CHAPTER 37

# ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER IN GIFTED STUDENTS

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In the fictional *Harry Potter* series, one of the tools in Harry's arsenal against the evil Lord Voldermort is his cloak of invisibility. With this cloak, Harry is able to walk the halls of Hogwart's School of Witchcraft and Wizardry unseen by those around him (Rowling, 1997). This phenomenon occurs daily in hallways and classrooms of schools all across the country, though not for the greater good, as twice-exceptional students' gifts, and even their challenges, may go unrecognized by teachers, counselors, and administrators. Moon and Reis (2004) asserted that because it is outside the norm, giftedness is, by definition, exceptionality. For students to be considered *twice exceptional*, they must display characteristics associated with giftedness and with one or more learning or behavioral disorders (Baum & Olenchak, 2002; Baum, Olenchak, & Owen, 1998; Moon & Reis, 2004). Much like giftedness, varying definitions of twice-exceptionality exist. In 2009, a joint task force consisting of representatives from the National Research Center on the Gifted and Talented, the Association for the Education of Gifted Underachieving Students, and the Bridges Academy developed a comprehensive definition that encompassed the identification and servicing of this unique population. The National Association for Gifted Children, Special Populations Special Interest Group later endorsed the following definition:

> Twice-exceptional learners are students who have evidence of the potential for high achievement capability in areas such as specific academics; general intellectual ability; creativity; leadership; and/or visual, spatial, or performing arts AND also have evidence of one or more disabilities as defined by federal or state eligibility criteria such as specific learning disabilities; speech and language disorders; emotional/behavioral disorders; physical disabilities; autism spectrum; or other health impairments, such as ADHD.

Identification of twice-exceptional students requires comprehensive assessment in the areas of giftedness and disability, as one does not preclude the other. Educational services must address the high achievement potential as well as the deficits of this population of students.

Twice-exceptional students require differentiated instruction, accommodations and/or modifications, direct services, specialized instruction, acceleration options, and opportunities for talent development. Twice-exceptional students require an individual education plan (IEP) or a 504 accommodation plan, complete with goals and strategies that enable them to achieve growth at a level commensurate with their abilities, develop their gifts and talents, and learn compensation skills and strategies to address their disabilities. This comprehensive education plan

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> must include talent development goals. (Baum, 2012, paras. 4–6)

It has been estimated that there are more than 385,000 twice-exceptional children in schools throughout the United States (Assouline, Colangelo, VanTassel-Baska, & Lupkowski-Shoplik, 2015). This number can be difficult to determine because problems arise for many students when teachers, special education professionals, and administrators focus on children's weaknesses (e.g., learning or behavioral disorders) rather than on their strengths (e.g., giftedness), and use this as evidence that these children cannot be gifted (Assouline, Nicpon, & Huber, 2006; Baum, Cooper, & Neu, 2001; Schultz, 2012). Therefore, the actual number of twice-exceptional students may be much greater than this estimate.

According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM–5*; American Psychiatric Association, 2013), attention-deficit/hyperactivity disorder (ADHD) can be diagnosed on the basis of the level of inattentiveness and/or hyperactivity–impulsivity exhibited within an individual in more than one setting, resulting in one of three subtypes: ADHD, predominately inattentive presentation; ADHD, predominately hyperactive–impulsive presentation; or ADHD, combined presentation. Further, the *DSM–5* reports estimated prevalence rates for ADHD diagnoses requiring special services in the United States to be between 5% and 13% of school-age children. Additional estimates report ADHD prevalence at 8% to 20% of community samples worldwide, with an annual average of 9% of children age 5 to 17 years (e.g., Akinbami, Liu, Pastor, & Reuben, 2011). Often, clinic-referred samples are more likely to represent children with co-occurring disabilities and lower IQ (Zentall, 2006); who are three to seven times more likely to be suspended or expelled, retained, and/or provided with special education services (LeFever, Villers, Morrow, & Vaughn, 2002); and who have significantly higher dropout rates and chances for failure in school (Barron, Evans, Baranik, Serpell, & Buvinger, 2006) than nonclinical, school-based samples.

