

Identifying and Providing Services to Twice Exceptional Children

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Introduction

Twice exceptional children are those whose demonstrated performance falls in both directions of the learning spectrum. They demonstrate superior ability in one or more areas, and also have one or more disabilities. They may be gifted with serious emotional difficulties, gifted Asperger children, gifted children with attention deficit hyperactivity disorder, learning disabled gifted children, gifted children with physical handicaps, etc. Psychologists are typically called upon to assist families or schools with

two tasks: to determine whether or not an identifiable disability is present in a gifted child who is having trouble learning, and to make recommendations for educational interventions. Less often, parents of identified disabled children will seek the help of a psychologist to determine whether or not their child is gifted.

The goal of this chapter is to assist the psychologist in these tasks by highlighting the major findings from the empirical literature on twice exceptional children and by exploring their implications for psychological practice. In particular, the chapter aims to answer six questions: Who are twice exceptional children? What distinguishes them from other populations? How might they be effectively identified? What issues, if any, are unique to this population? What interventions have been demonstrated to be most effective in enhancing their achievement and social-emotional adjustment? How should educational placement decisions be made?

As schools across the nation increase their capacity to provide differentiated services for children, psychologists are increasingly called upon to assess strengths and weaknesses in twice exceptional children and to make recommendations for interventions and supports. We can be more effective in addressing the needs of twice exceptional students when we understand the factors that contribute to their accurate identification and timely success.

Background

The concept of twice exceptional children is relatively new. The large literature base we have now was birthed in the early 80's when new theories of intelligence and assessment were proposed (Detterman, 1987; Gardner, 1983; Sternberg, 1988; Wagner & Sternberg, 1986). These new concepts challenged traditional ideas that all kinds of intelligence could be measured with a test score and that only children who earned good grades in school could be gifted.

Most of the empirical literature on twice exceptional children is descriptive, identifying patterns of behaviors, social and emotional characteristics, and coping strategies among various types of gifted children with learning problems. The largest literature is on gifted students with specific learning disabilities (Baum & Owen, 1988; Coleman, 1992, 1994; Cooper, Ness & Smith, 2004; Ferri, Gregg, & Heggoy, 1997; Fox,

Brody, & Tobin, 1983; Gerber & Ginsberg, 1990; Hansford, 1987; Moon & Reis, 2004; Nielsen, 2002; Nielsen, Higgins, Wilkinson, & Webb, 1994; Reis, McGuire & Neu, 2000; Shaywitz, Holahan, Feduenheim, Fletcher, Makuch, & Shaywitz, 2001; Vespi & Yewchuk, 1992; Whitmore, 1981; Whitmore & Maker, 1985). The research on gifted children with emotional disorders or physical handicaps is very limited and often dated (Baker, 1995; Eason, Smith & Steen, 1978; Gamble, 1985; Gust-Brey & Cross, 1999; Hackney, 1986; Jackson, 1998; Morrison, 2001; Paskewicz, 1986; Neihart, 1998; 1999; 2002; Whitmore, 1981; Willard-Hold, 1988). In recent years there has been more interest in gifted children with behavior disorders, especially ADHD and Asperger's Syndrome (Baum, Olenchak, & Owen, 1998; Cash, 1999a, 1999b; Cramond, 1995; Kalbfleisch, 2000; Kaufman & Castellanos, 2000; Kaufman, Kalbfleisch, & Castellanos, 2000; Moon, 2002; Moon, Zentall, Grskovic, Hall, & Stormont, 2001; Morrison, 2001; Neihart, 2000; 2001; 2003; Zentall, Moon, Hall, & Grskovic, 2001).

There is also a substantial literature that evaluates approaches to identification of twice exceptional children and explores the effectiveness and utility of various identification strategies (Bray, Kehle, & Hintze, 1998; McCoach, Kehle, Bray, & Siegle, 2001; Osborne & Byrnes, 1990; Schiff, Kaufman, & Kaufman, 1981; Sweetland, Reina, & Tatti, 2006; Wilkinson, 1993). In addition, theoretical and practical issues relevant to this population are discussed in numerous articles, chapters and books. The recommendations offered in these publications are based on perceived effectiveness in the classroom or in clinical practice rather than on demonstrated effectiveness in empirical studies (Kranowitz, 2000; Lewis, 1998; Kurcinka, 1998; Murray, 2002; 2003; Neihart, 2000; 2001; 2002; Olenchak, 1994; Silverman, 2002; Stewart, 2002; Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005). There are, as yet, no studies that compare the effectiveness of different intervention strategies with twice exceptional children.

Characteristics of Twice Exceptional Children

There are gifted learners in every population of children except those who are severely developmentally disordered. The number of twice exceptional children in the

U.S. is estimated at approximately 300,000 (Baum & Owen, 2004; Clark, 2006). Gifted children can have autism spectrum disorders, be severely emotionally disturbed or behaviorally disordered, and have physical handicaps or specific learning disabilities (Baum, 1994; Fox, Brody & Tobin, 1983; Moon & Reis, 2004).

The literature points to three groups of twice exceptional children, each group presenting its own identification and intervention challenges. In the first group are those whose strong language skills enable them to earn good achievement scores during their elementary years, but whose achievement levels begin to drop as curricular demands rise, especially in their area of disability. It is often not until they reach junior high, high school, or even college, when the curricular or organizational demands outstrip their ability to compensate, that their deficits become more evident to them and to their teachers.

In the second group are children whose learning difficulties are identified early, but whose giftedness goes unnoticed because their difficulties mask it. These children are referred for special educational services, but not for advanced learning opportunities. They receive instruction in remediation and compensation strategies, but have little or no access to other gifted children, nor are they provided with accelerated learning opportunities in their areas of strength.

In the last group are those students who seem to be average, neither gifted nor learning disabled, because their disabilities mask their superior talent and their talents mask their difficulties.

