-based assessments, informal reading inventories, permanent product reviews of a student’s written work, and portfolio reviews” (p. 408). However, attempts to accurately identify students who are gifted/learning disabled should not end with information gathered from the child. Supplementary information ought to be obtained from parents and teachers (Nielsen, 2002 & Vaidya, 1993). Only after a complete dossier of the child’s work has been compiled can correct identification occur and appropriate instructional planning commence.

*Instruction*

According to IDEA, all students who have an identified learning disability are entitled to a free and appropriate education (FAPE) in the least restrictive environment (LRE). However, there is no federal mandate that requires individual schools to address giftedness. Mississippi, on the other hand, mandates specific programming for all identified intellectually gifted students in grades two through six.
Creating effective programming that addresses the assorted needs of students who are gifted/learning disabled is a daunting task. Many times, according to Fall and Nolan (1993), special education resource rooms, regular classrooms, and gifted education classrooms all have their own curricula. While in the resource rooms, students work on strategies to help cope with their deficiencies, but little attention is given to their talents. In the regular classrooms, curricula might meet the intellectual needs, but generally disregard the learning disability. Finally in the gifted classrooms, the gifted curriculum is intellectually appropriate; however, due to the learning disability, the student lacks the mental managerial skills (Sternberg, 2003) needed to be successful.

According to Little (2001), students who are gifted/learning disabled cannot be successful without a positive self-efficacy. Bandura (1986) defines self-efficacy as the belief in one’s capabilities to organize and execute the sources of action required to manage prospective situations. Many times, students who are gifted/learning disabled possess the abilities to excel, yet they lack the confidence in their own talent. This is a widespread symptom of many students who are gifted/learning disabled. Gifted students with learning disabilities exhibit lower academic self-concept and lower perceived academic competence than their peers without disabilities (Tabassam & Grainger, 2002). An effective way to improve self-efficacy is to develop an IEP that addresses that issue. For students who are gifted/learning disabled, it should be developed through a team approach that includes: (a) parents, (b) a gifted specialist, (c) a learning disabilities specialist, (d) a diagnostician, (e) general classroom teacher (s), and (f) the student (Brody and Mills, 1997). Brody and Mills go on to state that effective IEPs focus on the student’s strengths and weaknesses, the resources available in the school, and the nature and severity of the student’s giftedness and disability. This process allows a student to be successful, thus building self-efficacy.

According to Beckley (1998), when planning for the educational needs of students who are gifted/learning disabled, it is important to spotlight the development of strengths, interests, and superior intellectual capacities. A curriculum that stresses a multidisciplinary kinesthetic approach is extremely effective for twice-exceptional students. Dole (2000) stated that gifted students with learning disabilities require a problem-based curriculum with hands-on experiences that minimize rote memorization and promotes authentic problem solving. It allows teachers to focus on the student’s gifts rather than the remediation of basic skills. Dole asserted that experiences linked to the students’ gifts and interests are the most successful.

Baum (1991) declared that many gifted/learning disabled children perform poorly in the traditional school setting, yet these students often have hobbies and interests that demand ardent motivation and creative thinking.
Baum, Cooper, and Neu (2001) suggested that students who are gifted/learning disabled require a single curriculum that builds upon their special talents while developing coping strategies to overcome their challenging limitations. Certainly this population of students has the potential to succeed; they simply lack the necessary skills to do so. Robinson (1999) insisted that by combining successful gifted education practices with effective educational practices for students with learning disabilities, it is possible to offer a compatible curriculum. By providing appropriate programming and instruction, educators and parents can enable these children to maximize their potential.

**Program Options**

According to Baum (1988), parents of students who are gifted/learning disabled have different programming expectations for their children than those of other gifted children. Baum surveyed 135 parents of students who are gifted/learning disabled and 288 parents of children who are gifted/non-learning disabled. The two groups (n = 423) represented the total membership of Parents of Gifted/Learning Disabled Children and The Gifted and Talented Association of Montgomery County, Maryland respectively. Parents are an essential faction in the educational environment because they are a crucial source of support. Keeping that in mind, it is vital that educators create programming that meets parental expectations.

Baum (1988) compared both groups of parents’ views on the following programming components: (a) goals and objectives, (b) identification procedures, (c) instruction, (d) counseling, (e) staff selection and training, (f) parent-school communication, (g) parent education, (h) parent involvement, and (i) evaluation. Survey questions were mailed to both populations, completed, and returned to the researcher.

Parents of children who are gifted/learning disabled have higher expectations of schools when compared to parents of gifted children without learning disabilities (Baum, 1988). The greatest differences were found in the areas of instruction and staff selection and training. Although the researcher did not offer a reason why parents of children who were gifted/learning disabled had higher expectations, researchers have found that parents tend to focus on the disability rather than the exceptional talent (Baum, 1990). This heightened concern over instruction, staff selection, and training could stem from the fact many parents believe that the gift will take care of itself, but the deficiency created by the disability demands proper attention.

While there is a multitude of learning strategies for students who are gifted/learning disabled, they all share one common trait, authentic learning activities. Students who are gifted/learning disabled indicate that they learn
best when involved in authentic learning activities (Baum et al., 2001; Nielsen, 2002; Schiever & Maker, 2003; & Winebrenner, 2003). Enrichment programs, homeschooling, and specialized schools all promote learning activities which require students to apply their skills to real life situations.

**Enrichment Programs.** Enrichment programs provide students with an engaging curriculum. Schiever and Maker (2003) state that enrichment programs offer students a curriculum that is superior in depth or breadth than that normally provided. The purpose of enrichment programs is to allow the giftedness to flourish. Baum (1991) created a pilot enrichment program for nine youngsters, in grades four and five who were gifted/learning disabled. Five of the seven subjects were boys and four were fourth-graders. The range of the IQ scores on the *Wechsler Intelligence Scale for Children-Revised* (Wechsler, 1974) was: (a) Full Scale IQ; 113 – 134, (b) Verbal IQ; 107 – 139, (c) Performance IQ; 112 – 132. All subjects preferred projects and experiments to writing and reading assignments (Baum). All of the students had been identified as having a learning disability according to the district’s criteria. The district’s criteria for a learning disability were that the individual performs below grade level and demonstrated a significant discrepancy between ability and achievement.

Baum (1991) collected data over a nine-month period. The group of nine students and two specialists in gifted and special education met for two and a half hours per week to develop the students’ strengths and interests. Through challenging activities, the program required students to meet the following objectives: (a) individually complete a creative product; (b) demonstrate an improvement in time on task and sustained effort toward task completion; (c) show improvement in self-esteem; and (d) develop strategies to implement the *Enrichment Triad Model* (Renzulli, 1995) for students who are gifted/learning disabled. The researcher exposed the students to Type I, General Exploratory Activities; Type II, Group Training Activities; and Type III, Individual and Small Group Investigations of Real Problems.

During each session, the two teachers encouraged each subject to identify a personal area of interest. After identifying the area of interest, the subject investigated a “real problem” (Baum, 1991, p. 77) and formulated a plan to solve the problem. Through a variety of activities such as lectures, demonstrations, movies, interest centers or other approaches that skirted their reading, students learned the skills necessary to become lifelong autonomous learners.

The intention of the study was to evaluate an enrichment program which utilized Renzulli’s *Enrichment Triad* (1995) in order to increase the self-concept, learning behavior, and creative productivity of seven
gifted/learning disabled students. According to Baum (1991), the enrichment program revealed positive short term effects. Four of the seven children demonstrated dramatic improvement and one no longer needed supportive services. Moreover, one student’s reading during the program improved four grade levels while two others displayed improvements in all subject areas (Baum, 1991)

Baum (1991) reported four educational implications for professionals who work with the gifted/learning disabled population. First, attention should be focused on the development of the gift or talent. Second, gifted/learning disabled students require a classroom setting that promotes and values individual abilities. Third, strategies that allow students to cope with and overcome their disabilities must be taught. Finally, gifted/learning disabled students must know their strengths and weaknesses plus understand how to manage the two.

**Homeschooling.** Homeschooling is an alternative educational option to the traditional school setting. Gallagher (2003) acknowledged that it has become a viable choice for many parents of gifted children. In an attempt to ascertain the effectiveness of homeschooling, Moon and Dillon (1995) performed a qualitative, single-case study to research the learning characteristics of a student who was gifted/learning disabled. The subject had been identified as being verbally gifted and having multiple disabilities. Additionally, the parents homeschooled the subject throughout elementary school. Moon and Dillon’s data collection method included: (a) clinical data evaluation reports written by professionals who had interviewed the subject, (b) developmental data reports acquired by interviewing the subject’s parents, and (c) observational data collected during a yearlong mentorship with the subject.

This case study sought to determine the subject’s learning characteristics by investigating his educational experiences. Moon and Dillon (1995) determined that the subject was verbally talented and had a mathematical learning disability. Furthermore, it was determined that homebound instruction compared to a regular school placement fostered the subject’s giftedness. According to Moon and Dillon, the homeschooling experience boosted the subject’s academic self-efficacy, creativity, and intrinsic motivation. Additionally, the subject was able to devote an enormous amount of time to studying and developing his interests. Unfortunately, the homeschooling experience exasperated the subject’s disability and social/emotional growth.

Moon and Dillon (1995) reported several educational implications for homeschooled children who are gifted/learning disabled. First, a single test should not be used to determine a child’s strengths and weaknesses. Homeschooling allows for a multifaceted assessment approach. Second, homeschooling can be a positive
educational experience if parents are committed to the teaching process. Homeschooling offers freedom from the
typical school curriculum and allows for a more student-centered approach. Third, educators need to replicate the
student-centered approach into the regular school curriculum. Moon and Dillon suggested mentorships and interest-
centered learning stations where students can manifest their curiosity and let creativity take over. Finally, a
conscious effort must be made to involve gifted/learning disabled homeschooled children in social activities with
age and intellectual peers. If not, “the child’s social and emotional growth may be stunted” (Moon and Dillon, 1995,
p. 127).

Specialized Schools. The ASSETS School is located in Honolulu, Hawaii, and specializes in instruction for
students who are gifted and gifted/learning disabled. Hishinuma and Nishimura (2000) studied 255 parents of
students identified as gifted/learning disabled, gifted/non-learning disabled, and learning disabled/non-gifted to
determine their attitudes towards specialized schools which specifically serve this population of students versus non-
specialized schools. At the time of the survey, the children (grades 1-8) attended the ASSETS School. Of those 255
subjects, 38.4% (n = 98) completed and returned the survey.

Hishinuma and Nishimura (2000) sought to determine the parents’ attitudes towards the following areas:
(a) parent involvement, (b) school counseling, (c) behavior management, (d) curriculum and instruction, (e)
social/emotional needs, (f) assessment and documentation, and (g) personnel. Each of these areas had several sub-
categories. The survey explored parents’ attitudes toward importance (valued by each school) and success
(effectiveness of each school) of programs offered by the ASSETS School in comparison to their child’s previous
school in reference to the above areas. Unfortunately, this study did not explore the students’ attitudes.

Hishinuma and Nishimura (2000) reported there was a strong relationship between rated importance of a
specific area and the school’s success in the said area. In fact, the researchers discovered “…the higher the rated
importance, the higher the parental success ratings” (p. 248). Overall, parents rated the specialized school higher
than the previous school. For the previous school, parents rated school counseling to be the least important and least
successful. For the specialized school, parents rated social/emotional needs as the most important and assessment
and documentation as the most successful. Hishinuma and Nishimura reported that the biggest difference in
importance was found in the differentiated/integrated curriculum sub-category of curriculum and instruction. At the
same time, the greatest difference in success was found in the IEP facesheet and objectives sub-category of
assessment and documentation. Clearly, the parents felt that the specialized school successfully catered to their
Recommendations for Instruction

The program models mentioned above are just three examples of successful programming models for students who are gifted/learning disabled. Daniels (1983) stressed that when instructing students who are gifted/learning disabled, continuous assessment and evaluation is necessary. Several successful programs exist which utilize these programming models.

There have been several articles written on how to instruct this population of students (Bees, 1998; Fall & Nolan, 1993; Hishinuma & Nishimura, 2000; Nielsen, 2002; Vaidya, 1993; and Winebrenner, 2003). Although each described a novel approach to effective instruction, all stress two common strategies. When instructing students who are gifted/learning disabled, it is necessary to teach them how to use their strengths to overcome their disabilities. In order for appropriate instruction to occur, a comprehensive curriculum must be created that addresses their unique myriad of needs.

Two important goals of any curriculum designed for students who are gifted/learning disabled are a broadening of talents and development of coping strategies to compensate for the disability(s). In order to accomplish these goals, Daniels (1983) advocated that students who are gifted/learning disabled should have a part in the development of the curriculum. However, this must be undertaken with caution. Many times, according to Daniels, children who are gifted/learning disabled become enthusiastic about a topic simply because it is stimulating. Unfortunately, there is little real intellectual commitment and, once the initial enthusiasm wanes, the child moves on to another topic.

Nielsen (2002) offered the following recommendations for designing a gifted/learning disabled friendly curriculum: (a) continuum of services options, (b) placement guidelines, (c) continuity of services, (d) collaborative teams, (e) opportunity to interact with gifted/learning peers, (f) counseling, (g) access to technology, and (h) teacher training. Created in 1990, The Albuquerque Twice-Exceptional Children Project provides a curriculum that contains these recommendations. The curriculum is based on the George Betts’ *Autonomous Learner Model*. According to Betts (1995), the Autonomous Learner Model is intended to provide comprehensive learning experiences which will condition students to become lifelong autonomous learners. Through interest based learning, students are taught how to use their strengths to help them overcome their disabilities.

The mission of the Twice-Exceptional Children Project was to advance the identification and instruction of
children who were gifted/learning disabled in the Albuquerque, New Mexico, Public School District (Nielsen, Higgins, Hammond, & Williams, 1993). The program was a joint effort between the University of New Mexico and the Albuquerque Public School District. The project combined the school district’s general education curriculum with the gifted education and special education curricula. Within the classroom, the teachers must meet the district’s required core objectives, students’ IEP, and gifted education modifications. In order to accomplish this colossal task, the project required and provided extensive training for its staff (Nielsen et al., 1993).