Students who are gifted with ADHD face unique challenges as they negotiate their academic and social worlds. Although the exact number of students who are identified as gifted with ADHD is unknown, researchers have shown that IQ scores are distributed normally in children with ADHD (Kaplan, Crawford, Dewey, & Fisher, 2000); suggesting that there is no reason to think that there are any more or any fewer instances of ADHD in the gifted population than in the general population. Pfeiffer (2013) warned of the possibility of a missed diagnosis in children who are gifted with ADHD stating, "that the student's intellectual gifts can actually serve to mask or conceal from teachers or parents the presence of an actual disability" (p. 126). He also pointed out that it is equally possible for the presence of a disability to mask the presence of giftedness and in either instance, the child may not be identified as twice exceptional. The result for these children is time spent in school with few educators recognizing either their talents or their challenges.

## HISTORICAL AND CONTEMPORARY PERSPECTIVES

The first scientific mention of an ADHD-like diagnosis occurred in 1902 when British pediatrician Sir George Fredric Still identified a "defect of moral control" in some children (Barkley, 2006; Conners, 2000). This defect was a result of a lack of "control of action in conformity with the idea of the good of all" (Still, 1902, p. 1008). However, it was not until the 1968 release of the *DSM–II* that hyperkinetic impulse disorder was officially recognized in the United States (American Psychiatric Association, 1968). This name was later changed to attention deficit disorder in 1980, largely because scientists believed that the presence of hyperactivity was not necessarily a common symptom, but rather a subtype, of the disorder (Holland & Higuera, 2015). With the revision of the *DSM–III*, the disorder was officially identified as ADHD (American Psychiatric Association, 1987). In the 1997 reauthorization of the Individuals With Disabilities Education Act, ADHD was formally recognized as an "other health impaired" condition, making a student diagnosed with this condition eligible for special education services in schools (United States Department of Education, 1999). It was also during this time that psychologists

came to understand that ADHD was not just a childhood disorder that disappeared over time, "but rather a chronic, persistent disorder remaining into adulthood in many cases" (Lange, Reichl, Lange, Tucha, & Tucha, 2010, p. 252). Finally, Lange et al. (2010) cautioned that researchers have been unable to locate a unique genetic marker for ADHD in clinical samples. They go on to point out that the objective diagnoses in community samples of school-age children with ADHD may not always be reliable because of discrepancies between parent and teacher ratings; they suggested, "the issue of the clinical entity of ADHD remains therefore an open question that requires further investigation" (p. 254).

In recent years, the argument has been made for the possible misdiagnosis of ADHD in students who should have instead been identified as gifted (e.g., Baum & Olenchak, 2002; Webb et al., 2005); however, no empirical evidence exists regarding the frequency that this may occur. Foley-Nicpon, Allmon, Sieck, and Stinson (2011) reviewed the 17 empirical studies related specifically to giftedness and ADHD that were conducted over a 20-year span. Shaw and Brown (1991) conducted the earliest study cited by Foley-Nicpon et al. In this study, Shaw and Brown reported that elevated scores on behavioral rating scales "undoubtedly would influence test performance" (Foley-Nicpon et al., 2011, p. 9). Foley-Nicpon et al. noted that these researchers also associated stable characteristics, such as high figural creativity, with the combined presence of high intelligence and ADHD. The authors also looked at a qualitative study of three boys with ADHD conducted by Cramond (1994) who found that these boys exhibited high levels of creativity when given an assessment of divergent thinking. Finally, Foley-Nicpon et al. (2011) examined Baum et al.'s (1998) qualitative case study finding that environmental influences could result in inattentive behaviors when taking standardized assessments, posing difficulties in recognizing high ability. Though this review identified only three empirical studies conducted in the 1990s, Foley-Nicpon et al. found that interest in this population increased in more recent years. This is most likely due to the fact that ADHD has become the most common behavioral disorder identified in children (Neihart, 2003).