Twice exceptional children don't usually exhibit the kinds of behaviors that many teachers and parents equate with giftedness – good academic performance, self-control, advanced social skills, good study habits, compliance with rules and social norms, etc. Instead, they exhibit behaviors that get them referred for special educational services or counseling – resistance to schoolwork, disruptive behavior in class, hyperactivity, asking off the wall questions, negativity about school, and poor performance in writing, reading, or math. By definition, the learning disabled child is performing below expectations (APA, 2000). They may be clumsy or uncoordinated, and oppositional toward physical activities. They often have organizational difficulties and are known for their propensity

to lose everything, or to be distractible (Baum & Owen, 2004; Fox, Brody, & Tobin, 1983).

Table 1 lists those characteristics that have been identified in various studies of twice exceptional children (Baum & Owen, 1988; Baum, Owen, & Dixon, 1991; Cooper, Ness & Smith, 2004; Hansford, 1987; Moon & Reis, 2004; Olenchak & Resi, 2002; Reis, Neu & McGuire, 1995; Shaywitz, Holahan, Freudenheim, Fletcher, Makuch, & Shaywitz, 2001; Vespi & Yewchuk, 1992; Whitmore & Maker, 1985; Willard-Holdt, 1998). As noted in Table 1, twice exceptional children are similar to gifted children in some ways and they are similar to LD children in other ways. In one of the first empirical studies of twice exceptional children, Baum and Owen (1988) examined 112 gifted, learning disabled elementary children and concluded that the characteristic which set them apart from other gifted children and from other LD children was their perception that they frequently failed in school.

Insert Table 1 About Here

Social and Emotional Traits

Several studies suggest that twice exceptional children's characteristics contribute to feelings of low academic self-concept, depression or anxiety, and to behavioral difficulties, particularly acting out behaviors (Baum, Cooper, & Neu, 2001; Baum & Owen, 1988; Baum, Owen & Dixon, 1991; Cooper, Ness & Smith, 2004; Reis, Neu & McGuire, 1995; Moon & Reis, 2004; Vespi & Yewchuk, 1992). Reis, McGuire, and Neu (1995) found that half the subjects in their study of college level twice exceptional students had sought counseling for social or emotional difficulties. Schiff, Kaufman and Kaufman, (1981) observed that the 30 GLD students they interviewed were more emotionally distressed than expected.

As a result of their frustrations and the school's failure to recognize and address their strengths, twice exceptional children are vulnerable to discouragement, depression, anxiety, withdrawal and underachievement. Emotionally, these children are often described as angry, disinterested, or upset about school. In short, the incidence of problems with social or emotional adjustment appears to be much higher among twice

exceptional adolescents and young adults than among other gifted individuals, among whom rates of depression, anxiety, suicide and behavior problems are similar to that of the general population of children and adolescents (Neihart, 1999; 2002; Neihart, Reis, Robinson & Moon, 2002). The implication is that twice exceptional children should always be monitored for the development of affective disorders and be provided with targeted interventions for their emotional or interpersonal issues.

Identification

Aside from descriptions of twice exceptional children, discussions in the literature on twice exceptional children often focus on the issue of identification, asking:

- What is the most accurate method of identifying learning disabilities in gifted children?
- What are accurate indicators of giftedness in children with learning problems?

Clinically and legally, the definition of learning disability requires an unexpectedly low level of achievement relative to ability that cannot be explained by lack of educational opportunity. The diagnostic criteria listed in *The Manual of Diagnostic and Statistical Manual of Mental Disorders, fourth edition* (APA, 2000) requires:

- achievement that is “below that expected given the person’s chronological age, measured intelligence, and age appropriate education”
- And disturbance that “significantly interferes with academic achievement or activities of daily living”

Note that the clinical definition examines achievement *relative to ability* as well as to age. In contrast, the American Disabilities Act (ADA) qualifies individuals as disabled only if they demonstrate “substantial impairment in a major life activity.” Consequently, case law usually defines “substantial” as relative to the ability of *most average people*, not to a particular cohort (Gordon & Keiser, 1998). In other words, gifted children have historically not qualified for special education services unless the

discrepancy between their ability and their demonstrated achievement falls below that of *the average person*. Clinicians and education researchers are challenging this notion, arguing that in some exceptionally bright individuals, learning disabilities may exist, even if the ability/achievement discrepancy does not fall below an average performance (S.G. Assouline, personal communication, June, 2006; Baum & Owen, 2004; Webb, et al, 2004).

Resource restrictions in many school districts, however, prompt educators to limit referrals to children whose achievement falls significantly below what's expected for their age, rather than for their ability. As a result, even when they are struggling, many gifted children with learning problems are not referred for assessment until they reach at least junior high, and sometimes not at all, because they are able to achieve at grade level. Frustrated parents will seek professional help for their child outside the school system if they have the means to do so. This means that twice exceptional children are often identified later than other children with learning problems, and often after emotional or behavioral reactions have become entrenched, compounding their difficulties.

Identifying Disabilities in Gifted Children

The traditional approaches to the identification of learning disabilities, aptitude-achievement discrepancy and intra-individual differences models have been roundly criticized because they have been demonstrated to have serious psychometric and theoretical flaws (Bray, Kehle, & Hintze, 1998; Fletcher, Francis, Morris, & Lyon, 2005; Kavale & Forness, 1984; McCoach, Kehle, Bray, & Siegle, 2001; Patchett & Stansfield, 1992; Sweetland, Reina, & Tatti, 2006; Vellutino, Scanlon, & Lyon, 2000). Several authorities have also argued against the discrepancy model on theoretical and practical grounds as well (Gordon, Lewandowski, & Keiser, 1999). Further, neuropsychological approaches have also failed to be proven effective (Fletcher, Francis, Morris, & Lyon, 2005). In a recent comprehensive review of the empirical literature on the identification of learning disabilities in children, *Identifying Disabilities in Gifted Children*

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In spite of the consensus that test profile analysis is also not an accurate method of identifying learning disabilities in gifted children, several gifted education experts continue to support them (Baum & Owen, 2004). Numerous studies have pointed to the limitations and ineffectiveness of this method.