In order to prepare the teachers to be successful, the project required all teachers to complete courses in teaching gifted/handicapped students and curriculum for gifted/handicapped learners. Furthermore, the project offered in-service training on how to implement technology into the curriculum. Finally, teachers were provided with the opportunity to meet with consultants and attend conferences on teaching students who were gifted/learning disabled. Since the inception of the project, over 400 students have been referred and more than 80% of those children were identified as gifted/learning disabled.

Appropriate curriculum planning will help students who are gifted/learning disabled overcome their disabilities. Baum et al. (2001) asserted that an appropriate curriculum is one in which students are required to use authentic tools - those which are used by professionals - to explore problems, create original solutions, and then communicate their findings. The curriculum must be challenging enough to engage these students in their learning, provide alternate ways of accessing information, and offer options for communication that tap into their unique talents.

Conclusion

It is necessary to understand the characteristics of the gifted/learning disabled population. Whether the child has an academic skills disability, developmental disability, or a combination of both, all parties involved with the education of the student must understand how the gift and disability manifest themselves. Although it may be difficult to comprehend, it is possible for an individual child to be both gifted and learning disabled. Teachers, parents, and students must work together to in order to best screen, identify, and instruct the gifted/learning disabled population. Educators must not solely rely on a single test in order to label a child as gifted, learning disabled, or both. Many times the dichotomy of these two conditions prevents a dual gifted and learning disabled diagnosis. Ideally, longitudinal assessments should be used that authentically assess the child’s performance. However, if longitudinal assessments are not feasible, then a multitude of instruments should be used. Finally, instruction needs
to boost self-efficacy, promote strengths, and provided coping strategies to compensate for disabilities.
References


### Appendix A

**Characteristics of Students Who Are Gifted/Learning Disabled**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence</td>
<td>Despite the learning disability, these individuals possess an amazing intellectual ability allowing compensation for their deficiencies. Many times their adaptive abilities prevent diagnosis of a learning disability, yet they often fail to maximize their full potential.</td>
</tr>
<tr>
<td>Quick Conceptualization of ideas</td>
<td>These students are able to grasp abstract concepts and apply them to concrete novel situations.</td>
</tr>
<tr>
<td>Enjoyment in solving novel tasks autonomously</td>
<td>Working alone on novel tasks is both safe and challenging.</td>
</tr>
<tr>
<td>Failure to complete assignments</td>
<td>Many assignments are simply not challenging enough or their learning disability makes the task’s directions too convoluted.</td>
</tr>
<tr>
<td>Poor study skills</td>
<td>These students believe that they can learn everything simply by paying attention in class.</td>
</tr>
<tr>
<td>Difficulty with rote memory tasks</td>
<td>Poor mental organizational abilities make accessing random irrelevant information difficult.</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>Due to poor metacognitive skills, they are frequently unable to access prior knowledge; thus they simply react rather than think through a situation.</td>
</tr>
<tr>
<td>Easy Frustration</td>
<td>Whether unable to appropriately acquire knowledge or demonstrate the knowledge they have acquired, they become frustrated by their inability to demonstrate their full potential.</td>
</tr>
<tr>
<td>Advanced abstract reasoning skills</td>
<td>As with most gifted individuals, this twice-exceptional population has the talent to analyze and synthesize information.</td>
</tr>
<tr>
<td>High motivation in areas of interest</td>
<td>Is it easier to learn topics they are interested in or are they interested in topics that are easy to learn? Whichever it is, gifted/learning disabled individuals will excel in areas of interest.</td>
</tr>
<tr>
<td>Poor organization skills</td>
<td>Gifted/learning disabled individuals have a disorganized work, personal, and mental space making it difficult to access and/or utilize learned information.</td>
</tr>
<tr>
<td>Unwillingness to take part in class discussion</td>
<td>Feelings of doubt and lack of self-confidence to express what they have learned make class discussions uncomfortable for them.</td>
</tr>
</tbody>
</table>

Adapted from Baum, Owen, & Dixon (1991); Beckley (1998); Fetzer (2000); Robinson (1999)
## Appendix B

**Screening/Identification Procedures for Students Suspected of Being of Gifted/Learning Disabled**

<table>
<thead>
<tr>
<th>Methods</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform nonverbal screenings</td>
<td>Nonverbal screenings remove the language barrier and are more culturally fair.</td>
</tr>
<tr>
<td>Conduct parent, teacher, and student interviews</td>
<td>This method allows the diagnostian to gather the full range of the child’s capabilities.</td>
</tr>
<tr>
<td>Look for evidence of an outstanding talent/ability</td>
<td>Children who are gifted/learning disabled will demonstrate extreme talent in specific areas, especially areas of high interest.</td>
</tr>
<tr>
<td>Locate discrepancy between expected and actual achievement</td>
<td>Any significant discrepancy can indicate the presence of both a gift and a learning disability.</td>
</tr>
<tr>
<td>Utilize rating scales</td>
<td>These normed screening instruments allow teachers and parents to observe and note the child’s specific behaviors.</td>
</tr>
<tr>
<td>Administer academic achievement tests</td>
<td>These tests will allow parents and teachers to determine areas of strength and weakness. Also, they can be used in designing appropriate programming.</td>
</tr>
<tr>
<td>Administer IQ Tests</td>
<td>In order to be accepted for gifted services, students who are gifted/learning disabled will have to score at a specific level.</td>
</tr>
<tr>
<td>Examine student portfolios</td>
<td>These provide students with the opportunity to showcase the type of work that they do best and the opportunity to demonstrate what they have actually learned.</td>
</tr>
</tbody>
</table>

Adapted from Fall & Nolan (1993); Lidz (2002); Tallent-Runnels & Sigler, (1995)
### Appendix C

**Instructional Strategies for Students Who Are Gifted/Learning Disabled**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build self-esteem</td>
<td>Without a positive self-efficacy, students who are gifted/learning disabled will not be successful in or out of school.</td>
</tr>
<tr>
<td>Develop strengths and interests</td>
<td>This strategy allows the teacher to focus on the student’s gifts rather than remediation. Ultimately it will make learning more engaging and productive.</td>
</tr>
<tr>
<td>Create problem-based curriculum</td>
<td>Instead of rote learning, a problem-based curriculum is designed to engage the learner in authentic real world learning.</td>
</tr>
<tr>
<td>Develop coping strategies</td>
<td>In order to maximize their full potential, students who are gifted/learning disabled must learn how to utilize their strengths to compensate for their weaknesses.</td>
</tr>
<tr>
<td>Allow multiple program options</td>
<td>This strategy allows for the gifted/learning disabled student to be taught at their instructional level, rather than pigeonholed into a single class that only addresses their disability.</td>
</tr>
<tr>
<td>Involve parents, gifted specialists, learning disability specialists, general classroom teacher, and student in the IEP development process</td>
<td>All parties who have a vested interest need to be supportive of any instructional program designed for the student, including the student.</td>
</tr>
</tbody>
</table>

Adapted from Baum (1988); Beckley (1998); Dole (2000); Little (2001)
National, State, and Local Associations for Learning Disabled

All Kinds of Minds
http://www.allkindsofminds.org/
To contact: http://www.allkindsofminds.org/contactForm.aspx
All Kinds of Minds is a private nonprofit institute, affiliated with the University of North Carolina at Chapel Hill that offers a powerful system of programs for helping children succeed. The site contains articles and ideas for dealing with certain types of abilities. The site is geared towards parents and educators.

Association of Educational Therapists
1804 W. Burbank Blvd.
Burbank, CA 91506
(800) 286-4267
(818) 843-7423 (fax)
http://www.aetonline.org/
An educational therapist works in the educational domain with individuals who exhibit learning disabilities and learning problems. This site contains information on upcoming events and a list of association publications.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
703-620-3660 (Local)
866-915-5000 (TTY: text only)
703-264-9494 (fax)
http://www.cec.sped.org/
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

Council for Learning Disabilities
P.O. Box 4014
Leesburg, VA 20177
(571) 258-1010
(571) 258-1011 (fax)
http://www.cldinternational.org/c/@w!SiZ6cJ.JabA/Pages/home.html
The Council for Learning Disabilities (CLD) is an international organization concerned about issues related to students with learning disabilities. Information about conferences and legislation are available on this site.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) 328-0272
http://www.eric.ed.gov/
E-mail accesseric@accesseric.org
ERIC gathers and disseminates professional literature, information, and resources on the educational and development of individuals of all ages who have disabilities and/or who are gifted.

The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
http://www.ids.usm.edu/projectOutdoor.htm
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

The International Dyslexia Association
Chester Building, Suite 382
8600 LaSalle Road
Baltimore, MD 21286-2044
(410) 296-0232
(410) 321-5069 (fax)
http://www.interdys.org/index.jsp
This nonprofit organization is dedicated to helping individuals with dyslexia, their families and the communities that support them. The site is divided into sections for parents, college students, educators, children, teens and adults. There are bulletin boards, information about dyslexia, public policy information, and research.

Learning Disabilities Association of America (LDA)
4156 Library Road
Pittsburgh, PA 15234-1349
(412) 341-1515 (voice)
(412) 344-0224 (FAX)
http://www.ldanatl.org/
This organization promotes the advancement of education for learning disabled individuals. Furthermore, it supports individuals with learning disabilities, their families, and the professionals who work with them.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

National Center for Learning Disabilities
381 Park Avenue South Suite 1401
New York, NY 10016
(888) 575-7373 (Toll-free)
(212) 545-7510 (Phone)
(212) 545-9665 (fax)
http://www.ld.org/
The center provides national leadership in support of children and adults with learning disabilities offering information, resources, and referral services. This site includes a lot of information about learning disabilities, tips for parents and teachers, legislative information, research news and a resource locator.
Gifted/Speech or Language Impaired Students

Definition

Speech or language impairment means a communication disorder, such as stuttering, impaired articulation, language impairment, or a voice impairment, that adversely affects a child’s educational performance (Individuals with Disabilities Education Act, 1997). Mississippi defines a language/speech impairment as a communication disorder, such as stuttering, impaired articulation, a language problem or voice impairment, which adversely affects a child’s educational performance. Children with language and/or speech impairments have disorders which interfere with or limit, to varying degrees, the child’s ability to receive, interpret, formulate, or express oral language. (Mississippi Department of Education, 2003, p. 9).

The American Speech-Language-Hearing Association defines a communication disorder as “an impairment in the ability to receive, send, process, and comprehend concepts or verbal, nonverbal and graphic symbol systems. A communication disorder may be evident in the processes of hearing, language, and/or speech” (American Speech-Language-Hearing Association [ASHA], 1993). According to Van Riper and Erickson (1996), impaired speech draws attention to itself, impedes interaction with others, or imparts stress on the speaker and listener during conversation. Hall, Oyer, and Haas (2001) described language as a multidimensional sphere encompassing five areas of skill: (a) phonology (conceptual knowledge of language rules for word production/combination), (b) morphology (use of prefixes and suffixes to change word meaning), (c) syntax (use of grammatical rules for sentence order), (d) semantics (knowledge of word meanings and the ability to manipulate words), and (e) pragmatics (social use of language).

Characteristics

Characteristics of a student who is gifted/speech-language impaired can be compared to those of a student who is gifted/learning disabled. Areas of similarity include: (a) learning style, (b) motivating factors, (c) high creativity, and (d) depressed leadership skills (Friedrichs, 2001). Just as the learning disability will sometimes conceal a child’s giftedness, the speech impairment can have the same effect on the gifted qualities of a child with speech-language impairments.

Students who are gifted/speech-language impaired are better able to sustain attention when activities include visual patterns related to puzzles and mazes. These individuals tend to focus on specific interests in the school and home environments. Of great concern with this population is the understanding of the entire context of
Although persons who are gifted/speech-language impaired have the desire to learn, they are not able to easily express their thoughts verbally. In addition to impaired expressive language, the student may not be able to fully comprehend complex listening and reading tasks (e.g., following verbal or written directions). Written, gestured, or pictorial answers may be preferred by these students in these situations to reduce the stress related to production of a verbal response (Friedrichs, 2001).

Pupils who are gifted/speech-language impaired often ask multiple questions in order to fully grasp the topic at hand. This is true for topics in which they are experts, as well as topics in which they are struggling (Friedrichs, 2001). According to Friedrichs (2001), students who are gifted/speech-language impaired often express ideas and explanations through creativity.

Without effective verbal or written language, speech-language impaired students become less social than their same-age peers. Social activities may bring about anxiety. In order to prevent adverse feelings, they isolate themselves in avoidance of criticism. Conversational partners are not always a necessity, as they would rather communicate with themselves than with other children (Friedrichs, 2001). Communication in their own world may be completely opposite with animated stories and self-amusement. Supportive families often provide the safe haven desired by these students (Friedrichs, 2001).

Observable characteristics of language disabilities are often recognized by parents, teachers, and other persons in the child’s environment. However, those characteristics that surface ever so slightly are repeatedly overlooked. Childhood language difficulties often lead to poor scholastic achievement. Without a solid language basis, the student will struggle with reading and writing tasks in higher grade levels; such skills are expected to be learned at lower grade levels (Hall et al., 2001).

Characteristics of preschoolers with a language disability as stated by Hall, et al. (2001) include: (a) delayed occurrence of first word/word combinations, (b) article (e.g. “a”, “an”, “the”) deletion, (c) verb “is” deletion, (d) pronoun mix-up (e.g. “me” for “I”), (e) phonological errors, or (f) difficulty describing pictures.

Characteristics of kindergarteners with a language disability as stated by Hall et al. (2001) include: (a) trouble following verbal directions, (b) inability to count, (c) difficulties with rote memory, or (d) inability to match sounds to alphabet characters. They further stated that discovery of the language disability may not occur until the student is in junior or senior high school. At this point the educational demands on the student become more
challenging, thus language deficits become more noticeable.