## RESEARCH REVIEW

Characteristics for students with specific learning and/or behavioral disabilities can be very distinct. For students diagnosed with ADHD, the characteristics of the disorder often share strong similarities with those frequently associated with giftedness. Fugate, Zentall, and Gentry (2013) found when compared with non-ADHD peers, gifted students with ADHD had higher levels of creativity, a trait often associated with giftedness. Findings such as these have confirmed concerns from many scholars that such similarities could lead to misdiagnosis of ADHD (Baum & Olenchak, 2002; Baum et al., 1998, Webb et al., 2005). Table 37.1 provides a list of a few common academic and social emotional characteristics often associated with students who are gifted, students who have been diagnosed with ADHD, and students who are gifted with ADHD. As shown, students who are gifted and have ADHD face challenges specific to their dual exceptionality, placing them at risk for poor self-image and underachievement. These challenges require recognition and support to help students with social skills and academic attention to avoid negative consequences that can adversely affect their lives.

Additionally, researchers have found that students who are gifted with ADHD have lower working memory, a common occurrence in children with ADHD (for review, see Kofler, Rapport, Bolden, Sarver, & Raiker, 2010), than students who are gifted without ADHD (Fugate et al., 2013). Furthermore, the manifestation of ADHD can result in a failure to maintain attention over time and an inability to suppress nonrelevant information, suggesting that these students would have problems in higher-order thinking (Zentall, 2006). Additionally, common characteristics affecting the academic performance of students who are gifted with ADHD include a lack of organizational skills (Nielsen, 2002), poor short-term memory and metacognitive skills (Hughes, 2011), and the inability to maintain attention because of impulsive tendencies (Zentall, Moon, Hall, & Grskovic, 2001). However, when compared with their peers, gifted students with ADHD displayed higher levels of creativity (Cramond, 1994; Fugate et al., 2013), told more

TABLE 37.1

**Comparison of Common Characteristics of Gifted, ADHD, and Gifted With ADHD Students**

| Domain | Students who are gifted | Students with ADHD | Students who are gifted with ADHD |
|---|---|---|---|
| Academic | High level of concentration | Easily distracted during repetitive tasks; difficulty completing tasks independently | Difficulty shifting attention when focused on high interest activities; difficulty completing tasks because of broad areas of interest |
| | Learns easily | Difficulty following directions and sustaining attention to routine tasks | Easily bored with routine tasks; underachievement |
| | Enjoys learning | Easily frustrated by academic tasks, especially mathematics facts | Easily frustrated by difficulties verbalizing academic responses |
| Social–emotional | Able to get along with others of similar IQ | Ease at initiating but difficulty maintaining friendships | Difficulty developing close relationships; loner |
| | Behaves maturely | Poor judgment when interacting with others; overly emotional | Emotionally intense |
| | Keen sense of humor | Spontaneous; can be fun or silly | Displays humor at inappropriate times |
| | Good organizational skills | Disorganized and careless | Disorganized and careless |
| | Self-confident | Low self-esteem and self-efficacy | Critical of self and others; poor self-image |

*Note.* ADHD = attention-deficit/hyperactivity disorder. Data from Baum and Olenchak, 2002; Cramond, 1994; Davis, Rimm, and Siegle, 2011; Moon, Zentall, Grskovic, Hall, and Stormont, 2001; Nielsen, 2002; Renzulli and Reis, 2009; Zentall, Moon, Hall, and Grskovic, 2001.

creative stories with novel themes (Zentall, 1988), used more nonverbal information during problem solving in response to high states of arousal (e.g., when watching videos and playing games), and contributed to higher percentages of correct problem solutions in cooperative groups (Kuester & Zentall, 2011).