First, no consistent IQ profiles have discriminated between LD and non LD learners. For instance, Waldron and Saphire (1990) compared WISC-R profiles of 24 gifted LD children with a control group matched for FIQ and found that Verbal/Performance IQ discrepancies did not effectively discriminate between gifted students with and without learning disabilities. Mueller, Dash, Matheson, & Short (1984) compared WISC-R profiles of average, above average, and below average ability children and observed that variability in subtest scores increased with FIQ.

Second, studies indicate that gifted children test a bit differently than do average ability children, so relying on test manuals for interpretation of test data can lead to misleading conclusions (Detterman & Daniel, 1989; Kaufman, 1992; Sweetland, Reina & Tatti, 2006; Wilkinson, 1993). For example, Verbal-Performance WISC discrepancies are larger and more common among gifted grade school children. Sweetland, Reina, and Tatti (2006) observed that among a sample of 161 gifted grade school children (mean Verbal IQ 136), a V-P discrepancy of 13 points occurred in 68.9 % (compared to 31.7% of the standardization sample) and a discrepancy of 18 points occurred in 54.7% (compared to 17% of the standardization sample). They concluded that “very large discrepancies are typical for this population” (p. 7). Similarly, Wilkinson (1993) determined that intraindividual discrepancies are normal for gifted children when she found evidence of considerable variability among the WISC-R profiles of 456 gifted (FIQ

>120) third graders. About half her subjects earned average scores on subtests involving auditory sequential memory, visual sequential reasoning, and visual-motor coordination. “It appears that with higher overall IQs, there is a higher frequency of extreme scores and a greater range in the subtest scatter” (p. 89). Wilkinson stated that subtest variability is more common than uncommon among gifted children, and that below average scores are not always associated with learning or behavior problems. Relying on profile analysis to identify learning disabilities in gifted children will result in inflated numbers of twice exceptional children.

Third, numerous writers identified serious psychometric problems when identification of learning disabilities is based on subtest profile analyses (Kavale & Forness, 1984; Kramer, Henning-Stout, Ulman & Schellenberg, 1987; McDermott, Glutting, Jones, Watkins, & Kush, 1989; Sattler, 1992; Truscott, Narrett, & Smith, 1993). Jensen (1992) and Watkins & Kush (1994, for example, stated that profile analysis relies on ipsative scores which lower the reliabilities of individual subtests. Bray, Kehle, and Hintze (1998) noted that statistically significant differences among subtests is quite common, even at the .01 level of significance, and added that “individual subtests are not as reliable as deviation IQ’s and/or factor scores as indicated by their corresponding reliability and stability coefficients, standard error of measurement (SEM), and confidence intervals . . .” (p. 211). They further pointed out that significant differences at the .05 level between Verbal and Performance IQ scores occur in 40.5% of the standardization sample on the WISC III (Wechsler, 1991). McCoach et al (2001) said that the statistical problems with profile analyses are exacerbated among gifted students because subtest scatter tends to increase as the full scale score increases (Patchett & Stansfield, 1992) and as the value of the highest subtest score increases (Schinka, Vanderploeg, & Curtiss, 1997). Finally, Ysseldyke, Algozzine, & Epps (1983) determined that as many as one fourth of children with grade level achievement would be identified as LD when discrepancy formulas are used.

In sum, the case against the use of profile analysis of subtest scores to identify learning disabilities is based upon the following four points:

- Statistically significant differences among subtests is quite common.

- Verbal/Performance IQ discrepancies do not effectively discriminate between gifted students with and without learning disabilities.
- An intraindividual differences model relies on ipsative scores which lower the reliabilities of individual subtests.
- Among gifted students, subtest scatter tends to increase as the full scale score increases and as the value of the highest subtest score increases.

In an effort to provide practical guidelines for identifying learning disabilities in gifted children, McCoach and her colleagues (2001) examined the controversial issues surrounding the identification of twice exceptional children and proposed that when assessing gifted children for learning disabilities, psychologists:

- Follow state and federal special education guidelines
- Use multiple measures of achievement
- Obtain a measure of the child's current classroom functioning as well as achievement test scores
- Use curriculum based assessment, especially domain or task specific assessments like reading inventories, reviews of a student's work, etc.
- Examine performance over time, and
- Look for a pattern of declining performance paired with evidence of superior ability

“Screening students who exhibit declining achievement test scores over the first 3 to 5 years of formal schooling may be an effective way to identify students with above average to superior cognitive abilities who also exhibit learning disabilities. Any children who appear to exhibit patterns of declining achievement would be referred for further assessment” (p. 408). A large unexpected decline in performance is always a cause for concern, but should not be automatically interpreted as indicative of a learning disability.

Accurate identification of twice exceptional children, then, is controversial on several points. The practical question becomes how to catch twice exceptional children early enough before years of struggle take their toll without casting the net so wide that

we waste resources on numerous false positive referrals. Effective discrimination of truly twice exceptional students from gifted children with normal variations in intellectual ability or from unmotivated gifted children will remain a challenge for future research. It's possible that Response to Intervention (RTI) is an approach that could remedy some of the aforementioned difficulties. This approach will be discussed later in this section.

Identifying Giftedness in Children with Learning Problems

Some children seem obviously gifted and learning disabled. They are advanced in mathematics, for instance, but can't read. Or, they exhibit superior language skills and are autistic. But the giftedness in a learning disabled child often goes unnoticed. "The prevalence of potential giftedness among this population is higher than you might expect . . ." (Baum & Owen, 2004, p. 32).