Hayes and Norris (1998) stated that little information exists on the occurrence of speech-language deficits among the gifted population; however, there is reason to suspect a concurrent existence between the two areas. One reason for the dearth in research on the gifted/speech-language impaired is that many times students with a speech-language impairment are classified as learning disabled (Hayes et al., 1998; Hayes & Norris, 1998). Hayes’ 1993 dissertation studied the possibility of language deficit among gifted/learning disabled students. Hayes et al. stated that minimal language difficulties are frequently an element of direct relation to learning disabilities. Furthermore, the occurrence of language disabilities among the gifted/learning disabled is inferred (Hayes et al, 1998). Researchers (Berk, 1983; Silverman, 1989) consider ‘gifted underachiever’ to be an umbrella term encompassing gifted/learning disabled. In addition, researchers (Blachman, 1991; Hayes & Norris, 1998; Vellutino, Scanlon, & Sipay, 1996) also reasoned that children who are gifted/learning-disabled are essentially language-disordered. According to Wallach and Goldsmith (1977) language disability is the basis of a learning disability for many children.

As indicated by Hayes’ 1993 dissertation, speech-language impairments among the gifted population are most commonly reported as speech disorders, whereas language disorders are seldom accounted. Hayes continued by stating that failure to diagnose language problems may result from excessive confidence and reliance on the use of standardized language tests. Not only do standardized language tests result in variability of scores, they also fail to identify particular aspects of language needed to determine the student’s deficits (Hayes, et al., 1998).

**Screening and Identification**

The purpose of standardized language tests is to identify language deficits. However, such tests typically examine the surface structure of language (e.g., form or content) with little regard to context, rather than the underlying ability to apply content, form, and use at the conversational level (Hayes, et al., 1998). Noticeable problems with organization of language, as well as expressive language, occur throughout discourse among children with language impairments (Hayes, et al., 1998). The self-generated narrative is often the language area analyzed by researchers. MacLachlan and Chapman (1992) stated at this phase the student with speech-language impairments displays communication difficulties due to the complexity needed to interact with the listener. For this reason, Hayes and Norris (1998) stated that standardized language tests do not properly identify language deficits in school-age children.
The failure to identify language impairments among the gifted population is due to their expressive language abilities (Hayes, et al., 1998). As a general rule, assessment batteries (e.g., vocabulary tests) are advantageous in determining gifted students’ skills (Hayes et al., 1998; Whitmore & Maker, 1985). However, students who are gifted/speech-language impaired noted times of struggle when assigned writing tasks. These students had difficulty realizing the needed length of writing assignments, resulting in weak compositions and insufficient grammar complexity (Hayes, et al., 1998).

Professionals in the field of child language agree that gifted/speech-language impairment is a topic in which little research has been conducted. J. Muma (personal communication, October 29, 2003) stated that available research to be remarkably minimal. According to N. Nelson (personal communication, November 14, 2003), the research pertaining to students who are gifted/speech-language impaired is miniscule and most often a component of gifted/learning disabled studies. B. Beverley (personal communication, November 16, 2003) commented that research published on speech-language impaired students typically does not include those displaying giftedness, but rather those of average IQ or below. Hayes, et al. (1998) suggested language sampling, as opposed to standardized language tests, as a method of reducing the number of students who are overlooked during assessment.

Hayes’ 1993 dissertation studied self-generated narratives of underachieving and high achieving gifted students. The purpose of this study was to examine possible language-learning differences among the two groups. Subjects were first identified as gifted/underachieving or gifted/high achieving. Ten subjects were then randomly selected from each group to comprise the final list of participants. The 13-year-old students in each group were asked to produce an oral narrative from a given sentence. The story generator provided the characters along with a setting that was familiar to the students. An environment free of distractions was utilized to allow each subject to create an individual narrative. In order to properly analyze the oral narratives, each student’s story was recorded for later transcription.

After extensive analysis of each story, Hayes (1993) determined that the gifted/underachieving group created shorter narratives, more shifts in topic, and less complex sentences when compared to the gifted/high achieving group. Hayes observed through analysis of story grammar that language impairments could be a factor among gifted underachievers. Conversely, statistical evidence obtained from MANOVA scores did not reveal significant differences. Hayes stated the presence of this disparity was due to the small sample size utilized in the study.
Hayes’ 1993 dissertation concluded that the gifted population is not unlike the general population in that language-learning problems do exist. However, all students who participated in Hayes’ study scored average to above-average on the Test of Adolescent Language, a standardized language test. Hayes stated that too much trust is placed in scores obtained from standardized language tests for determining abilities and inabilities of underachieving gifted students. For this reason, Hayes asserted the use of descriptive language analysis as a more appropriate means of language assessment among the gifted population. In addition, Hayes recommended the services of the speech-language pathologist (SLP) on the assessment team.

As a result of their study involving underachieving gifted and non-gifted learning disabled students, Hayes et al. (1998) presumed the two groups to have similar deficits in language ability, thus contributing to learning difficulties. The prevalence of conversational deficits among the non-gifted group led the researchers to conclude that language problems are also present in the underachieving gifted population.

**Instruction**

In regard to speech-language impairment, the classroom teacher should be a good model for speech and provide a classroom that encourages communication (Hall et al., 2001). In addition, Hall et al. (2001) encouraged genuine acceptance of a child with a speech-language impairment, not only by the teacher, but also by the classmates. Also of importance is collaboration between the classroom teacher and the SLP (Hall et al., 2001). The teacher is a valuable resource in identification and referral of students to the SLP. Hall et al. also stated the importance of helping the child generate an enthusiastic attitude toward speech therapy. Encouragement is needed from parents, teachers, and other influential people in the child’s setting in order to assist in generalization of the newly learned speech behavior. Teachers can also provide visual reminders (e.g., picture of a clock face with hands pointing toward time of therapy) to aid the child in remembering his scheduled time with the SLP. In addition, the teacher can ease the transition between class time and therapy time by advising the child on the material covered while he was absent. Hall et al. suggested the implementation of a recent trend involving the variation of class schedules from day to day. This prevents the student from missing the same subject each time due to the therapy appointment.

**Conclusion**

A gifted child can be identified by exceptional language abilities and broad lexical knowledge. Research surrounding IQ tests, checklists, and characteristics for giftedness is boundless. Research linked to learning disabled
students with speech and language impairments in the general population is of a significant amount also. However, research relating gifted/speech-language impairment is surprisingly minimal.

The United States Department of Education (2002) reported that over 5.7 million students ages 6-21 received services under IDEA. Statistical evidence (ASHA, 2003) confirms that nearly 20% of students receiving special services during the 1998-99 school year were treated for speech-language impairments. Additionally, estimates of school-age children who are gifted range from 3 to 5%. A comparison of information such as this leads to speculation that speech and language impairments must exist among the gifted population, even if only a small percentage. Hayes’ 1993 dissertation shed light on this unexplored topic; however, little research has been conducted since that time. With no substantial empirical evidence to support the coexistence, it is imperative that parents and teachers be cognizant of the possible correlation.
References

ASHA, 35(Suppl. 10), 40-41.


Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


## Appendix A

### Characteristics of Students Who Are Gifted/Speech-Language Impaired

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has difficulty comprehending complex listening and reading tasks</td>
<td>Children who are gifted/speech-language impaired may have problems following verbal or written directions.</td>
</tr>
<tr>
<td>Intellectually curious</td>
<td>Students in this population ask multiple questions in order to fully grasp the topic at hand.</td>
</tr>
<tr>
<td>Social anxiety</td>
<td>Children who are gifted/speech-language impaired tend to avoid social activities to prevent adverse feelings.</td>
</tr>
<tr>
<td>Communication with family easier than non-family members</td>
<td>Supportive families provide a safe haven for this population.</td>
</tr>
<tr>
<td>Unsuccessful academic achievement</td>
<td>Basic language skills are taught in early grades, but the gifted/speech-language impaired population will struggle throughout the school years if detection is overlooked.</td>
</tr>
<tr>
<td>Disorganized language</td>
<td>Communication difficulties are apparent during conversation with a student who is gifted/speech-language impaired.</td>
</tr>
<tr>
<td>Deficits in language acquisition</td>
<td>Preschoolers with speech-language impairments exhibit delayed occurrence of first word and word combinations, deletion of articles, verb “is” deletion, pronoun mix-up, phonological errors, or difficulty describing pictures.</td>
</tr>
<tr>
<td>Early language difficulties</td>
<td>Kindergarteners with speech-language impairments demonstrate difficulty with verbal directions, counting, rote memory skills, and matching sound to symbol.</td>
</tr>
</tbody>
</table>

Adapted from Friedrichs (2001); Hall et al. (2001)
## Appendix B

### Screening/Identification Procedures for Students Suspected of Being Gifted/Speech-Language Impaired

<table>
<thead>
<tr>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive language analysis</td>
<td>Once analyzed, this process will better indicate areas of language abilities and inabilities.</td>
</tr>
<tr>
<td>Standardized language tests</td>
<td>These tests typically analyze the surface structure of language rather than the student’s conversational ability.</td>
</tr>
</tbody>
</table>

Adapted from Hayes, et al. (1998); Hayes & Norris (1998)
### Appendix C

#### Instructional Strategies for Students Who Are Gifted/Speech-Language Impaired

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide good speech role models</td>
<td>Parents and teachers can set a good example for the student who is gifted/speech-language impaired.</td>
</tr>
<tr>
<td>Provide a comfortable classroom atmosphere</td>
<td>A classroom that encourages communication with and acceptance of gifted students with speech-language impairments will benefit all students.</td>
</tr>
<tr>
<td>Encourage collaboration between teacher and speech-language pathologist (SLP)</td>
<td>The classroom teacher is a valuable resource in identification and referral of students to the SLP.</td>
</tr>
<tr>
<td>Inform the student of material covered while out of the classroom</td>
<td>The teacher can ease the transition between class time and therapy time by advising the student on the material covered while he was gone.</td>
</tr>
<tr>
<td>Use alternative modalities</td>
<td>Other modalities (e.g., gestures or pictures) used to complement the classroom work will benefit the gifted/speech-language impaired student who has difficulty comprehending complex language.</td>
</tr>
</tbody>
</table>

Adapted from Friedrichs (2001); Hall et al. (2001)
American Speech-Language-Hearing Association
10801 Rockville Pike
Rockville, MD 20852
(301) 897-5700
(301) 897-0157 (TTY)
(800) 638-8255 (Toll-free)
(301) 571-0457 (fax)
http://www.asha.org/default.htm
The mission of the American Speech-Language-Hearing Association (ASHA) is to promote the interests of and the highest quality services for professions in audiology, speech-language pathology, and speech and hearing science, and to advocate for people with communication disabilities.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(703) 620-3660
(866) 915-5000 (TTY: text only)
(703) 264-9494 (fax)
http://www.cec.sped.org/
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) 328-0272
http://www.eric.ed.gov/
E-mail accesseric@accesseric.org
ERIC gathers and disseminates professional literature, information, and resources on the educational and development of individuals of all ages who have disabilities and/or who are gifted.

The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
(601) 266-5163
(888) 671-0051 (TTY)
http://www.ids.usm.edu/projectOutdoor.htm
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.
Mississippi Speech-Language-Hearing Association
P.O. Box 22664
Jackson, MS 39225-2664
(800) 664-6742 (Toll-free)
(601) 355-1506 (fax)
http://www.mshausa.org/
This association provides resources for parents and professionals in Mississippi.

National Institute on Deafness and Other Communication Disorders
National Institutes of Health
31 Center Drive, MSC 2320
Bethesda, MD 20892-2320
(800) 241-1044 (Toll-free)
(800) 241-1055 (Toll-free TTY)
The purpose of NIDCD is to conduct and support biomedical and behavioral research and research training in the normal and disordered processes of hearing, balance, smell, taste, voice, speech, and language. NIDCD has focused national attention on disorders of human communication and has contributed to advances in biomedical and behavioral research that will improve the lives of millions of individuals with communication disorders.

The Stuttering Foundation
3100 Walnut Grove Road, Suite 603
P.O. Box 11749
Memphis, TN 38111-0749
(901) 452-7343
(800) 992-9392 (Toll-free)
(800) 967-7700 (Toll-free)
(901) 452-3931 (fax)
http://www.stutteringhelp.org/
The Stuttering Foundation provides free online resources, services and support to those who stutter and their families, as well as support for research into the causes of stuttering.
Gifted/Traumatic Brain Injured Students
Definitions

According to IDEA 1997 and the state of Mississippi, traumatic brain injury (TBI) is determined to be an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child’s educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.

Characteristics

Widely used descriptions of the gifted include such characteristics as the following (a) processes information in complex ways; (b) formulates abstractions, (c) demonstrates good memorization ability; (d) acquires basic skills and knowledge quickly; (e) exhibits advanced comprehension; (f) and have keen observation skills (Davis & Rimm, 2004). When a traumatic brain injury occurs, many or all of these areas could be altered. Gifted children who have sustained a traumatic brain injury may go from scoring in the superior range pre-injury to falling in the average range post-injury. Many patients experience and report difficulties in several areas of cognitive functioning after sustaining a mild brain injury (Kay, 1996).

For medical diagnosis, brain injury has been divided into three levels of severity: mild, moderate, and severe (Lanham & Misukanis, 1999). According to research, the severity level of the brain injury influences the extent of cognitive impairment experienced following the injury; severe brain injury renders the highest levels of deficit in cognitive functioning (Farmer & Peterson, 1995).

Mild

There are two forms of mild brain injury, diffuse and focal. Understanding the difference between the two is imperative in that each affects a different area of the brain, thus changing the nature of acquired deficits. With diffuse brain injury, a person experiences a blow to the head causing a momentary concussion. Although the injury results in the stretching and tearing of nerve fibers throughout the brain, Computerized Axial Tomography (CAT) scans and neurological examinations do not detect any observable damage. Diffuse brain injury often results in deficits such as slowed information processing, difficulty shifting attention among tasks, lowered flexibility in
thinking, and inability to recall accurately (Kay, 1996).