Students with ADHD also have been found to have cognitive processing problems that may lead to IQ scores that are lower than their non-ADHD peers at similar ability levels (Hughes, 2011; Nigg, 2009). Because these scores may not truly reflect the student's potential, educators may frequently fail to recognize giftedness in ADHD students (Hughes, 2011; Moon, 2002; Silverman, 2002). Conversely, the presence of giftedness often delays the age at which ADHD is recognized, so the higher the IQ, the later an ADHD diagnosis tends to occur (Moon, 2002). This issue may be resolved through the use of neurological assessments, such as the Conner's Continuous Performance Test (Conners, 1994), which have proven effective in the identification of ADHD symptomology (Epstein et al., 2003).

In addition to academic problems, gifted students with ADHD face unique social–emotional challenges. In 1988, Baum and Owen conducted a study of 112 students who were gifted and/or had learning disablities. They reported that the twice-exceptional students had a tendency for disruptive behaviors and often achieved at lower levels than their peers, leading to feelings of inadequacy and low self-esteem. Foley-Nicpon, Rickels, Assouline, and Richards (2012) found that gifted students with ADHD had lower self-esteem and lower overall happiness than their gifted peers without ADHD. These findings, combined with other characteristics of ADHD, such as emotional intensity (Moon & Reis, 2004), blaming others for their failures (Baum & Owen, 2004), and inability to control verbal and/or physical impulsivity (Moon, Zentall, Grskovic, Hall, & Stormont, 2001) can lead to a feeling of alienation from same-age peers. The following quote summarizes the social difficulties experienced by many twice-exceptional students.

> I believed I didn't have friends because I was different . . . I didn't think the way most kids thought. I didn't care about a lot of the things that they did, and I would spend a lot of time alone because I was comfortable alone, and when you go out at recess walking alone being comfortable

> by yourself, people start to think you are strange. So that made the cycle even worse. (Renzulli & Reis, 2009, p. 186)

Prior researchers have estimated that the identification of boys with ADHD outpaces girls by a rate of 4:1 (Bauermeister et al., 2007; Biederman et al., 2005; Cuffe, Moore, & McKeown, 2005). Ohan and Johnston (2011) suggested that a reason for this disparity in identification might be as girls mature, they are less likely to exhibit hyperactive behaviors that would suggest ADHD to teachers. However, the academic and social pressures faced by girls are distinctly different than those faced by boys, particularly in middle- and high-school years—pressures that can be exacerbated by giftedness and ADHD (Blachman & Hinshaw, 2002; Eby & Smutny, 1990; Fugate, 2014; Fugate & Gentry, 2015; Greene et al., 2001).

Although a limited number of studies exist of students who are gifted with ADHD that are inclusive of both sexes (e.g., Antshel et al., 2007; Fugate et al., 2013), until recently there has been no work that addresses the needs of girls specifically. Fugate (2014) conducted a collective case study of five gifted girls with ADHD in a variety of educational settings (i.e., public, private, and charter). Academic, motivational, and social emotional themes emerged from this study related to support acquired from family, teachers, and close friends, as well as their own perseverance to succeed despite the challenges that they faced because of their ADHD.

A unique finding from this study was that these gifted girls with ADHD could establish and maintain long-term relationships with a small group of peers. These girls reported that they sought others who were like them behaviorally, building friendships on the basis of trust with a group of peers who withheld judgment, let them be who they were, and provided them with support and encouragement. This finding contradicted those of other researchers regarding the difficulties girls with ADHD have in maintaining friendships (e.g., Grskovic & Zentall, 2010; Owens, Hinshaw, Lee, & Lahey, 2009), the assertions of the influence of like-IQ peers for gifted girls (e.g., Kerr, Vuyk, & Rea, 2012), and the idea that gifted girls must choose between being smart or having friends (e.g., Reis, 1987; Silverman, 2005). Rather, being gifted and having ADHD resulted in additional strengths and unique challenges for these girls.

These gifted girls with ADHD also reported positive and negative effects on their academic achievement and motivation. They were more likely to associate feelings of confusion, tension, and shame with time spent at school than when they were outside of the school setting. Fortunately, although these girls reported frequent instances of low motivation as a result of boredom and distractibility, this was mitigated when they interacted with teachers who they felt understood they were gifted with ADHD and supported their needs (Fugate, 2014; Fugate & Gentry, 2015). This finding supports the research of Gentry, Steenbergen-Hu, and Choi (2011) who noted the importance of teachers who connected with their gifted students.