Individual measures of intelligence are still the best predictors of expected level of achievement, with WISC-R and WISC-IV scores predicting 52% of the variability in achievement (S.G. Assouline, personal communication, June, 2006; Sattler, 1992). IQ is a valid and reliable indicator of giftedness, and children with learning problems whose VIQ, PIQ or FIQ falls in the superior range should be considered gifted and referred for gifted educational services. In addition, children who earn superior scores on several subtests on the WISC-IV (Wechsler, 2003) should be considered at least potentially gifted and referred for advanced learning opportunities (Baum & Owen, 2004; Brody & Mills, 1997; Cooper, Ness & Smith, 2004; Fox, Brody & Tobin, 1983),

It is easy to recognize superior ability in children whose Verbal, Performance, or Full Scale IQ falls around or above 130, but the deficits many twice exceptional children have depress test scores, making their gifts less obvious (Moon, 2002; Moon, Zentall, Grskovic, Hall, & Stormont, 2001; Neihart, 2003; Nielsen, 2002). What are some effective ways of identifying giftedness when a child's attention, processing, or verbal abilities prevent them from earning high scores on standardized measures of ability or achievement? Several studies have examined this issue and the emerging consensus points to two strategies for finding evidence of superior aptitude or ability (Baum, Owen & Dixon, 1988; Cooper, Ness & Smith, 2004).

Examining patterns of test scores, especially looking for WISC-IV factor scores that are well above what's expected for the child's age, or for high scores on out of level achievement tests like the SAT is one strategy. Group achievement tests should not be the sole measure of achievement because they have too low a ceiling. Gifted students' scores often cluster at the top, and it is difficult to distinguish them from students who have good academic aptitude, but are not gifted (Fox, Brody, & Tobin, 1983). Look for evidence of specific academic achievement as indicated by either standardized assessments or experts' judgments about their work. Seek recommendations from teachers.

Many children, especially those from socioeconomically disadvantaged backgrounds, some minority children, and children with severe emotional or verbal language disabilities will not perform well on standardized tests. In these cases, other kinds of evidence of superior ability or potential for superior achievement are needed. Several options are discussed below.

The Raven's Progressive Matrices (Raven, Court & Raven, 1977) is an alternative assessment tool with adequate reliability and validity that has been demonstrated to be useful in identifying potential giftedness in students whose language skills interfere with their performance on traditional aptitude measures (Mills, Ablard, & Brody, 1993; Mills & Tissot, 1995; Pearce, 1983). It is the oldest measure of nonverbal intelligence and is widely used as an additional measure in gifted programs in the U.S., especially in districts with high minority or low socioeconomic populations. The Ravens is a test of nonverbal reasoning ability based on figural reasoning. It requires individuals to choose one of eight patterns that best solves a matrix. It includes 36 items which get progressively more complex and difficult to solve. Correlations with intelligence tests range from the 50's to 80's (Pearce, 1983; Sattler, 1992). Performance on the Ravens is not likely to correlate with school success, but it does offer a measure of nonverbal intelligence, and can be useful as an indicator of potential. It can be used to screen students who could benefit from advanced learning opportunities, but should be used in that way only if such opportunities are matched with the child's strengths.

The Naglieri Nonverbal Ability Test (NNAT, Naglieri, 1997) is another nonverbal measure of intelligence that does not require children to answer verbal or quantitative

questions. The Naglieri has several advantages over the Raven's. It has been standardized on a sample of more than 89,000 K-12 children, and its psychometric properties are well documented. It has also been shown to correlate with achievement as measured by the Stanford Achievement Test. Similar percentages (about 2.5%) of White, Black and Hispanic children earn scores in the 98th percentile (Naglieri & Ford, 2003; Sattler, 1992).

There has been heated debate in the gifted education literature over the wisdom of and theoretical soundness of using nonverbal measures of ability to identify children for gifted programs (Lohman, 2005a; 2005b; Naglieri & Ford, 2003, 2005; see chapter 20 by Pfeiffer). Consensus seems to be that these tools should not be used as the primary measure of aptitude, but may be useful as supplemental tools to identify a child's areas of strength and potential to learn.

A reliable and valid method of identifying all kinds of giftedness in children whose characteristics keep them from performing well on traditional, static measures is dynamic assessment (Bolig & Day, 1993; Kirschenbaum 1998; VanTassel-Baska, Johnson, & Avery, 2002). Dynamic assessment is a diagnostic procedure that examines a child's ability to learn from experience. Lidz (1991) defined it as a "test-intervene-retest format" that provides a profile of abilities and deficits. It is a curriculum based approach to identification that has been the focus of federal grants (Baum, Cooper & Owen, 1997; Nielsen, 2002). In his description, Kirschenbaum said, "In dynamic assessment, the examiner provides scaffolded instruction that is either based on a standardized, hierarchic sequence of hints and prompts, or is more individualized, helping the student to complete the presented task, then records the effect of the assistance" (1998, p. 142). In contrast to static assessment's goal of a highly reliable, quantitative measure of abilities, the goal of dynamic assessment is to provide a qualitative picture of abilities and deficits and the effects of instruction. Dynamic assessment is not a substitute for static assessment, but it can be a very useful supplemental measure when trying to validate superior ability in children with learning problems. Dynamic assessment requires more collaboration between teachers and psychologists than most psychologists are accustomed to, but seems to be the approach that will be most supported in the years to come as RTI is essentially dynamic assessment over an extended time frame.

In summary, we can say that multiple screening methods are particularly important with twice exceptional children. The most common recommendation in the literature and one that is given broad support by gifted education experts is to provide the bright, learning disabled child with a learning environment that optimizes the ability and allows his or her latent giftedness to emerge.

Improving Identification of Twice Exceptional Children with Response to Intervention

Response to Intervention (RTI) is a model of dynamic assessment that improves the reliability of evaluation by using brief measures of target achievement skills to increase the number of times a child is assessed. This approach is implemented by the teacher who measures the student's knowledge and skills in specific academic domains. By pairing these multiple assessments with the teacher's targeted interventions, a child's underachievement can be operationalized as nonresponsiveness to instruction that most children respond to (Gresham, 2002).

RTI appears to address many of the issues that recur in relation to the assessment of different problems in children and adolescents (Achenbach, 2005). It provides for multiple stages of assessment, and allows for developmental differences, continuities and discontinuities. Children can be screened for characteristics associated with giftedness and for those associated with learning disabilities. RTI may be beneficial because it inhibits the premature diagnostic labeling for children's learning problems (Achenbach, 2005), and it promotes the integration of multi source data. Where risk for underachievement or potential for giftedness is identified, relevant interventions can be applied and progress monitored. Children are not formally identified as gifted, learning disabled, or both, until the final stages of the process.