The second form of mild traumatic brain injury is focal mild head injury. Focal brain injury occurs when the head accelerates, strikes an object, and decelerates resulting in lesions in the frontal lobes of the brain. The cognitive operations most frequently impaired by focal traumatic brain injury are memory, organization, executive functioning, and emotional control. More specifically, deficits can be observed in the ability to monitor and adjust behavior, to plan and organize thinking, and to perform tasks in a smooth and continuous flow. Often diffuse and focal brain injuries occur simultaneously (Kay, 1996).

Moderate

Moderate brain injury is closely aligned to mild brain injury in symptoms and related cognitive deficits. With moderate traumatic brain injury, the person loses consciousness for several minutes or hours that are followed by days or even weeks, of confusion. Children who have sustained a moderate traumatic brain injury tend to share the same recovery trajectory as those with mild traumatic brain injuries (Kraus, Rock & Hemyari, 1990).

Severe

With severe traumatic brain injury, patients experience prolonged unconsciousness or a coma. Severe traumatic brain injury can result in physical, cognitive, and psychosocial/behavioral disorders. Early childhood traumatic brain injury interferes with development and can render lifelong difficulties in speech, coordination, balance, concentration, planning, judgment, and ability to cope (Kraus et al., 1990). According to research, children with severe brain injury perform significantly worse than children with mild/moderate injuries in the areas of visual, general, and verbal memory (Farmer, Haut, Williams, Kapila, Johnstone, & Kirk 1999).

In all three levels of severity, brain injury ramifications may include personality changes. Depending on the location and severity of the injury, behavioral difficulties may emerge. These personality changes can take the form of exaggerated characteristics the student had pre-injury. However, many of the behavioral difficulties exhibited post-injury are foreign to the student. Some of these behaviors include: aggression, impulsivity, lack of emotion and/or loss of emotional control, frustration, and anger (Ylvisaker, Jacobs, & Feeney, 2003).

Screening and Identification

To determine the most appropriate educational setting for the gifted/traumatic brain injured student, a multifaceted assessment should be completed. The information should be obtained from neuropsychological testing (cognitive skills, language, academic achievement, emotions, and behavior), prior school records, academic testing,
observational data from instructors and family, and self-reports from the student. When gathering data about the student’s skills and behavior in the classroom setting, interactions with peers, problem-solving skills, frustration tolerance, reading and writing skills, and attentional behavior should be examined (Keyser-Marcus, Briel, Sherron-Turgett, Yasunda, Johnson, & Wehman, 2002).

Although there is a paucity of research available concerning screening and identification of gifted students with traumatic brain injuries, many assessment options are available to help determine the extent of the injury’s impact on an individual intellectually. Many facets must be considered to effectively assess the individual with a TBI such as: (a) location of the injury(s), (b) severity of the injury(s), and (c) age of the individual at the time of the injury(s). Once these factors have been carefully considered, assessment options can be selected (Hibbard, Gordon, Martin, Baskin, & Brown, 2001).

Several tests have been researched and/or recommended by researchers to assess these areas in children who have sustained a brain injury (Farmer & Clippard, 1996; Kay & Warchausky, 1999; Roman, Delis, Willerman, Magulac, Demandura, de la Pena, Loftis, Walsh & Kracun, 1998). These tests include the Wechsler Intelligence Scale for Children – Third Edition (WISC-III, 1991), the Wechsler Preschool and Primary Scale Intelligence – Revised (WPPSI-R, 1989), the Wide Range Assessment of Memory and Learning (WRAML-S, 1990), the California Verbal Learning Test – Children’s Version (CVLT-C, 1994), and the Functional Behavioral Assessment. The WISC-III and the WPPSI-R are best used as baseline intelligence tests providing initial information concerning the child’s level of intelligence and possible areas of deficit caused by the injury. WRAML-S and CVLT-C enable educators and parents to continually examine the child’s intellectual and academic recovery levels. Monitoring these recovery levels allows teachers to appropriately design therapeutic instructional activities and parents to provide home-based restorative support. Additionally, data derived from ongoing testing enables the teacher of the gifted child post-injury to make instructional decisions with a clear understanding of the areas of deficit the child is experiencing (Farmer & Clippard, 1996).

One method of assessing a student who is gifted/TBI is IQ testing. However, based on studies conducted by Kay and Warchausky (1999), standardized IQ tests, such as the WISC-III, are best used as a baseline test to determine post-injury levels as opposed to a tool to monitor recovery levels. Due to the fact that previously acquired knowledge may be fully intact, measures of intelligence are not suggested to monitor progress following a traumatic brain injury (Hibbard, et. al., 2001).
Kay and Warchausky’s study consisted of 40 children - 29 male and 11 female - with a mean age of 9.33 years who had sustained non-penetrating brain injuries. Demographic information such as race, parental occupation, and participant history were also included. The purpose of the study was to produce a reliable growth curve analysis with systematic variability. An individual growth curve analysis was used to examine intra-interpersonal processes of change and inter-individual divergence in growth patterns. Each of the 40 participants was recommended for neuropsychological testing; however, only those participants who had undergone WISC-III testing a minimum of three times were included in final data collection. Results rendered a substantial variability among the individual growth curves, but did not detect systematic variability. This suggested that WISC-III indexes are not highly effective as repeated measures of recovery (Kay & Warschausky, 1999). Research further indicates that the WISC-III is an effective indicator of deficits in perceptual organization and processing speed of a pediatric TBI patient. Both of these categories are directly related to injury severity or lesion location (Lanham & Misukanis, 1999).

Evidence concludes that a child is at the greatest risk of sustaining a traumatic brain injury during the toddler years; therefore, a preschool intelligence test will be necessary in many cases (Sellers, Burns, & Guyrke, 1996). According to research conducted by Sellers, Burns, and Guyrke (1996), the WPPSI-R is effective in determining pre- and post-injury intellectual functioning (Sellers, et al., 1996). Although pre-injury intelligence in preschool children is difficult to determine without previous testing, it is crucial to determining a recovery trajectory, a path of progression of development following the injury (Sellers et al., 1996).

Sellers, Burns, and Guyrke (1996) conducted a study using the WPPSI-R in order to determine the pre-injury functional levels of preschool children. The study used demographic characteristics as a main predictor of pre-injury intelligence. Participants consisted of a sample of 1,700 children with ages ranging from three years to seven years, three months. In addition, the participants were selected from a variety of demographic factors such as: (a) parents’ education, (b) ethnicity and occupation of the parents, (c) region of residence, and (d) age of the child were collected and examined to predict intellectual functioning prior to the injury. Test results concluded parent education, ethnicity, and occupation to be the strongest predictors of pre-injury intellectual functioning (Sellers et al., 1996). After collecting demographic data and applying it to determine pre-injury intelligence levels, researchers then examined the reliability of the study.

The second part of the study implemented cross-validations and accuracy tests of the results generated in Part 1. To cross-validate the original test results, the WPPSI-R standardization sample was examined in comparison
with the test results of the first study. The researcher’s goal was to determine how closely the demographic information collected could predict pre-injury intelligence. Cross-validation of Part 1 included the same participants for two cross-validation procedures and a second independent sample for a third and final cross-validation. Demographic information of the independent sample was, collected entered, and compared with the WPPSI-R standardization sample. Results of the second study indicated that the models derived from Part 1 were valid (Sellers et al., 1996).

Cross-validation procedures were employed to determine the reliability of the study conducted by Sellers et al. (1996). These procedures were implemented to determine the reliability of using demographic information to predict pre-injury intelligence levels. A control group was introduced sharing demographic factors of those in the traumatic brain injury group. WPPSI-R test scores coupled with demographic data were compared to that of the original group. Although overall empirical crossvalidations were statistically significant, the researchers suggest using a wider variety of model quality determinants (Sellers, Burns & Guyrke, 1996).

Another widely used test with pediatric TBI is the *Wide Range Assessment of Memory and Learning* (WRAML, 1990). Farmer, Huat, Williams, Kapila, Johnstone, and Kirk (1999) researched the usefulness of the *WRAML* in evaluating memory following TBI. The study consisted of 52 children with TBI, with ages ranging from six to 17 years of age. Each participant’s injury severity was determined by examining medical records indicating the length of impaired consciousness. The participants were grouped according to severity, comparing scores of the mild/moderate group with those of the severe TBI group. Also included was a control group of 29 children with no history of TBI, behavioral concerns, academic failure, special education services, psychiatric problems, or other significant medical disorders. The participants were then tested in Visual Memory, Learning, General Memory, and Verbal Memory Indexes, all of which are sections found in the *WRAML* (Farmer et al., 1999).

This study provides insight into the specific areas of strength or deficit in memory functioning and new learning abilities of children with brain injuries. Children in the mild/moderate group demonstrated abilities aligned with the control group in most of the assessed areas except immediate and delayed sound symbol learning and visual reproduction. Those with severe traumatic brain injury performed significantly lower than the control group on measures of learning, visual memory, and general memory functioning. The scores of the three severity groups derived from the Verbal Memory Index did not differ greatly (Farmer et al., 1999).

The *California Verbal Learning Test- Children’s Version* (CVLT-C, 1994) also measures many aspects of
verbal learning and memory functions (Roman et al., 1998). When using the CVLT-C with children who have sustained traumatic brain injury, the four factors of primary concern are: (a) general verbal learning, (b) response error, (c) examining learning characteristics, and (d) semantic and serial clustering ratios. By employing these testing categories, deficits in retrieval, retention, and encoding of information can be detected (Roman, et al., 1998).

Roman and colleagues (1998) conducted a three-month study examining these four factors in children with traumatic brain injury. Sixty-two children and adolescents between the ages of six years and 16 years, 11 months participated in the study. Of the participants, 44 had sustained a traumatic brain injury, and all participants were right-handed, monolingual speakers of English. Additionally, participants reported no history of “neurological difficulties; psychiatric illness resulting in any psychiatric or psychological care or diagnosis; medical illness requiring hospitalization, major surgery, or prolonged treatment; mental retardation; substance abuse; prior head injury with a loss of consciousness; or nonaccidental trauma” (Roman, et al., 1998, p. 247). These participants were then grouped according to injury severity as determined by the Glasgow Coma Scale (GCS) scores (Galloway, 1974). Of the participants, 17 had sustained severe brain injury and 27 were categorized as mild/moderate. The remaining participants had experienced a traumatic injury other than traumatic brain injury (Roman, et al., 1998).

The subjects of this study were administered the CVLT-C within one month of the injury and again three months later. The patients in the severe brain injury group, while demonstrating normal retention rates, did exhibit deficiencies in verbal memory task performance at the first testing. For example, these participants demonstrated impaired recall after short and long delays across five learning trials. When retested, these participants performed similarly to the first testing, but had shown slight improvement (Roman, et al., 1998).

Participants among the mild/moderate group did not differ greatly from the control group during the first test. Additionally, of the mild/moderate participants only 7% demonstrated impairment, almost identical to the 6% of participants with demonstrated impairments in the control group. The second testing rendered again that the mild/moderate group did not differ greatly from the control group (Roman, et al., 1998).

Along with cognitive difficulties, people who have sustained a brain injury may also exhibit behavioral changes. Frustration, aggression, anger, and loss of emotional control are some of the commonly reported behavioral challenges following a brain injury. Luiselli, Pace, and Dunn (2002) suggested the use of the Functional Behavioral Assessment to determine the areas of behavior that need intervention and the environmental conditions that foster the behavior. As stated in the title, the Functional Behavioral Assessment helps determine the particular
function of the behavior. For example, a student may elicit attention from other students by yelling in class. The function of this behavior is to gain attention. Additionally, this assessment method evaluates the antecedents, situations or events that occur prior to the behavior, to identify the triggers of the behavior (Luiselli, Pace, & Dunn, 2002)

**Instruction**

When a gifted child who has suffered a TBI returns to school, a multidisciplinary approach is needed to integrate the child back into the classroom. The multidisciplinary team should include regular education teachers, special education teachers, teachers of the gifted, guidance counselors, speech pathologists, the school administrator, physical and/or occupational therapists, rehabilitation and medical professionals, and family members (Farmer & Peterson, 1995). After examining medical records, assessments, and behavioral observations, the multidisciplinary team will be prepared to pinpoint areas of strength and deficit and plan instructional strategies (McDonald, Flashman, & Saykin, 2002).

The most common area of reported deficit following a traumatic brain injury is executive functioning. Included in this area are all of the processes required to recognize and solve a problem; address difficulties that may emerge while solving the problem; self-monitor and self-correct; shift strategies when necessary; and maintain attention. Of the effected areas of executive functioning, memory deficits are the most persistent and frequently observed (Farmer & Peterson, 1995).

Effective strategies for assisting students with memory impairments may include classroom adaptations, technological devices, and/or supplemental materials. Suggested accommodations to assist students with memory impairments include: (a) allowing tape recorders; (b) using organizers; (c) testing through multiple choice questions; and (d) providing cue sheets, fact cards, and highlighters. In addition to providing these accommodations, the teacher of the student with memory impairments should encourage the student to use the tape recorder, cue the student to highlight important points in the lesson, and provide opportunities for repetition of new knowledge or skills. These students may exhibit difficulty retrieving new information; therefore multiple choice tests should be used to assist the student with information retrieval (Hibbard, Gordon, Martin, Raskin & Brown, 2001).

Students who are faced with attention deficits following brain injury will need classroom modifications and accommodations. These modifications and accommodations may include: (a) having the student sit near the teacher during instruction; (b) shortening or segmenting assignments or tests; (c) allowing periodical breaks; and (d)
providing earplugs to decrease distraction during assignments or tests. Other ways to assist the student with attention deficits are providing checklists and recording test dates, assignments, and any other important information in a memory notebook. Beginning class with an overview of the topics to be covered coupled with an outline of the materials that will be presented may reduce confusion the student may experience during the lesson and help the student to stay on task (Keyser-Marcus et al., 2002).