Finally, aware of the challenges that they faced because of their ADHD, these twice-exceptional girls were able to develop compensation strategies that helped them achieve, socially and academically. Ultimately, it may be that the combination of gifted and ADHD traits gave these girls the confidence to be themselves while building connections with a small group of similar peers (Fugate, 2014). These girls were also aware of the academic challenges that they faced as a result of their ADHD. They were committed to working hard to overcome these challenges. Additionally, these girls also relied on physical and/or creative outlets (e.g., sports, dance) as a compensation strategy for self-regulation, helping them refocus and center (Fugate, 2014; Fugate & Gentry, 2015).

## PRACTICE AND POLICY ISSUES

As previously discussed, there is no way of knowing the exact number of twice-exceptional students in schools in the United States because no formal system of identification exists for these students (Foley-Nicpon et al., 2011). These twice-exceptional students typically experience identification issues as a result of the masking effect (McCoach, Kehle, Bray, & Siegle, 2001; Pfeiffer, 2013). This occurs when students' gifts are masked by their disorder,

and their strengths are never addressed, or when their disorder is masked by their giftedness. Additionally, their challenges are never addressed, and their gifts and disorders mask each other causing them to appear "average" (Baum & Olenchak, 2002; McCoach et al., 2001).

Baum and Olenchak (2002) found it rare for assessments for gifted identification to be made once ADHD had been diagnosed. Even when giftedness and ADHD were identified, these students still had significantly more academic and social–emotional difficulties, as well as more co-occurring conditions, than IQ-equivalent peers (Antshel, 2008; Moon et al., 2001; Zentall et al., 2001). Similar to students who were diagnosed with ADHD and who had average IQs, gifted students with ADHD were reported to have been retained more often, performed poorly on standardized tests, had higher rates of mood and anxiety disorders, and higher rates of behavior disorders when compared with gifted peers without ADHD (Antshel, 2008).

With the potential of over 385,000 twice-exceptional students (Assouline et al., 2015), it is important that schools implement a systematic approach to identify and service these unique learners. Nielsen (2002) proposed that schools develop a multidisciplinary task force with the goals of advocacy and awareness of twice-exceptional students, establishing and overseeing a process of identification, and developing programming options that meet the unique needs of these diverse learners. The process Nielsen recommended closely follows the definition of twice-exceptionality proposed by the National Research Center on the Gifted and Talented, the Association for the Education of Gifted Underachieving Students, and Bridges Academy (Baum, 2012), which addresses who are these twice-exceptional learners, how they should be identified, and the need for services to be approached from a strength-based perspective that "focus[es] on developing the talent while compensating for the disability" (Renzulli & Reis, 2009, p. 187).

Nielsen (2002) also proposed that members of this multidisciplinary task force include teachers of general education, special education, and gifted education, as well as any special education professionals responsible for the testing and identification of students (e.g., diagnostician). To meet the first goal of advocacy and awareness, the task force would seek out professional development opportunities that would provide all educators—teachers, administrators, diagnosticians, and paraprofessionals—with the necessary tools to recognize the characteristics associated with gifted students and those who are twice exceptional, and the ways to differentiate instruction to meet their needs.

To address issues of identification, Nielsen (2002) suggested that the task force conduct a careful examination of the records of students identified with learning and/or behavioral disorders. Students who have an IQ of 120 or above should be considered for further examination. At the same time, records of students identified as gifted should also be examined for any indications of a learning or behavioral difference that might need to be evaluated for special education services. Nielsen advised that during this records examination process it is important to be aware of any discrepancies in performance on abilities tests and academic performance. Likewise, extreme variation in scores—lowest and highest scores—on individual subtests should be carefully examined; twice-exceptional students often have deficiencies in coding and digit span tests, as well as auditory and/or visual processing delays, resulting in discrepant subtest scores and full-scale scores that do not reflect the ability of the student. It should be noted, however, that Gathje, Lewandowski, and Gordon (2008) cautioned that such impairment measures were only moderately correlated with ADHD symptomology and that, "symptoms and impairments are related yet distinct constructs that should be measured independently" (p. 529). Finally, Nielsen stressed the importance of using multiple data sources in the identification process for these students. Because gifted students with ADHD have been found to possess strengths in creativity (Cramond, 1994; Fugate et al., 2013), using a creativity measure, such as the Torrance Tests of Creative Thinking (Torrance, 2008), may provide vital information when identifying these students.