RTI is not without its drawbacks, however. It requires high levels of collaboration for psychologists in non school settings, for example. And, since the marker for RTI is low achievement, the same problem that schools and families face now with getting a referral for a bright student whose achievement is grade level may persist. It remains to be seen how easy it will be for gifted children with learning disabilities to be referred for intervention before they reach college.

What RTI might mean for the identification of twice exceptional children will vary greatly from one school to another as each determines the markers for referral for intervention and as each operationalizes “nonresponsiveness to intervention.” Compton (2006) stated that it’s going to be important to operationalize who gets intervention, when they should get it, and for how long. “What do we mean by ‘unresponsiveness?’ Who decides? When? And How? Like other current efforts on raising achievement at present, the focus is on ‘a reasonable passing rate’” (p. 171). A number of experts in various content domains are weighing in with their views on what the benchmarks should be for referral for intervention, and for what constitutes “risk” (see Compton, 2006, for a review).

If, as happens now, schools refuse to refer for intervention students whose achievement falls in the average range but below what is expected for their ability level, then RTI will have little to no impact on improving accuracy of identification. However, given that RTI should free up resources, schools may be more willing to refer for intervention children whose achievement falls within the average range, but below what would be expected given their level of ability. Further, we may see more schools using the RTI model to refer children for advanced learning opportunities when there is indication that they may be gifted, especially in states where gifted education falls under special education law.

In conclusion, RTI models are favored over traditional approaches because:

- They have the best validity, reliability, and the strongest evidence base
- They don’t require the use of exclusionary criteria (especially emotional disturbance)
- They operationalize the concept of opportunity to learn
- They tie the concept of LD to intervention

Will RTI help shift the emphasis from remediation to talent development? Will it promote a strengths based approach over a deficit model? That remains to be seen. If the RTI model continues the emphasis on grade level achievement rather than potential

ability as a marker for learning problems, many twice exceptional children will continue to go unidentified and underserved.

Gifted Children with Emotional or Behavioral Disabilities

Most of the literature on twice exceptional children focuses on gifted children with specific learning disabilities. Other exceptionalities are less investigated and most studies focus on prevalence issues (Gallucci, Middleton, & Kline, 1999; Garland & Ziegler, 1999; Gath, & Tennes, 1972; Seeley, 1984). The consensus from the empirical literature is that rates of mood and behavior disorders are similar among high IQ children (for reviews, see Neihart, 1998, 1999, 2002a, 2002b).

The focus of studies on emotional problems in gifted children has primarily been on depression and suicide, although a few studies have also looked at anxiety. The broad consensus is that rates of depression and anxiety and suicide are no higher for gifted children as a group with the possible exception of young, creatively gifted writers and visual artists, who may evidence some psychological vulnerability to affective difficulties (Baker, 1995; Dixon & Shekel, 1996; Gust-Brey & Cross, 1999; Jackson, 1998; Kaiser & Berndt, 1985; Metha & McWhirter, 1997; Neihart, 1998, 1999, 2002). Given the high rates of comorbidity for mood disorders among children with learning problems generally (Fletcher, Francis, Morris, & Lyon, 2005), the frequent observation that twice exceptional children are more emotionally upset than expected, and the finding from Reis, McGuire and Neu (2000) that half of their sample of twice exceptional college students sought counseling for emotional problems, we should expect to see a higher incidence of emotional difficulties among twice exceptional children, and assess and monitor accordingly.

Morrison (2001) developed a profile of gifted students with emotional or behavioral disabilities based on clinical experience and the literature. In lieu of standardized measures of achievement, he recommended multiple criteria assessment including teacher recommendations, portfolio reviews, and observations to identify giftedness in this population. Osborne & Byrnes (1990) identified 8% of the students at

an alternative school as gifted based on this method. Morrison suggested that Functional Behavioral assessment and Epstein's (1999) *Behavioral and Emotional Rating Scale: A Strength Based Approach to Assessment* may be useful because they are comprehensive.

Gifted ADHD Children

ADHD has been the focus of several empirical studies on behavior disorders in gifted children (Chae, Kim, & Noh, 2003; Kalbfleisch, 2000; Kaufman & Castellanos, 2000; Kaufman, Kalbfleisch & Castellanos, 2000; Moon, 2002; Moon, Zentall, Grskovic, Hall, & Stormont, 2001). Three questions are addressed in these studies. In what ways are gifted ADHD children different from gifted children without the disorder and from other ADHD children? Are gifted children over diagnosed with ADHD? Does the research suggest any differences in intervention? These studies should be interpreted cautiously because their sample numbers are very small.

Stressing the difficulties that can arise in differentiating true attention deficits from the range of typical behaviors in gifted children, whose drive, intensity and perfectionism may be interpreted as pathology, several authors have suggested that ADHD may be over identified in gifted children (Chae, Kim, & Noh, 2003; Cramond, 1995; Baum, Olenchak & Owen, 1998; Webb et al., 2005). However, there is yet no data to support this speculation. Moreover, findings from national studies on ADHD suggest that the disorder is under treated more often than over treated in children nationally (National Institutes of Health, 1998). In their comparison of gifted Korean children with and without the disorder, Chae, Kim, and Noh (2003) suggested that gifted children may be rated inattentive and impulsive more often by parents and teachers because they are under challenged in the classroom and don't focus as well on tasks that are too easy, and because adults have unrealistic expectations for their behavior based on the advanced verbal abilities. Similarly, Cramond (1995) explained how the behavioral characteristics of high creatives are similar to those of ADHD and may be misinterpreted in gifted children.