Adaptations to the classroom environment also help to minimize distraction and facilitate learning. Before altering the environmental setting of the classroom, teachers need to assess the situations that work best for the student such as lighting, peer grouping or individual work situations, and possible distractions. For example, some students may need a quiet atmosphere in order to concentrate. Others may learn best while being stimulated by their classmates (Ylvisaker, Todis, Glang, Urbanczyk, Franklin, DePompie, Feeney, Maxwell, Pearson, & Tyler, 2001). In addition, teachers may need to consider the rate of instruction to avoid rapid pacing that may leave the student behind. Students who have sustained a brain injury may need extra time allotted to copy notes, process new information, and/or transition from one topic to another (Hibbard et al., 2001).

Although very few empirical studies have been conducted to pinpoint specific educational interventions for students who are gifted/TBI, instructional strategies geared toward students with and without disabilities who share characteristics of those students with brain injuries may be helpful. Some of these strategies include: errorless learning, backward chaining, task analysis, compensatory methods, behavioral interventions, and social skills training (Clark, Russman & Orme, 1999; Ducharme, 1999; Evans, Wilson, Schuri, Andrade, Baddeley, Bruna, Canavan, Della Sala, Green, Laaksonen, Lorenzi, & Taussik, 2000).

**Errorless Learning**

One well known aspect of learning involves learning from previous mistakes. This involves making a mistake, remembering the mistake, and not repeating the mistake. For students who have sustained a traumatic brain injury, remembering the mistake proves problematic due to impairments in memory. Errorless learning may be a more effective approach when teaching these students (Ylvisaker, Jacobs, & Feeney, 2003). With errorless learning, emphasis is placed on the prevention of mistakes during the learning process. To implement errorless learning the teacher first gives a prompt, waits a couple of seconds to see if the student responds, and then provides the correct answer. Immediately following this trial, a transfer trial is given in which the teacher either uses a less intrusive prompt or provides no cue. Students with traumatic brain injury experience difficulty during the retrieval
stage of memory (Evans, et. al., 2000). According to Baddeley and Wilson (1994), it is at this stage that guesswork and trial-and-error attempts to recall information interfere with the learning process. With errorless learning, the correct answer is provided, lessening confusion and dramatically improving memory of the new information (Kalla, Downes, & van den Broek, 2001).

**Backward Chaining**

Another effective strategy for teaching students who have experienced a TBI is backward chaining. During this method of teaching, the instructor demonstrates or prompts all the steps necessary to complete a task. Then the student is asked to recall only the final step. Progressively throughout learning trials the prompts are removed, thus allowing the student to independently recall and perform the steps until mastery is achieved (Evans et. al., 2000).

**Task Analysis**

Farmer and Peterson (1995) recommended the task analysis method of teaching skill acquisition. As with backward chaining, task analysis systematically reveals the steps of a given task to the student. With task analysis a specific task is broken down into smaller components, or the steps required to perform the skill. However, with this teaching strategy, the steps necessary for completing a task are provided in sequential order. For example, preparing for class may be divided into be seated; retrieve your math book from your backpack; and place the math book on top of the desk.

**Compensatory Methods**

Although gifted students are able to compensate for deficits during assessments geared toward measuring previously acquired knowledge, they may experience impairments that hinder acquisition of new skills or knowledge. Several researchers recommend compensatory training to minimize the effects of the brain injury (Prigatano & Kime, 2003; Sohlberg, Todis, Glang, Blosser, Ylvisaker, Feeney, McDonald & Chapman, 1998). Compensatory strategies can take the form of technological equipment designed to aid memory or structure activities, or as teaching strategies geared toward learning or relearning self-management skills (Ducharme, 1999).

**Behavioral Intervention**

Some gifted students who have sustained a traumatic brain injury will need behavioral interventions due to a loss of self-regulating skills. Environmental factors - antecedents - may contribute greatly to the inappropriate behavior exhibited by the student with a traumatic brain injury. Information collected during the Functional Behavioral Assessment mentioned in the screening section of this chapter will provide the data needed to determine
the antecedents that perpetuate inappropriate behaviors (Ryan, Halsey & Matthews, 2003). Antecedents may include environmental aspects, physiological states, and instructional factors. For example, classroom noise, student hunger, and/or rapid instruction can prompt inappropriate behavioral responses (Conroy, 2003). Practical ways for teachers to provide antecedents that foster student involvement and appropriate behavior include: planning a structured daily routine, allowing the student to assist in selecting daily activities, and assisting with self-monitoring (Clark, Russman, & Orme, 1999).

Social Skills Training

Information regarding social skills training for gifted/TBI has not been established; however, Russman (1997) suggested a cognitive-behavioral social skills intervention. This program was developed for children with traumatic brain injuries which consists of modeling the desired behavior, role-playing, feedback, homework contracts, and positive reinforcement. The program was designed to increase the student’s awareness of social rules, appropriate conversation, accepting the ideas of others, and self-monitoring inappropriate behaviors. To assess newly gained social skills, teachers can evaluate role-play situations that demonstrate the skill (Clark, Russman, & Orme, 1999).

 Provision of Traumatic Brain Injury Information and Coping Strategies

In addition to instructional practices and behavioral strategies to assist the student who has sustained a traumatic brain injury, educators should inform these students of the cognitive and behavioral effects caused by brain injury (Ponsford, Willmott, Rothwell, Cameron, Ayton, Nelms, Curran, & Ng, 2001). Ponsford et al., (2001) studied the impact of providing information regarding cognitive and behavioral ramifications coupled with coping strategies on the child and family of the child with a traumatic brain injury. Participants in this study ranged from six to 15 years of age at the time of the injury and had lost consciousness for less than 30 minutes due to an acceleration-deceleration movement of the head. Once the participants had been selected, they were divided into two groups. A booklet was provided to the first group including simple wording and cartoon illustrations depicting common symptoms and coping strategies of traumatic brain injury. In addition, family members of this group were given a pamphlet outlining symptoms and coping strategies for traumatic brain injury. The second group and their families were not given the booklets. The study found fewer reported cognitive and behavioral challenges among the group who had been informed of the possible effects of brain injury. This study suggested that children are better able to cope with the effects of brain injury after they have been educated regarding traumatic brain injury.

**Conclusion**

While traumatic brain injury may render an assortment of deficits including difficulty in executive functioning and memory impairments, sound practices may be implemented to assist with these challenges. Traumatic brain injuries may be classified within three levels of severity including mild, moderate, or severe. Of these severity levels, severe brain injury causes significantly higher levels of deficit than mild or moderate injury. Errorless learning, backward chaining, and task analysis are suggested teaching practices to assist the brain-injured student during the learning process. The gifted student who has sustained a traumatic brain injury may also require behavioral and social training following the injury. Through teaching and compensatory strategies, educators can assist these students both with recovery and reaching their maximum potential.
References


Individuals with Disabilities Education Act (1997). 20 U.S.C. § 1401 (3) (A) and (B); 1401 (26).


## Appendix A

### Characteristics of Students Who Are Gifted/Traumatic Brain Injured

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty with memorization</td>
<td>Students who have sustained a traumatic brain injury may have difficulty remembering new information. They also may be challenged by everyday situations like remembering where they have placed their keys.</td>
</tr>
<tr>
<td>Frustration, aggression, and anger</td>
<td>After the injury, students may be frustrated and angry as a result of the noticeable impairments they are experiencing. Also, neurological damage can contribute to the occurrence of these characteristics.</td>
</tr>
<tr>
<td>Decreased psychosocial ability</td>
<td>These students may not be able to read social cues as easily. Characteristics such as frustration, aggression, and anger may also cause social problems.</td>
</tr>
<tr>
<td>Decreased executive functioning ability</td>
<td>The processes required to recognize and solve a problem may be obstructed. Additionally, the self-correction and self-regulation skills necessary to maneuver through problems may be impaired.</td>
</tr>
<tr>
<td>Poor self-monitoring skills</td>
<td>In both social and intellectual endeavors, the student with a traumatic brain injury may be less able to regulate his/her own behaviors.</td>
</tr>
<tr>
<td>Decreased ability to acquire new skills and knowledge</td>
<td>As a result of neurological impairment, these students may not grasp new skills or knowledge as quickly.</td>
</tr>
<tr>
<td>Increased distractibility</td>
<td>Students who have sustained a brain injury may not be able to concentrate as well and may become easily distracted.</td>
</tr>
</tbody>
</table>

Adapted from Kay (1996); Kraus, Rock, & Hemyari (1990); Ylvisaker, Jacobs, & Feeney (2003)
**Appendix B**

**Screening and Identification Procedures for Students Suspected of Being Gifted/Traumatic Brain Injured**

<table>
<thead>
<tr>
<th>Methods</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ testing</td>
<td>In an attempt to determine pre-injury levels of intelligence as well as determine a baseline for producing a recovery trajectory for the student who has sustained a traumatic brain injury, the literature suggests using IQ tests. Additionally, IQ testing can aid in pinpointing the specific areas affected by the injury.</td>
</tr>
<tr>
<td>Verbal measures</td>
<td>To determine verbal ability post-injury, tests of receptive and expressive language ability may be implemented.</td>
</tr>
<tr>
<td>Behavioral assessments</td>
<td>Often students who have sustained a traumatic brain injury will need a thorough examination of behavioral difficulties that may arise.</td>
</tr>
</tbody>
</table>

Adapted from Farmer & Clippard (1996); Kay & Warchausky (1999); Keyser-Marcus, Briel, Sherron-Turgett, Yasunda, Johnson, & Wehman (2002); Luiselli, Pace, & Dunn (2002)
### Appendix C

**Instructional Strategies for Students Who Are Gifted/Traumatic Brain Injured**

<table>
<thead>
<tr>
<th>Instructional Strategy</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Errorless learning</td>
<td>This is a process of learning that emphasizes the prevention of mistakes during the acquisition of new skills or knowledge to prevent confusion.</td>
</tr>
<tr>
<td>Backward chaining</td>
<td>This strategy involves demonstrating a skill and providing prompts for the student to systematically recall steps from last to first.</td>
</tr>
<tr>
<td>Task analysis</td>
<td>With this method, an entire skill is broken down into its essential elements. For students with memory deficits, a layout of the steps gradually leading to the skill may be necessary.</td>
</tr>
<tr>
<td>Compensatory strategies</td>
<td>These strategies can be applied to utilize the strengths of the gifted/traumatic brain injured student, while going around the deficits acquired during the injury.</td>
</tr>
<tr>
<td>Behavioral intervention</td>
<td>Providing a structured daily routine, including the student in the selection of daily activities, and helping the student apply self-regulatory skills may alleviate behavioral challenges.</td>
</tr>
<tr>
<td>Education about traumatic brain injury</td>
<td>Students may be more equipped to face the challenges associated with brain injury if they fully understand the injury and coping strategies.</td>
</tr>
</tbody>
</table>

Adapted from Clarke, Russman, & Orme (1999); Evans, Wilson, Schuri, Andrade, Baddely, Bruna, Canavan, Della Sala, Green, Laaksonen, Lorenzi, & Taussik (2000); Farmer & Peterson (1995); Ponsford, Willmott, Rothwell, Cameron, Ayton, Nelms, Curran, & Ng (2001); Prigatano & Kime (2003); Ylvisaker, Jacobs, & Feeney (2003)
National and State Organizations for Traumatic Brain Injuries

The Beach Center on Families and Disabilities
The University of Kansas
Haworth Hall, Room 3136
1200 Sunnyside Avenue
Lawrence, KS 66045-7534
(785) 864-7600
(785) 864-7605 (fax)
http://beachcenter.org
E-mail beachcenter@ku.edu
The Beach Center is committed to conducting research while listening to the priorities of families, incorporating family priorities into the center's research agenda, carrying out research in a participatory way, and ensuring that the research makes a meaningful and sustainable difference in the lives of families who have children with disabilities.

Bio Tech Institute
2007 N Collins Boulevard, #441
Richardson, TX 75080
(800) 899-0506
(214) 907-8297
E-mail biotech@pic.net
BioTech Institute is a distinguished facility with immediate access to a network of professional, medical and scientific consultants, providing comprehensive evaluation and documentation to identify or rule out the presence of soft tissue, head trauma, toxic chemical and/or related injuries—conditions that are often extremely difficult to diagnose.

Brain Injury Association
105 N. Alfred Street
Alexandria, VA 22314
(703) 236-6000
http://www.biausa.org
E-mail info@biami.org
This organization assists people with brain injury and their families to seek out needed resources and services.

Brain Train
727 Twin Ridge Lane
Richmond, VA 23235
(800) 822-0538
(804) 320-0242
http://www.braintrain.com
E-mail info@braintrain.com
Brain Train is a publisher of software catalogs for brain-injured rehabilitation.
The Centre for Neuro Skills
2658 Mt Vernon Avenue
Bakersfield, CA 93306
(800) 922-4994
(661) 872-5150
http://www.Neuroskills.com
E-mail webmaster@neuroskills.com
The Centre for Neuro Skills is a head injury rehabilitation organization. Its Web page is a helpful and extensive TBI resource guide.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(703) 620-3660
(866) 915-5000 (TTY: text only)
(703) 264-9494 (fax)
www.cec.sped.org
E-mail membership@cec.sped.org
The Council for Exceptional Children (CEC) is the largest international professional organization dedicated to improving educational outcomes for individuals with special needs.

The Division for Early Childhood
634 Eddy Avenue
Missoula, MT 59812
(406) 243-5898
(406) 243-4730 (fax)
www.dec-sped.org
E-mail dec@selway.umt.edu
Division for Early Childhood (DEC) is a division of the Council for Exceptional Children advocating for individuals who work with or on behalf of children with special needs, birth through age eight, and their families.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) 328-0272
http://www.ericec.org
E-mail ericec@cec.sped.org
ERIC gathers and disseminates professional literature, information, and resources on the educational and development of individuals of all ages who have disabilities and/or who are gifted.