Finally, Nielsen (2002) stated that a continuum of service options must be available to meet the

unique needs of twice-exceptional learners. This continuum must recognize that these students are gifted first, identifying and enhancing their strengths initially, then addressing the challenges unique to their disability (Fugate et al., 2013; Hughes, 2011; Nielsen, 2002). For gifted students with ADHD, this may mean emphasizing creativity as a pathway to learning (Fugate et al., 2013). One way to accomplish this is with problem-based learning, which has been suggested as appropriate for twice-exceptional students because it allows them to engage in authentic learning experiences (Dunlap, 2005). These experiences could involve content area problem solving that includes opportunities for creative expression, allowing the learner to express themselves with unique products such as cartoons, role-playing, blogs, and/or videos. Additionally, an opportunity for gifted students with ADHD to create products for various audiences provides them with a different occasion to think divergently and express their creativity (Fugate et al., 2013). When gifted students with ADHD are allowed to create products related to topics of interest to them, the opportunities increase for school to become an exciting and intellectually engaging environment.

## FUTURE CONSIDERATIONS AND DIRECTIONS

More work needs to be done to address the needs of gifted students with ADHD, such as new and emerging neurological and neuropsychological diagnostic procedures in the identification of ADHD, as well as more effective interventions in school. Although many of the characteristics related to twice-exceptional learners are unique to the co-occurring disability, one common characteristic that seems to span all areas of disabilities among twice-exceptional students is the capability to develop compensation strategies for their area(s) of challenge (Nielsen, 2002). Refining understanding of these compensation strategies as developed and applied by students with differing exceptionalities can help professionals as they work to support students who are twice exceptional. Further, to enable educators to understand and respond to the diverse needs of gifted students with ADHD, it is important that researchers add to the extant literature regarding this population, informing teacher- and counselor-preparation programs and providing practitioners with information regarding the experiences of all twice-exceptional students. Finally, the results of future research examining the coping mechanisms used specifically by girls who are gifted with ADHD will continue to build on this foundation and help teachers, counselors, parents, and the girls themselves navigate the challenges and opportunities of the combination of these two conditions.

## SUMMARY AND CONCLUSIONS

Students who have ADHD and are gifted face specific sets of academic and social challenges as discussed in this chapter, and they run the risk of not being identified as either gifted or as having ADHD because each exceptionality masks the other. Educators frequently work to fix perceived deficits while ignoring talents inherent in this combination of exceptionalities (Assouline et al., 2006; Baum et al., 2001; Schultz, 2012). Not enough is known about students who are gifted with ADHD, including subpopulations of girls, different age groups, and even its prevalence among children, youth, and adults in general. This leaves much room for future research in understanding the nature, occurrence, and characteristics of this dual manifestation. ADHD in concert with giftedness holds promise for creative thinking and innovation. On the basis of the limited research in which giftedness and ADHD (e.g., Cramond, 1994; Fugate et al., 2013) have been tied to higher levels of creativity, an important and optimistic conclusion is that ADHD itself might be better viewed as a gift than as a deficit. As Fugate and Gentry (2015) suggested, it might be better viewed as "attention-divergent/hyperactivity giftedness" and in doing so, the invisibility cloak can be lifted and attention paid to the strengths of individuals who possess this dual diagnosis. Paying attention to strengths might then serve to enhance creativity and innovation that is inherent within these twice-exceptional individuals, lest this creativity and innovation remain dormant and underdeveloped.

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