Preliminary findings from empirical studies with very small n's tentatively suggest that gifted ADHD children may be more impaired than other ADHD children (Kaufman & Castellanos, 2000; Kaufman, Kalbfleisch & Castellanos, 2000), implying

that we may be missing gifted children with mild expressions of the disorder. Giftedness seems to mask ADHD in children and ADHD seems to mask giftedness because impulsivity and attention deficits lower test scores and interfere with academic performance. Baum, Olenchak & Owen (1998) and Moon (2002) recommended that children who failed to meet test score criteria for giftedness who were later identified as ADHD be retested. Since comorbidity is more often the norm than the exception with ADHD children (Pelham, Fabiano, & Massetti, 2005), twice exceptional children with the disorder, should also always be monitored for the development of additional behavioral or affective disorders.

There is some indication in the research that not all interventions recommended for ADHD children will be appropriate for gifted ADHD children. For instance, because gifted children prefer complexity, the common recommendation to shorten and simplify tasks and assignments may increase frustration and resistance in gifted ADHD children rather than decrease them. Also, decreasing stimulation may be counterproductive because gifted children as a group tend to prefer higher levels of stimulation. Parents may be resistive to medication for their twice exceptional child when they perceive that the child's high ability and the classroom setting have not been taken into consideration in the evaluation. Therefore, psychologists should be careful to ask about the child's educational placement and the level of challenge in the curriculum when conducting diagnostic evaluations.

Determining the best classroom fit can be challenge for gifted children with moderate to severe levels of ADHD because they are socially and emotionally immature relative to their agemates while typical gifted children exhibit advanced maturity (Neihart, 2003; Moon, Zentall, Grskovic, Hall & Stormont, 2001; Neihart, Robinson, Reis, & Moon, 2002). Gifted children need to learn with others with similar interests, abilities, and drive, but gifted children as a group tend to be more similar to children two to four years older than they are to agemates (Gross, 1994; 2004; Neihart, Robinson, Reis, & Moon, 2002). When placed with other gifted children, ADHD children may find themselves ill prepared for the social sophistication of their intellectual peers. Moreover, gifted children without ADHD may have little patience for the bright, immature child. Therefore, the gifted classroom may not be the best fit for every gifted ADHD child, but

challenging curriculum and access to intellectual peers must be provided for them to promote good achievement and adjustment.

Educational Placement

A controversial issue for many families and schools is where to place twice exceptional children. What is the best accommodation in the least restrictive environment? Upon hearing that their children are gifted, parents may press for placement in their school's gifted program, but many gifted programs are ill prepared to accommodate a child with moderate to severe learning or behavior problems. Resource room or remedial classes may provide the compensation strategies the child needs, but typically do not offer the advanced content the gifted child requires.

Perhaps the most common problem for twice exceptional children is that they are denied advanced learning options because of their limitations (Moon & Reis, 2004; Baum & Owen, 2004). Many school personnel make the child's learning problems the primary focus and assume that the child cannot do challenging work. The lack of challenge in the curriculum then contributes to a range of emotional and social problems for the child, further complicating their adjustment and academic success (Gross, 2004; Moon, 2002; Neihart, Robinson, Reis, & Moon, 2002). Psychologists must be prepared to assess the child's current placement and to make recommendations that provide the child with the best fit.

Several studies indicate that a shift in thinking about intervention is what is required to promote the optimal adjustment and performance of twice exceptional children. The emphasis needs to be on developing the child's talents while attending to the disability (Baum, Cooper & Neu, 2001; Baum, Cooper, Neu, & Owen, 1997; Moon & Reis, 2004; Nielsen, 2002; Nielsen, Higgins, Wilkinson, & Webb, 1994; Olenchak, 1994; Reis & Neu, 1994; Reis, McGuire & Neu, 2000; Reis, Neu, & McGuire, 1997). This is a paradigm change for which many educators are not well prepared.

The first line of intervention should provide a level of challenge appropriate to the child's areas of strengths and interests, while secondary lines of intervention provide remediation of deficits and training in compensation strategies. It is beyond the scope of

this chapter to recommend specific curricular strategies for twice exceptional children, but interested readers are referred to several excellent resources for more information (Baum & Owen, 2004; Nielsen, Higgins, Wilkinson, & Webb, 1994; Stewart, 2002; Weinfeld, Barnes-Robinson, Jeweler, & Shevitz, 2002).

Given the high percentage of twice exceptional students with emotional or behavioral concerns in some studies (Reis, McGuire & Neu, 2000; Reis & Neu, 1994), as well as the high comorbidity rates among children with learning problems generally (Fletcher, Francis, Morris, & Lyon, 2005), supportive interventions must also be provided to assist twice exceptional children with their emotional and behavioral concerns, regardless of their placement. The nature and effectiveness of various supports will naturally vary with the type of disorder the child is experiencing. Gifted children with Asperger's Syndrome, for instance, and gifted children with ADHD, both need assistance developing age appropriate social skills (Moon, 2002; Moon, Zentall, Grskovic, Hall, & Stormont, 2001; Neihart, 2000, 2001; Pelham, Fabiano, & Masseti, 2005), but they learn social skills in very different ways (Gray & Garand, 1993; Klin & Volkmar, 2000; Stewart, 2002).

Studies that have looked at twice exceptional individuals who succeed in college (Moon & Reis, 2004; Reis, McGuire & Neu, 2000; Reis & Neu, 1994; Reis, Neu & McGuire, 1997) also point to the importance of developing social and emotional tools. Their findings indicate that social and emotional competencies are the factors most strongly associated with achievement over time. Specifically, perseverance, self-regulation, and self-advocacy are three categories of skills associated with long term, favorable outcomes.