Higher Education and Training for People with Handicaps (HEATH)
2121 K Street NW, #220
Washington, DC 20037
(800) 544-3284
(202) 973-0908
http://www.heath.gwu.edu
E-mail askheath@heath.gwu.edu
The Health Resource Center of the American Council on Education is the national clearinghouse on postsecondary education for individuals with disabilities. Support from the U. S. Department of Education enables the center to serve as an information exchange about educational support services, policies, procedures, adaptations, and opportunities at campuses, vocational-technical schools, and others.
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
http://www.mdrs.state.ms.us
E-mail emilyk@ext.msstate.edu
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

National Association of State Head Injury Administrators (NASHIA)
350 Broadway, #192
Arlington, MA 02174
http://www.nashia.org
NASHIA’s purpose is to formulate and influence the establishment of sound national head injury policy; and to assist and serve state government-administered programs in the development and implementation of state and local prevention, rehabilitation, and community support services/programs/policies.

The National Information Center for Children and Youth with Disabilities (NICHCY)
P.O. Box 1492
Washington, DC 20013
(800) 695-0285 (TTY: voice)
(202) 884-8441 (fax)
www.nichcy.org
E-mail nichcy@aed.org
NICHCY is a national information center that provides information on disabilities and disability-related issues. Their special focus is on children and youth, birth to 22.

National Institute on Disability and Rehabilitation Research
Washington, DC
(205) 665-5555
(408) 295-9896
http://www.tbindc.org
E-mail tbidc@kmrrec.org
The research and demonstration grants focus primarily on developing and demonstrating a model system of care for persons with TBI stressing continuity and comprehensiveness of care and maintaining a standardized national database for innovative analysis of TBI treatment and outcomes.
Gifted/Visually Impaired Students
Definitions

Visual impairment including blindness means impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness (IDEA, 1997).

The Mississippi Policies and Procedures regarding children with disabilities under the IDEA 1997 define the visually impaired as those who have a visual impairment that, despite correction, adversely affects their educational performance. It differentiates the visually impaired into the following categories: (a) Blind - children with a degree of vision loss that requires Braille use for reading; (b) Partially Sighted - children who have great vision loss, but are able to read large-print materials, (20/70 and 20/200 after correction); (c) Legally Blind - children with visual acuity less than 20/200 after being corrected. It also includes those children with a peripheral field of vision of no more than 20 degrees; and (d) children with other visual problems (revised October 2002).

Characteristics

The characteristics of students who are gifted/visually impaired have not been identified through research to the extent of the characteristics of other gifted students. The lack of research may be due to the size of this subpopulation of gifted individuals who only comprise a small percentage of the overall student population (Lin & Sikka, 1992). Johnsen and Corn (1989) cite the incidence of gifted children in the total population to be between 2 and 5%. Following that supposition, Friedrichs (2001) estimated the gifted/visually impaired would account for 5% of the visually impaired student population. According to the American Federation of the Blind (2003), approximately 82,800 blind and visually impaired students are served in public school special education programs in the United States. This number would include both gifted and non-gifted children. Therefore, 5% would be approximately 4,140 students, which could be assumed to be gifted within the visually impaired student population being served in the public education system. In addition to being one of the smallest groups, the gifted/visually impaired are thought to be one of the most underserved as well (Johnsen & Corn, 1989).

A review of the literature currently available indicates that children who are gifted/visually impaired learn quickly (Friedrichs, 2001); however, due to their lack of visual experiences, they may be slower to fully understand the fundamental principles underlying a concept. Learning may be somewhat superficial at first. These students learn best through concrete learning experiences. Though they lag behind sighted students in cognitive development (Little, 2001), their ability to comprehend abstract concepts is superior to the average visually disabled student.
Blind students, by virtue of their disability, rely heavily on auditory information processing (Hull & Mason, 1995). In the gifted/visually impaired, this reliance translates into a high ability to concentrate and to develop and use individual learning strategies. They are perceptive to the environment, curious (Johnson, 1987), and enjoy learning. Gifted/visually impaired students seek independence of expression and the tools to help them achieve their goals. They possess excellent memories, large vocabularies and good communication skills (Whitmore & Maker, 1985).

Related to creativity, the gifted/visually impaired are imaginative and able to elaborate and extend a stimulus. They are skilled at coping with their condition and the obstacles it presents to learning. These students are able to make the adjustments needed to succeed academically. Though their grades may be average when compared to the sighted population, they are consistently able to keep up with sighted children their age (J. Salek, personal communication, June 6, 2003). They quickly close the gap between themselves and sighted students in basic skills learning (Lin & Sikka, 1992).

Gifted/visually impaired students may learn to read Braille easily (Whitmore & Maker, 1985) and enjoy reading. They are highly motivated, but may become frustrated when they fail to understand a concept or feel that a topic has not been explained well. These students adapt quickly to new situations and may be unhappy with routine (Friedrichs, 2001).

The gifted/visually impaired may also possess gifts and talents in music (Chorniak, 1984). Founded in their strong auditory learning base, these students often possess a keen memory for sounds and are sensitive to changing tones in musical notes (Friedrichs, 2001). They may exhibit great persistence and task commitment to activities of interest to them and extraordinary concentration skills (Whitmore & Maker, 1985).

Though many of the characteristics mentioned appear to correspond to the characteristics of nondisabled gifted students, these may not be observable in the gifted/visually impaired until much later in childhood, making early identification difficult. Chorniak (1984) compared several characteristics found in gifted children without disabilities in the early primary years to children who were gifted/visually impaired of the same age. High verbal ability is often seen as an indicator of giftedness (Clark, 1992). The gifted/visually impaired may be very verbal, due to their keen memories for information; however, a thorough understanding of the words they use may be lacking (Chorniak, 1984). This behavior, known as echolalia, is a common trait in visually impaired children characterized by repetition of words that have been heard without a true understanding of their use. (Bulla & Loftin, 2002;
A child who is gifted/visually impaired may overcome this limitation ahead of his or her peers; nonetheless, its presence may confound the identification process for the visually impaired/gifted.

Creative and productive thinking (Johnsen & Corn, 1987) and a high capacity for seeing diverse relationships (Clark, 1992) have been observed as characteristics of gifted children. However, an early lack of visual experiences, which often curtails imaginative play in the lives of the visually impaired, may slow the development of these flexible thought processes (Chroniak, 1984). That being the case, the bright visually impaired child may be identified by his or her ability to develop creative and productive thinking ahead of visually impaired age mates (Haplin, Haplin & Tillman, 1973).

Just as all young children learn best through concrete experiences (Bredekamp & Copple, 1997), so do the visually impaired. The difference found among the visually impaired, even the very bright, is that they continue to learn best through concrete activities long after the sighted child has been able to shift to the abstract. These children, in fact, develop the capacity to understand abstractions much later than sighted children. As mentioned earlier, children who are gifted/visually impaired may be recognized for their ability to understand abstract concepts ahead of their non-gifted peers, even though it may be well behind sighted children (Johnson, 1987).

Screening and Identification

Chroniak’s (1984) observations highlight the difficulty encountered by educators in the screening and identification process of gifted/visually impaired students. In most cases, cognitive ability as demonstrated on standardized intelligence tests is the criterion for admission to gifted education programs (Coleman & Gallagher 1995; Maker, 1977). The problem with using a battery of tests developed for the identification of sighted children lies in understanding the cognitive development of visually impaired children. It is believed that 70 to 80% of learning occurs through visual input (Bull & Loftin, 2002). Due to an early lack of visual experiences, these children are at a disadvantage when being evaluated on standardized measures based heavily on language and experience (Vander-Kolk, 1977). Relying on their other senses to understand the world, students with visual impairments may lag behind the sighted child up to two years in intellectual growth (Dimcovic & Tobin, 1995; Maker, 1977; Rich & Anderson, 1965; Tillman, 1969,1973). Stephens, Simpkins, and Wexler (1976) found that this lag might be even greater. In their study of the tactile orientation to the environment of a child who is blind, they reported up to an eight-year developmental delay in congenitally blind students’ spatial abilities when compared to the sighted. Factors such as these results in the students’ disabilities masking (Omdal, Ruconich, Ferrell, & Corn, 2003) their
abilities, making it imperative that new methods for the evaluation of intellectual promise in visually impaired youngsters be explored (Malikin & Freedman, 1970).

The Council for Exceptional Children (Omdal, Ruconich, Ferrell, & Corn, 2003) in a position paper regarding students who are gifted/visually impaired stated that alternative forms of assessment should be considered when seeking to identify these students. Negative factors cited by the group concerning the use of standardized intelligence tests include a lack of well-established norms for the visually impaired and poor translation quality of tests that are taped or brailed. The paper suggested that other forms of assessment be developed including teacher and parent interviews, work portfolios, and inspection of the child’s problem-solving skills and tactics.

Maker (1977) advocated an approach to the identification of the gifted/visually impaired based on potential rather than demonstrated abilities. This may be an especially important concept when seeking to identify the young gifted/visually disabled. This type of assessment may be accomplished through anecdotal records of students’ methods of dealing with their disability (Omdal et al., 2003). Maker (1977) also suggested that visually impaired students only be compared with other students who are blind or visually impaired. Echoing that belief, Chorniak (1984) stated “. . . comparing the functioning of a sighted child with that of a blind child of similar age is a useless and unfair estimate of operational abilities and potentials” (p. 181). Additionally, Maker (1977) stated the identification of compensatory abilities - those behaviors the student has developed in order to function more easily in a non-disabled society - may be an important means of assessing giftedness in the visually impaired.

The screening and identification process for gifted education programs often begins with student nominations or the formation of a talent pool using scores obtained on a screening test, a brief assessment of cognitive or academic ability (Pledgie, 1982). Student nominations can be submitted by teachers, parents, school personnel, or, in some cases, even the students themselves (Johnsen & Corn, 1989). Teachers generally use their own observations of the student to guide these nominations. They may collect anecdotal records or complete checklists of characteristic behaviors common to gifted children. The subjective nature of this process may exclude visually impaired students due to a lack of teacher knowledge of the cognitive development of these children. For example, a bright visually impaired student might be working on grade level and thereby not exhibit high academic achievement. He or she may be overlooked in the nomination process, when, in fact, the ability to compete with his or her sighted peers can, indeed, be a characteristic of giftedness (J. Salek, personal communication, June 6, 2003).

Screening instruments for placement in gifted education programs often require a predetermined score for
further testing using standardized intelligence tests. Unfortunately, the needs of the blind and visually impaired are frequently ignored in the development of screening and identification tools and procedures (Corn, 1986). The problem most often encountered in the screening process for visually impaired students is the lack of appropriate instruments. Very few screening devices and gifted behaviors checklists have been developed for or normed on the visually impaired population. School assessment personnel are often forced to modify existing tests for use with their visually impaired students. To overcome these obstacles, Johnson (1987), a teacher of the visually impaired, created a checklist of gifted behaviors (Appendix A). She has used this checklist at the Utah School for the Blind and shared it with other teachers of the visually impaired instructing them to refer students who display three or more of the behaviors for further evaluation for giftedness.

Many have suggested that observation of the blind and visually impaired be the primary means of screening these children for gifted programs (Chorniak, 1984; Evans, 2002; Loftin, 1997; Maker, 1977; Pledgie, 1982; Whitmore & Maker, 1985). For these observations to be meaningful, they should be performed by teachers, parents, and support personnel who have experience working with the visually impaired and are knowledgeable of their growth and development. Pledgie (1982) created the Teacher Observational Items (Appendix B) checklist from his research of the gifted/disabled. It includes a sampling of characteristics observed in gifted children with a variety of disabilities. He refers to the Teacher Observational Items as “gross initial indicators of giftedness” (p. 223) and recommends that educators employ its use as part of a three-step method for identifying giftedness in disabled students: (a) realize that no single instrument will identify all possible gifted behaviors and should be used in combination with other measures; (b) observe students over an extended period of time to get a true picture of their abilities; and (c) remember that observation is the first of many steps in determining placement in gifted education programs.

One of the few screening instruments commercially adapted for use with the blind and visually impaired is the Slosson Intelligence Test - Revised, Third Edition (SIT-R3) (Slosson, 2002). Being a verbally administered screening device, only six of the items in the entire test require a visual stimulus. To overcome this problem, embossed answer cards and a manual for administration to the visually impaired were developed (Slosson, 2002). No studies of its effectiveness with the blind and visually impaired population have been generated as yet (S. Larson, personal communication, August 14, 2003); however, the use of an earlier version of the Slosson Intelligence Test (1963) was evaluated in a study (Hammill, Crandell, & Colarusso, 1970). The test was adapted by
the researchers for use by modifying or omitting only eight of the 137 items on the test, which required a visual stimulus. Scores obtained on the SIT by 32 visually limited children were compared with other measures from the subjects’ school records including the *Wechsler Intelligence Scales for Children* (*WISC*) (Wechsler, 1949) and the *Hayes-Binet (H-B)* (Hayes, 1923). The researchers found high correlations between the SIT scores and the *WISC* and *H-B* scores causing them to conclude that the adaptations made on the SIT for the visually impaired were appropriate and did not affect the tests validity or reliability (Hammill et al., 1970).

The *Wechsler Intelligence Scales for Children* (*WISC*) in its various forms and revisions is the most commonly used intelligence measure with the blind and visually impaired (Groenveld & Jan, 1992; Bulla, 2002). The test is composed of two scales, Verbal and Performance, and yields a separate IQ score for each. These scores are used to form a Full Scale Intelligence Quotient; however, the Verbal Scale is generally the one used with the blind and visually impaired due to the visual and timed nature of the Performance Scale (Benoff, Lang, & Beck-Viisold, 2001). Studies (Hopkins & McGuire, 1966; Tillman, 1967; Tillman & Bashaw, 1968; Tillman & Osborne, 1969; Spencer, 1997; Groenveld & Jan, 1992; Wyver & Markham, 1998; 1999; Beck & Lindsey, 1986; Hull & Mason, 1995) have been conducted to determine the appropriateness of this test when being used with visually impaired students. Hopkins and McGuire (1966) found that when comparing the *WISC* to the *H-B* (an adaptation of the *Stanford-Binet* for the blind) that the *WISC* produced lower IQ scores in verbal reasoning even though a high correlation was found between the two tests. In several studies undertaken by Tillman and his colleagues (1967, 1968, & 1969) to compare the performance of blind children with that of sighted children on the WISC, it was found that the blind scored lower on the Comprehension and Similarities subtests, but higher on the Digit Span subtest. He concluded that though the lower scores on the subtests tended to depress the Verbal IQ score, the higher scores on the Digit-Span subtest may have offset some of that depression.