Providing Access to True Peers

The vast literature on resilience in children at risk consistently points to the value of supportive relationships in mediating the negative effects of adversity (Anthony & Cohler, 1987; Criss, Pettit, Bates, Dodge, & Lapp, 2002; Doll & Lyon, 1998; Luthar, 1991; Luthar, Cicchetti, & Becker, 2000; Miller, 2002; Garnezy & Rutter, 1983; O'Leary, 1998; Wilkes, 2002). Children who have positive peer connections have a lower incidence of emotional and behavioral problems (Berndt & Keefe, 1995; Birch & Ladd,

1997; Murray & Greenberger, 2006), and children who report strong feelings of connectedness to school report lower levels of emotional distress, suicidal ideation, violence, substance abuse. (Bagwell, Newcomb, & Bukowski, 1998; Murray, 2003). Students with learning disabilities, however are more likely to report lower attachments to school and to view school as an unsafe place. They're more likely to experience social rejection and less likely to rely on peers for social support than are students without disabilities (Murray, 2002; 2003). The true peers of gifted children are not age-mates, but others with similar interests, abilities and drive (Neihart, Robinson, Reis, & Moon, 2002). This is not surprising, given Hartup's (1996) conclusion from his review of the broad literature on children's friendships, that children tend to make friends with people who resemble themselves.

The academic benefits of peer ability grouping for gifted children are well documented (Colangelo, Assouline, & Gross, 2004; Gross, 1994; 2004; Kulik & Kulik, 1982, 1984, 1987, 1992; Rogers, 2004), but there is also indication that ability grouping has social and emotional benefits for some twice exceptional children as well (Neihart, in press).

The finding that peer relationships influence the social and emotional adjustment of children as well as their achievement is a common one in the developmental literature. Peer relationships contribute to adjustment and to academic performance (Buhrmester, 1990; Furrer & Skinner, 2003; Wentzel & Caldwell, 1997). Children who experience less peer acceptance tend to do less well academically than children who are accepted. In their study of two groups of sixth grade children, Wentzel and Caldwell (1997) observed that affiliation with a small, selected group of peers who interact with each other on a frequent basis was the most consistent predictor of grades over time, even when social and emotional factors are taken into account.

Of particular concern with twice exceptional children is the child's developmental level. As a group overall, gifted children are characterized by advanced maturity. They tend to be more similar to children two to four years older than they are to children their own age. In contrast, children with learning disabilities, ADHD, autism spectrum disorders, etc., tend to be delayed by as much as one third of their chronological age. They are more similar, socially or emotionally, to children two to five years younger.

How wise is it to place such a child in a classroom where the social milieu is advanced by several years? How well will a gifted child with learning problems be able to function within the social demands of a more sophisticated peer group? How well will the peer group that will receive the child accept a classmate who is more immature? These are some of the questions that should guide individual placement decisions. There is no formula we can apply to all twice exceptional children.

One of the conclusions across the many studies of risk and resilience in children and of children's social support networks is that stress is better negotiated when children have friendship support. It's not enough that children get along with their classmates, they must have access to people who can become their friends.

The Acceleration of Twice Exceptional Children

Twice exceptional children must have the opportunity to take advantage of high level learning options. They require an appropriate level of challenge and access to others with similar interests, abilities, and drive (true peers). One of the most effective interventions for meeting gifted children's academic, emotional, and social needs is academic acceleration (Colangelo, Assouline, & Gross, 2004).

More than a hundred studies have established that acceleration options, especially grade skipping, early kindergarten enrollment and early college admission, are among the most effective programming interventions for high ability youth when students are carefully selected (for reviews, see Colangelo, Assouline & Gross, 2004; Moon & Reis, 2004; Neihart, in press; Robinson, 2004; Rogers, 2004). Sadly, the common characteristics of twice exceptional children lead teachers to refer them more often for grade retention than for grade acceleration (Reis, Neu & McGuire, 1995), even though the empirical research suggests the latter would benefit them more (Moon & Reis, 2004).

The Templeton report (Colangelo, Assouline & Gross, 2004) is an elegant summary of the empirical research on academic acceleration of high ability students. Its publication brought to light the demonstrated effectiveness of acceleration options in meeting the academic, social, and emotional needs of gifted children. Psychologists in clinical settings may be less familiar with the value of this intervention. Though grade skipping may not be the best option for many twice exceptional children, acceleration

within their domain of strength (subject acceleration) can by a highly effective means of addressing their needs for intellectual challenge and access to true peers when candidates are carefully selected (Moon & Reis, 2004).

The Iowa Acceleration Scale (IAS) is an effective tool developed to guide such decisions (Assouline, Colangeo, Lupkowski-Shoplik, Lipscomb & Forstadt, 2003). It is especially helpful in discussions about grade skipping and early entrance to kindergarten, decisions about which parents and educators often have strong feelings and opinions. Using this standardized, well researched tool helps minimize the emotionality of the decision making process, and grounds the discussion on the relevant issues of acceleration as indicated by the empirical research. Many school districts have this inexpensive tool on hand.

Both parents and two teachers complete the instrument, rating the child on items that fall into one of 10 categories, including academic ability, attitude toward learning, academic self-concept, developmental factors, and interpersonal skills, among others. The averaged rankings yield candidacy ratings that indicate the child is either an excellent, good, or marginal candidate for acceleration. Readers are directed to the manual for a thorough discussion of the instrument and the research supporting its use (Assouline, Colangeo, Lupkowski-Shoplik, Lipscomb & Forstadt, 2003).

Summary

Twice exceptional children are those with superior ability in one or more domains whose achievement in one or more academic areas is significantly below what would be expected for their ability level. They are found in all racial and ethnic groups and across all socioeconomic levels. Though the empirical research about them is only 25 years old, and is mostly descriptive, it yields considerable pragmatic guidance regarding identification, educational placement, and supportive interventions for these children.

Regarding identification of learning problems in gifted children, psychologists should be aware that there is solid evidence that reliance on profile analyses or intraindividual discrepancy models of assessment for identification of learning disabilities in children is statistically flawed and its use is even more inappropriate for high ability children than it is for the general population. A number of factors can depress

achievement in gifted students, learning disabilities being only one of many. Practitioners should exercise caution and good clinical judgment when interpreting test data, especially in regard to reliance on normative tables that may not apply as well for gifted populations.