Tillman and Bashaw (1968) posited that verbal IQ may not make the same predictions about blind children as it does about sighted children. An item analysis study of the *WISC* (Tillman & Osborne, 1969) concluded that depressed scores on the Comprehension and Similarities subtests may be a result of a lack of integrated education experiences, the use of vocabulary without full understanding, and a learning style that favors the concrete over the abstract. In a review of his work, Tillman (1973) drew these conclusions: (a) norms should be available for the visually impaired on the *Wechsler Scales* so that these students can be compared to others with visual impairments rather than sighted children only; (b) a test specifically designed for the blind and visually impaired is needed and
should include meaningful tests of verbal memory and reasoning; and (c) individual subtest scores should be reported rather than a composite IQ score.

A more recent study (Groenveld & Jan, 1992) was undertaken on 118 subjects between the ages of three and 16 with varying degrees of visual impairment using the *Wechsler Intelligence Scales for Children-Revised (WISC-R)* (Wechsler, 1974). Asserting that many blind and visually impaired children have some degree of vision, the researchers felt a study was needed to compare children’s test scores according to the degree of their visual acuity. The children were divided into three groups according to vision loss and administered the *WISC-R*. The two groups with moderate to severe and profound vision loss was administered both the Verbal and Performance Scales of the test. The final group of children who were either totally or near-totally blind was assessed with the Verbal Scale only. The results of the study indicated that totally blind children had the most success on items that required auditory memory while they had less success on items that required them to synthesize information. The totally blind group was also found to approach problem solving more from the concrete than the abstract. The researchers recommended that subtest scores be reported individually rather than computing a composite IQ score, and they should be used to plan intervention strategies for these students (Groenveld & Jan, 1992).

As mentioned, many researchers cited the need for a measure of cognitive ability specifically designed and normed for the visually impaired. One attempt to fill the void in this area was made by Dr. T. Ernest Newland in his development of the *Blind Learning Aptitude Test (BLAT)* (Newland, 1969). Although, this test is no longer in print (Tests in Print, 2002), it served as a cognitive assessment developed for and normed on blind and visually impaired individuals. The test required students to tactually discern relationships and missing parts from figures and required little verbal communication. Newland discussed its use in the measurement of IQ stating that he preferred the term “learning aptitude” (Newland, 1968, p. 93) to IQ score thus highlighting the learning potential and thinking of the blind rather than reporting a static score being compared to sighted individuals which may or may not be a true assessment of that child’s abilities (Newland). Studies with the *BLAT* in comparison to the *WISC* and *H-B* among blind students in residential schools in Alabama, North Carolina, and Tennessee showed correlations from .71 to .74, while the correlation of these students’ scores on the *WISC* and *H-B* was .89. Newland commented that this finding was expected as the *BLAT* attempts to measure learning aptitude or cognitive processing more so than cognitive product or those items stored in a person’s memory (Newland, 1979).

Other attempts were made to develop tactually administered intelligence tests for the blind. Among those...
was the *Children’s Tactual Progressive Matrices (CTPM)* (Rich & Anderson 1965) which was an adaptation of the *Raven’s Colored Progressive Matrices (CPM)* (Rich & Anderson, 1965), requiring students to complete raised matrix patterns by selecting the correct missing piece from six choices. Rich and Anderson (1965) tested their model on 115 blind children between the ages of six and 15 from both residential and public school settings. The vast majority of the subjects were blind from birth with only eight of the 115 children becoming blind later. Research findings showed that blind children scored much lower on the CTPM than their sighted counterparts on the CPM. The authors explained the complexity of manually discerning patterns without the aid of visual input as a probable cause. The study did show, however, that as age increased, correlations between the two tests improved, causing the researchers to conclude that the CTPM may have been an acceptable supplementary test of intellectual ability in blind students above eight years of age (Rich & Anderson, 1965). Unfortunately, continued development and production of this test was not pursued (C. Ravens, personal communication, 2003).

The most current development in the area of intellectual assessment of the visually impaired includes a test created for and normed on blind and visually impaired students. The *Intelligence Test for Visually Impaired Children (ITVIC)*, developed in Holland (Dekker, 1989), has not to present been widely used in the United States. The test is composed of eight subtests assessing areas of verbal and tactile performance. Dekker and Koole (1992) reported in a study using the ITVIC with blind and low vision students in The Netherlands results similar to studies conducted with blind children using the WISC Verbal Subscale (i.e., intelligence levels were comparable to those of sighted children and congenitally blind children scored higher in auditory memory). Dekker (2000) also found that congenitally blind individuals with high intelligence scores on the ITVIC showed greater development of spatial abilities.

It seems evident from the research that a perfectly matched assessment instrument for screening and identifying giftedness in visually impaired children or even a standard procedure for their identification is non-existent. Though valiant attempts have been made to develop tools to measure the intellectual functioning of blind and visually impaired individuals, they have not remained a part of the educational landscape. Perhaps due to reasons cited earlier such as the small percentage of the total population who are gifted and blind or visually impaired (Friedrichs, 2001), the attention to individual disabilities rather than abilities (Maker 1977), or even the myth that a person with a disability could not be gifted (Karnes & Johnson, 1991) have caused this situation. An awareness of the characteristics of students who are gifted/visually impaired must be proliferated across our
educational system to sensitize those who work with the visually impaired to the need for consideration of these students in order to remedy the educational neglect they have experienced.

**Instruction**

Intelligence testing of the blind and visually impaired using the measures available has revealed some findings that may be applicable to meeting their educational needs. In the development and testing of the CTPM, Rich and Anderson (1965) found that an emphasis on building persistence in blind youngsters was needed. Groenveld and Jan (1992) found in their research that intelligence testing should be used to plan instructional interventions with the visually impaired. Hopkins and McGuire (1966) stated their research data indicated that the intellectual abilities of visually impaired students may be concentrated in certain areas and, as previously discussed, that the cognitive development of these individuals progresses at a different rate. Although these ideas may not be specific to the gifted/visually impaired, it must be remembered that all visually impaired individuals are, by virtue of their disability, deprived of certain opportunities to learn.

Many have advocated a focus on the strengths of children who are gifted/disabled rather than their weaknesses (Karnes & Johnson, 1991; Maker, 1977; Paskewicz, 1986; Corn & Scholl, n.d). This focus necessitates a thorough knowledge of the student based on observation through extensive involvement with the child, portfolio evaluation of the child’s work, an in-depth knowledge of the child’s disability and its cause, and interaction with the child’s family. A balanced approach aimed toward meeting the student’s needs related to his or her disability along with providing a unique program of instruction tapping the student’s strengths is essential to ensure success. Chorniak (1984) cautions the importance of remembering that many traits of giftedness may not be readily evident in the very young gifted/visually impaired. As mentioned earlier, these children may develop at a slower pace when compared to sighted children, and a full presentation of the behaviors may not appear until the child is upper-elementary age. To address this problem, she advocates a solid literacy and psychomotor foundation over placement in gifted programs and offers advice to help educators uncover giftedness and develop potential in gifted/visually impaired students such as: (a) giving the child privileges and responsibilities similar to sighted children to maintain an air of normalcy rather than overprotection; (b) offering the child challenging and enriching experiences at a sensible pace; (c) avoiding talent development to the exclusion of other areas of the child’s life; and (d) considering an emphasis on the basic skills in the first three grades, including Braille and abacus, before placing the child in gifted education programs. Taking a slightly different approach, Corn (1986) maintains that student placement
should be based on student needs and interests and that providing for the development of student gifts and talents should be an integral part of the student’s IEP.

In a study conducted in the early 1970s, Halpin, Halpin and Tillman (1973) found that a significant relationship existed between verbal flexibility and IQ in blind children. Curiosity as rated by teacher observation was also significantly related to both verbal flexibility and IQ. It might be concluded from these findings that appropriate instructional activities built on the strengths of bright children with blindness should include opportunities to develop creative thinking skills. Creativity as defined by the ability to produce a wealth of unique ideas concerning different topics (Halpin et. al., 1973) can be developed through brainstorming activities and problem-solving situations. This method of instruction lends itself to many conditions embedded in the need of mobility and independence for students who are gifted/visually impaired, but could also be integrated into academic areas of study as well. Furthermore, the exceptional curiosity of bright students with visual impairments might be sustained by frequent opportunities to explore, through hands-on, concrete experiences in topics of intense interest to them.

It has been presented that students who are gifted/visually impaired possess excellent memories, learn quickly, are capable of intense concentration and persistence; that being the case, two methods of instruction widely used in gifted education - curriculum compacting and acceleration - may be appropriate choices for the gifted/visually impaired. Curriculum compacting simply affords the student an opportunity to learn content in a condensed fashion at an individualized pace (Reis & Renzulli, 1989). Students are able to cover more content in a shorter amount of time. Acceleration, on the other hand, would enable the student who is gifted/visually impaired to skip certain curricula altogether if it were shown through academic testing that he or she had already internalized the information at a particular grade level (Feldhusen, Proctor, & Black, 1986). As previously mentioned, accurate teacher knowledge of the student’s abilities would be essential to guiding the gifted/visually impaired in instructional methods.

Specific instructional activities for the gifted/visually impaired should also include many commonly found in gifted education programs. Johnson (1987) stated that because visually impaired students are forced to be dependent upon others in so many situations, the independent study or project method will help develop research skills and foster a feeling of self-sufficiency in the gifted/visually impaired. Her experiences working with a child who was gifted/blind who loved music led her to assign the student an independent study project related to musical
instruments. Each week the child researched a different instrument and shared her findings with other students in a variety of ways. According to Johnson and statements from the child’s parents, this activity helped the child grow in confidence and ability because she pursued a topic of intense interest (music) according to her own ideas about the subject. It might also be noted here that superior verbal skills and an advanced vocabulary which are commonly found among students who are gifted/visually impaired might be augmented through the use of independent study presentation projects, such as is reported above. Their curiosity and superior levels of concentration and persistence also lend themselves to this method of learning.

Marnee (2002) states that visually disabled students may experience problems developing and sustaining relationships with their peers, especially in adolescence. Having the chance to participate in mentorship activities may provide an excellent opportunity for the gifted/visually impaired to develop social, leadership, and job skills. Along with those skills will come a heightened sense of self-esteem enabling them to reach their potential as gifted individuals and productive members of society (Johnson, 1987; Corn 1986; Corn & Scholl, n.d.).

Programs specifically designed for the gifted/disabled including the visually impaired are few. The Retrieval and Acceleration of Promising Young Handicapped and Talented (RAPHYT) program initiated at the University of Illinois (Karnes & Johnson, 1991) has been replicated at other sites and involves intensive teacher training in observation and methods to identify and nurture gifts and talents in children with a variety of disabilities. According to Johnsen and Corn (1989), programs for the gifted/disabled should include a method to heighten awareness of teachers and parents concerning giftedness in the disabled, consideration of the possibility of gifts and talents at the time of the special education referral, assessment of the child using measures that will identify his or her strengths, and the creation of an IEP that includes talent development. They also suggested that students who are gifted/disabled have access to the same types of activities and materials that non-disabled/gifted students enjoy. This goal can be accomplished through the use of advanced technology, Braille materials, and the employment of transition specialists to help disabled students move from residential or special education programs into gifted education programs.

Conclusion

While there is a paucity of current studies and programs for the gifted/visually handicapped, a current emphasis on educational outcomes and growth for all children in the public education system may lead to a renewed interest in gifted education. With the passage of No Child Left Behind (2001), state boards of education may be
forced to review their policies for meeting the educational needs of all students with disabilities including the blind and visually impaired. The recent focus on inclusion of students with disabilities in regular education classrooms should engage more teachers in the learning processes of all children. This may lead to a heightened awareness of the individual strengths of students with disabilities among teachers and a need to explore the abilities of these students in order to help them display growth on state tests. While this may be an arduous method of bringing gifted/visually impaired children to the fore of educational consideration, current efforts appear to have been no more successful.
References

Bradley-Johnson, S. (1994). *Psychoeducational assessment of students who are visually impaired or blind: Infancy through high school*. Austin, TX: Pro-Ed.


Corn, A. (1986). Gifted students who have a visual handicap: Can we meet their educational needs? *Education of the Visually Handicapped*, 18(2), 71-84.


Individuals with Disabilities Education Act (1997). 20 U.S.C. ’ 1401 (3) (A) and (B); 1401 (26).


Blindness, 71(4), 158-163.


Appendix A
Gifted/Visually Impaired Checklist

Name: ___________________________  Age: _________  Gender: □ M  □ F

1. Yes  No  Is curious about many things
2. Yes  No  Is perceptive of the environment
3. Yes  No  Becomes impatient when an explanation is “fuzzy”
4. Yes  No  Has a good sense of humor
5. Yes  No  Is sensitive to injustice
6. Yes  No  Understands quickly and easily
7. Yes  No  Has original responses
8. Yes  No  Has a lively imagination
9. Yes  No  Originates many ideas from a stimulus
10. Yes  No  Becomes excited about learning because it is fun
11. Yes  No  Has accelerated academic achievement in relation to peers
12. Yes  No  Scores in average or high average range against sighted children in one or more areas
13. Yes  No  Has advanced vocabulary or age or grade level
14. Yes  No  Has quick mastery and recall of facts
15. Yes  No  Understands abstract concepts
16. Yes  No  Wants to be independent
17. Yes  No  Is willing and eager to try new things

Reprinted with permission from Johnson (1987)
Appendix B
Teacher Observational Items
Gifted/Visually Impaired

1. Has advanced, expressive, and elaborate vocabulary. May read prior to entering school.
   (Vocabulary list from Stanford Binet and Wechsler Preschool and Primary Scale of Intelligence
   May be used as a reference.)

2. Easily memorizes and recalls information.

3. Is aware of cause/effect relationships. Questions and applies information – does not just recall
   facts.

4. Engages in divergent thinking. Generalizes and provides more than one possible correct answer.

5. Has prolonged attention span. Is persistent. (Digit span test may be used.)

6. Has many interests, is curious, and may be a high risk taker.

7. Displays a sense of humor.

   Reprinted with permission from Pledgie, T. K.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learns quickly or has an earlier ability to comprehend abstract concepts</td>
<td>In general, students with visual impairments are delayed in their understanding of abstractions in comparison to sighted children; therefore, a telling characteristic of children who are gifted/visually-impaired is their ability to think abstractly earlier than their visually impaired peers.</td>
</tr>
<tr>
<td>Has a high ability to concentrate or high task commitment to activities of interest</td>
<td>This characteristic is often found in sighted gifted children and may also be observed in the child who is gifted/visually impaired.</td>
</tr>
<tr>
<td>Enjoys learning or develops and uses individual learning strategies and pursues independence of expression</td>
<td>In the quest to learn, students who are gifted/visually impaired realize the limitations to learning imposed by the disability. Gifted students creatively compensate for their disability in order to succeed.</td>
</tr>
<tr>
<td>May possess a large vocabulary and good communication skills</td>
<td>One thing to note in the vocabularies of visually impaired students is echolalia. This term refers to a student’s use of words without understanding the word’s meaning.</td>
</tr>
<tr>
<td>Exhibits an excellent memory and deep curiosity</td>
<td>Thought typical of gifted children in general, the student who is gifted/visually-impaired may use these traits to help them overcome frustrations with their own failure to understand a concept due to visual limitations.</td>
</tr>
<tr>
<td>Is perceptive to the environment</td>
<td>The visually impaired by virtue of their disability must be attuned to their environment through the senses they have available to them. This sensitivity is even more pronounced in students who are gifted/visually-impaired.</td>
</tr>
<tr>
<td>May learn to read Braille easily and enjoy reading</td>
<td>Giftedness in sighted children is often first considered by the ease with which they learn to read. Here too, we note that students who are gifted/visually impaired learn to read Braille with ease.</td>
</tr>
<tr>
<td>Demonstrates imaginative thought processes including the ability to elaborate and extend a stimulus</td>
<td>Elements of superior creative thinking are commonly found in gifted students. Students who are gifted/visually impaired frequently set their imaginations and creativity on overcoming the obstacles of their disability.</td>
</tr>
<tr>
<td>May possess musical talent involving a keen memory for sounds</td>
<td>Based on their excellent memories and keen auditory abilities, giftedness is often found in this area.</td>
</tr>
<tr>
<td>Is adept at coping with obstacles to learning presented by his or her condition</td>
<td>Students who are gifted/visually impaired are able to make the academic adjustments necessary for achievement.</td>
</tr>
<tr>
<td>Is able to “keep up” with their sighted peers</td>
<td>Though initially hindered by a lack of visual input in learning, students who are gifted/visually impaired quickly close developmental gaps between themselves and their sighted peers.</td>
</tr>
</tbody>
</table>

(Adapted from Bulla & Loftin, 2002; Chorniak, 1984; Domovic & Tobin, 1995; Friedrichs, 2001; Hull & Mason, 1995; Johnson, 1987; Lin & Sikks, 1992; Little, 2001)
Appendix D
Screening and Identification Procedures for Students Suspected of Being Gifted/Visually Impaired

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement identification criteria specifically designed for students with visual impairments. Avoid comparing them to the non-disabled student population.</td>
<td>Because of their disability, students who are gifted/visually impaired may experience a lag in cognitive development. When their performance is compared to non-disabled age-mates, visually impaired children’s scores may not indicate giftedness.</td>
</tr>
<tr>
<td>Keep in mind that standardized assessments may not accurately assess the intellectual levels of students with visual impairments.</td>
<td>Because these instruments were developed for non-disabled individuals, results may not be valid for the visually impaired.</td>
</tr>
<tr>
<td>Use alternative assessment methods.</td>
<td>These may include interviews with the students’ teachers and parents, samples of student work, and observations of the child in academic settings.</td>
</tr>
<tr>
<td>Train teachers and parents to recognize the characteristics of giftedness in the visually impaired.</td>
<td>Teachers and parents who are cognizant of gifted traits in students with visual impairments can recommend them for further screening.</td>
</tr>
</tbody>
</table>

Adapted from Maker, 1977; Pledgie, 1982; Tillman, 1973; and Whitmore, 1981.
## Appendix E

### Instructional Strategies for Students Who Are Gifted/Visually Impaired

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build on students’ strengths. Look for areas of concentrated intellectual abilities.</td>
<td>Observation and analysis of individual test items on standardized tests will reveal student strengths. Plan instruction to build on these.</td>
</tr>
<tr>
<td>Use intelligence tests to plan instructional interventions.</td>
<td>Subtest scores may indicate areas of need. Address these without losing sight of students’ strengths.</td>
</tr>
<tr>
<td>Create portfolio evaluations of the child’s work.</td>
<td>Be sure to include multiple measures of the gifted/visually impaired child in evaluations and use this to educate other teachers and parents as to the characteristics and needs of these students.</td>
</tr>
<tr>
<td>Learn as much as you can about the cause of the child’s visual impairment and family background.</td>
<td>In order to be able to focus on the strengths of these students, teachers must develop a comprehensive understanding of them as individuals.</td>
</tr>
<tr>
<td>Emphasize literacy and technological foundations in the early grades.</td>
<td>It is vitally important that visually impaired students are given the tools for tapping into the world of knowledge through books and computers. A thorough knowledge of Braille and how to use advanced technology to manage their disabilities will help students who are gifted/visually impaired reach their potential.</td>
</tr>
<tr>
<td>Teach for psychomotor mastery in the early grades.</td>
<td>Independence and normalcy are important to students who are gifted/visually impaired. The ability to move somewhat freely in their environments will help students develop confidence and self-esteem.</td>
</tr>
<tr>
<td>Consider the interests of students. Ask students to tell you about the things in which they are interested and plan units of study around their interests.</td>
<td>Students who are gifted/visually impaired may possess keen interests in certain topics. Providing opportunities for them to study these topics in-depth and/or creating units of study based on these interest will provide strong motivation from them to develop academically.</td>
</tr>
<tr>
<td>Provide opportunities for the development of creative thinking.</td>
<td>Guide gifted/visually impaired students to brainstorm ideas and solve real-life problems (perhaps related to their disabilities) to develop creative thinking skills.</td>
</tr>
<tr>
<td>Provide frequent opportunities to explore the world through hands-on experiences.</td>
<td>The lack of visual input experienced by children who are gifted/visually impaired causes developmental lags when compared to sighted children. Increased opportunities to experience learning in novel ways will help them close the development gap between themselves and their sighted peers.</td>
</tr>
<tr>
<td>Compact the curriculum.</td>
<td>Gifted students learn at a faster rate and may be able to cover more material in a shorter amount of time than non-gifted students, if the given the opportunity.</td>
</tr>
<tr>
<td>Accelerate students who are gifted/visually impaired.</td>
<td>Acceleration refers to grade skipping. Knowledge of material in the grade to be skipped could be evidenced in the students who are gifted/visually impaired through testing.</td>
</tr>
<tr>
<td>Train students in independent study methods.</td>
<td>Provide materials in an adapted format for students to research independently.</td>
</tr>
<tr>
<td>Involve students in mentorships.</td>
<td>Independence and productivity for the gifted/visually impaired may be fostered through mentoring experiences.</td>
</tr>
</tbody>
</table>

American Foundation for the Blind
11 Penn Plaza, Suite 300
New York, NY 10001
(800) 232-5463
(212) 502-7600
http://www.afb.org
E-mail afbinfo@afb.net
The American Foundation for the Blind assists blind or visually impaired individuals acquire improved rehabilitation services and education and employment opportunities. This organization also aids such individuals with daily living activities through resource and education materials. Foundation publications include a Directory of Services for Blind and Visually Impaired Persons in the United States and Canada.

American Printing House for the Blind
1839 Frankfort Avenue
P.O. Box 6085
Louisville, KY 40206-0085
(800) 223-1839
(502) 895-2405
(502) 899-2274 (fax)
http://www.aph.org
E-mail info@aph.org
This is a national organization that produces literature and manufactures other educational aids for blind and visually impaired persons.

The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
(888) CEC-SPED
(866) 915-5000 (TTY: text only)
www.cec.sped.org/
E-mail service@cec.sped.org
This international professional organization is dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. The site contains information about professional development, articles from their publications, information about professional standards and public policies, and a bulletin board system.

The Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, DC 20201
(202) 619-0257
(877) 696-6775 (Toll free)
http://www.hhs.gov/
The Department of Health and Human Services is a governmental agency responsible for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves including those with disabilities.

ERIC Clearinghouse on Disabilities and Gifted Education
2277 Research Boulevard, 6M
Rockville, MD 20850
(800) 328-0272
www.ericcc.org
ERIC gathers and disseminates professional literature, information, and resources on the educational and development of individuals of all ages who have disabilities and/or who are gifted.

The University of Southern Mississippi
Institute for Disability Studies
118 College Drive #5163
Hattiesburg, MS 39406-0001
This organization can be contacted directly by e-mail at www.ids.usm.edu/contactUs.htm
The project is intended to provide skill instruction in recreation activities and develop opportunities for participation in recreation activities conducted in natural environments and integrated/inclusive settings for persons with disabilities.

Lighthouse International
111 East 59th Street
New York, NY 10022
(800) 334-5497
(212) 821-9200
(212) 821-9705 (fax)
http://www.lighthouse.org
E-mail info@lighthouse.org
Lighthouse International provides information on vision and aging as well as hearing impairment and aging. This organization offers educational materials for consumers and professionals and also promotes the improvement of service delivery to sensory-impaired older people.

Mississippi Department of Rehabilitation Services (MDRS)
MDRS State Office
1281 Hwy. 51 North
Madison, MS 39110
(601) 853-5209
www.mdrs.state.ms.us
This organization can be contacted directly by e-mail at www.mdrs.state.ms.us/contact/index.html
It is the mission of the Mississippi Department of Rehabilitation Services to provide appropriate and comprehensive services to Mississippians with disabilities in a timely and effective manner.

National Alliance of Blind Students
1155 15th Street NW, Suite 1004
Washington, DC 20005
Toll-free: 800-424-8666 from 2:30-5:30 p.m.
(202) 467-5081
(202) 467-5085 (fax)
http://www.acb.org
E-mail infor@acb.org
The National Alliance of Blind Students is a national organization of blind students who encourage and promote the integration and education of college students who are blind or have vision impairments. NABS is involved in such activities as legislation and policy-making regarding rehabilitation programs, financial aid, equal access to classes, provision of alternative textbooks and new technologies. NABS also established a scholarship fund in 1990.

National Association for Parents of the Visually Impaired Inc.
P.O. Box 317
Watertown, MA 02272-0317
(800) 562-6265
(617) 972-7444 (fax)
www.napvi.org
E-mail napvi@perkins.org
This association addresses the needs and concerns of parents and families of visually impaired children by providing information about care, treatment, and other quality services.

National Association of State Directors of Special Education Inc.
1800 Diagonal Road, Suite 320
Alexandria, VA 22314
(703) 519-3808 (fax)
(703) 519-7008 (TDD)
NASDSE works to provide support to all states and territories for the delivery of quality education to children and youth with disabilities. This is accomplished through training, technical assistance, research, and policy development. The organization further develops and models powerful collaborative relationships with other organizations and constituencies.

**National Association for Visually Handicapped**
22 West 21st Street
New York, NY 10010
(212) 889-3141
(212) 727-2931 (fax)
http://www.navh.org
E-mail staff@navh.org
NAVH provides information regarding all services available to partially seeing people from federal, state, and local government agencies as well as private sources. NAVH publishes materials which cannot be found elsewhere addressing problems encountered by people with partial vision. These special publications include two newsletters in large print, one for children and one for adults.

**National Federation of the Blind**
1800 Johnson Street
Baltimore, MD 21230
(410) 659-9314
(800) 414-5748 (Toll-free job opportunities)
http://www.nfb.org
E-mail nfb@nfb.org
The National Federation for the Blind offers the National Blindness Information Center which attempts to answer, by phone or mail, any questions about blindness and the rights of people who are blind. This organization also acts as a legislative resource for its state chapters and serves as advocate in discrimination cases for blind individuals. Organizational publications include a monthly magazine, *The Braille Monitor*, discussing technological issues, and two quarterly magazines, *Future Reflections*, for parents and educators of blind children, and *Voice of the Diabetic* provided by the Diabetes Division of NFB.

**NICHCY**
P.O. Box 1492
Washington, DC 20013
(800) 695-0285 (Telephone & TTY)
(202) 884-8441 (fax)
www.nichcy.org
E-mail nichcy@aed.org
The National Center for Children and Youth with Disabilities provides information on disabilities and disability-related issues for parents, educators, and other professionals.

**Office of Special Education Programs (OSEP)**
Office of Special Education Programs
Office of Special Education and Rehabilitative Services
U.S. Department of Education
400 Maryland Ave., S.W.
Washington, DC 20202
(202) 205-5507
www.ed.gov/offices/OSERS/OSEP/index.html
The Office of Special Education Programs (OSEP) is dedicated to improving results for infants, toddlers, children and youth with disabilities ages birth through 21 by providing leadership and financial support to assist states and local districts.
The PACER Center expands opportunities and enhances the quality of life of children and young adults with disabilities and their families, based on the concept of parents helping parents. This national center responds to thousands of parents and professionals each year. Services provided include assistance to individual families, workshops, materials for parents and professionals, and leadership in securing a free and appropriate public education for all children.