The current recommendation is for curriculum based dynamic assessment. Standardized individual achievement and intelligence tests should still be used, but never as the sole criterion and ideally, as a supplement to some type of dynamic assessment. Out of level group achievement tests like the SAT may be especially helpful in identifying giftedness in some disabled children. These methods will require significantly greater collaboration among parents, teachers, and psychologists, but should yield fewer false positives and more effective and efficient interventions.

However, dynamic assessment approaches may prove to have little value in practice if the benchmark for referral of high ability children continues to be low achievement relative to age rather than to ability. Gifted children's achievement should be evaluated relative to mental ability, otherwise, many twice exceptional children will be missed, and their learning difficulties will become entrenched.

Recognizing superior ability in identified disabled children also should involve multiple assessment methods, including individual measures of intelligence and achievement as well as authentic assessments in domain specific tasks. Portfolios, dynamic assessment methods, teacher rating scales, and self and parent reports have all been reported in the literature to be useful. In addition, tests of nonverbal reasoning ability like the Naglieri or the Raven's have been demonstrated to identify superior intellectual ability in children whose deficits inhibit their performance on verbal measures. A reliance on static, standardized measures of achievement or aptitude will miss many children, especially those of color or from disadvantaged socioeconomic backgrounds. Ideally, forms of dynamic assessment, in which children are provided with authentic opportunities to demonstrate their strengths, are warranted.

The empirical research to date suggests that the best long term outcomes are achieved when the primary focus of intervention is on developing talent while a secondary emphasis is on remediation and compensation strategies, and when the child is helped to develop social and emotional tools, especially those related to developing a will

to succeed (perseverance), self regulation, and forging relationships (self-advocacy and social connections). Too often in school the focus of instruction is on their deficits, and twice exceptional children are held back from advanced learning opportunities. In response to their growing awareness of the needs of these children, some large school districts have integrated gifted and special education services and developed differentiated programs for twice exceptional children. A focus on talent development appears to minimize problems with social and emotional adjustment and to yield better long term outcomes.

There is less data about emotional and physical disorders in gifted children than about specific learning disabilities, but what there is suggests that significant emotional difficulties are present in many more twice exceptional children than among gifted children and average ability children generally. Mood disorders in particular seem to be relatively common. Twice exceptional children typically have comorbid conditions that require counseling or behavioral interventions to assist with self-regulation and interpersonal skills. These should also be addressed on their learning plans.

Psychologists can be helpful to schools and families when decisions about educational placement are being made when they remember that the best available research indicates these children must have the services gifted children require as well as educational support and instruction in compensation strategies. Poor outcomes are more generally seen when schools fail to provide the intellectual challenge, and access to true peers that twice exceptional children require. Such a fit can be obtained a number of ways, but it doesn't typically happen in a special education resource room. Differentiated instruction in the regular classroom in addition to placement in the gifted program may be sufficient for some (Brody & Mills, 1997), while others will require some form of acceleration. The most appropriate placement will vary with the child's developmental level, degree of giftedness (moderate or profound), and type of disabilities. Psychologists should remember that twice exceptional children may face significant difficulties with social adjustment when ability grouped if accommodations are not made for their disabilities (Neihart, in press).

There is a sizeable body of empirical research investigating the role of interpersonal factors in children's achievement and school adjustment, and much of it has

focused on the influence of peer relations in the classroom. These studies concluded that there is a relationship, though not necessarily a causal one, between peer rejection and poor school adjustment, lower aspirations and achievement, more behavioral difficulties, and even adult adjustment. Investigators tend to agree that friendship quality and quantity does not cause certain outcomes, but more likely play a role in mediating the risk factors associated with negative developmental outcomes. This view is consistent with the vast literature on children's resilience that repeatedly points to the essential role social supports play in long term positive outcomes for children (Doll & Lyon, 1998; Luthar, 1991; Luthar, Cicchetti, & Becker, 2000; Miller, 2002; Garmezy & Rutter, 1983).

There is limited research on the nature of gifted children's friendships, but what is available indicates that the twice exceptional child's need for access to true peers must be met in order to increase the child's chances for a positive school experience, for good overall adjustment, and for outstanding achievement. Psychologists can influence schools and families to ensure that this vital need is met.

There remains the practical dilemma of what to do with gifted students whose achievement, though lower than expected given their abilities, falls at grade level or slightly below. Though both the federal definition and the clinical definition of learning disabilities refers to low achievement relevant to ability, that is not the marker that's used in practice to identify children at potential risk.

Gifted education experts maintain that gifted children whose learning hovers around grade level but is below what would be expected given their ability should be evaluated for a possible learning disability. Others, however, argue that relative underachievement is not a sufficient risk marker for learning disabilities. The question of whether an LD label is justifiable for gifted children with grade level achievement is one that will continue to be debated (Gordon, Lewandowski, & Keiser, 1999). Meanwhile, practitioners may continue to find themselves identifying learning problems in children whose schools will not provide them with special educational services because the child's achievement is not significantly below what's expected for his or her age. The movement to use evidence based assessment (EBA, Achenbach, 2005) will improve the accuracy of identification and measurement of disorders in children and adolescents.

There are many smart children in this country who are not considered gifted because their behaviors and achievement don't fit the stereotyped view of gifted children. Their superior ability can be recognized when adults realize that gifted children with learning or behavior problems do exist and that they can be identified and served by multiple measures.

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Table 1

Like other Gifted children

Like other Learning Disabled Children

<ul style="list-style-type: none">• Strong conceptual thinkers• Good problem solving skills• Prefer novelty and complexity• Advanced in abstract reasoning ability• Perfectionism – high expectations of self and others• Intense curiosity• Seeks information, good knowledge base• High levels of energy and alertness• Creative thinking• Unusual levels of sensitivity• Sees patterns and connections in ideas, events, and objects• Keen sense of humor• Superior critical thinking skills	<ul style="list-style-type: none">• Disruptive in class• Difficulty with tasks stressing memory or percept• Careless or messy• Poor academic self-concepts• Difficulties with emotional regulation• Social immaturity• Difficulty with automatic skills like sequencing, organization, and writing speed
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