Chapter 16
"He is not Working up to Potential": Atypical Attention Deficit Hyperactivity Disorder with Executive Weaknesses

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Robert was referred for neuropsychological evaluation because of concerns regarding his academic achievement. In fact, he had reportedly demonstrated inconsistent motivation in school for quite some time. In early elementary school, he had not shown any difficulty acquiring basic academic skills. However, he was occasionally distractible or inattentive. In fifth grade, his parents become concerned about his relationship with his teacher. They said Robert clashed with his teacher, developed more negative emotions about school, and struggled with classroom performance. He began therapy with a social worker, which appeared to enhance his coping skills, and he showed some improvement in the classroom, but his academic performances continued to be variable. He would "freeze" on certain tests, and his mother described him as learning faster when things were presented in a song or pattern.

As Robert progressed through school, he appeared smart but did not seem to care about school, was nonchalant, and would not work to his potential. He had difficulty attending at times, inconsistently turned in assignments (even if he completed them), and would not complete work even if he was able to do it. In the year before he was referred for an evaluation, Robert completed ninth grade in a new school. The transition to the new school was difficult for him, as he had to make new friends while also adjusting to the high school environment. He did well initially, but his grades declined over the course of the year. As a result, he failed two math classes and was placed in summer school. The summer school teacher quickly indicated that Robert knew all of the mathematical content of the class, and the teacher reported being confused as to why he had not passed the class in the first place. Robert's mother became increasingly concerned about his academic difficulties. She began to realize how much assistance with structure she gave him in the home environment, including help with planning and lists. She decided that it was time for a professional opinion about his development.

When Robert's mother met with the neuropsychologist, she described him as a good kid who was generally happy but had some difficulty expressing his emotions. While she highlighted his difficulties with organization, she also described him as

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laid back, with no overt anxiety or depression (other than situational and generally related to normal adolescent issues). Robert had never been defiant with his parents or had any problems with his conduct. He also had no sleep problems. Reportedly, he had recently become interested in his physical health, and he was active in exercising and remaining fit in hopes of joining his high school football team. His interest in football had also driven his decision not to use alcohol or other drugs.

Robert's mother described her pregnancy and delivery with him as normal and without complication; however, he was delivered 2 weeks late. He was described as an "easy-going and funny" infant, who developed into a good kid. He met all of his developmental milestones within normal limits. Starting at approximately 4 years of age, he developed chronic ear infections, which were treated with adenoidectomy and tonsillectomy, as well as placement of ear tubes. At this time, he was diagnosed with asthma and prescribed an inhaler to use on an as-needed basis, which he continued to use at the time of evaluation. He also had seasonal and environmental allergies, for which he was prescribed medications. Robert experienced a concussion while playing football last year, following helmet-on-helmet contact. He did not lose consciousness and was able to walk off the field by himself. Following the game, he experienced a severe headache for several days, although no memory loss or vomiting was involved. He was taken to the hospital, and cranial magnetic resonance imaging (MRI) and a computed tomography (CT) scan were normal. He remained out of practice for several weeks, following which he returned with no subsequent complications. His additional medical history consisted of only minor injuries throughout his lifetime.

At the time of evaluation, Robert was living with his mother. His parents divorced when he was approximately 3½-years of age. He spent every other weekend with his father. Maternal family history was described as remarkable for mild depressive symptoms in his mother upon the deaths of her parents and learning difficulties in a nephew. Paternal family history was remarkable for alcohol problems and depressive symptoms. Family stressors were significant; when Robert was 2½-years old, the family experienced the loss of his infant brother. Approximately a year later, his parents divorced, and he and his mother moved in with his maternal grandparents. When Robert was around 6½-years of age, he and his mother moved into their own apartment; however, he remained close with his grandparents. At age 13, Robert experienced the death of his grandfather. Over the subsequent year, his grandmother became quite ill, and he and his mother were actively involved in her care. Robert was with her when she died the following summer. Following her death, he and his mother relocated, and he enrolled in his new high school and started ninth grade.

Test Results

Given Robert's past difficulties with distractibility, attention, and possible emotional challenges, these areas were the focus of assessment.

Robert was presented as a pubescent adolescent male dressed in khakis, a T-shirt, and a baseball cap. His initial reaction to the examiner was appropriate, and rapport was established quickly. He was extremely polite throughout the evaluation day, and had good awareness of social cues. Although he did not initiate spontaneous social conversation, he was able to carry appropriate conversation when the examiner began it. Robert's sustained attention appeared good, and he was not overly distractible in the one-to-one testing situation. However, his attention and motivation appeared to vary on certain tasks. At times, he would make silly mistakes, answer too quickly, or lose track of an item or thought. However, he was easily reorientated to task, and this did not appear to negatively impact testing. His mood was euthymic, and his affect was appropriate. Overall, Robert was very cooperative with the entire testing process. He appeared self-motivated and wanted to perform well. He worked persistently on items, although he was more inclined to say he did not know an answer when asked verbal questions. On visual items, he worked persistently until given the option to stop.

In reviewing Robert's evaluation results, his intellectual abilities were in the overall average range (Table 16.1). He demonstrated average verbal and nonverbal intellectual abilities. His current level of academic skill acquisition was in the average to above average range (Table 16.2). This was consistent with, or higher than, what would be expected given his overall intellectual abilities. Robert did not appear to be demonstrating any overt indications of a learning disability.

However, Robert demonstrated variable attention and **executive function** skills (Table 16.3). His working memory was in the low average range, which was slightly lower than would be expected given his overall intellectual abilities. He demonstrated a statistically significant difference ($p < 0.05$) of 16 points between Verbal Comprehension and Working Memory Indices. Additionally, he had greater difficulty on

Table 16.1 Intellectual

Wechsler Intelligence Scale for Children – Fourth Edition	Score[a]	Percentile
Verbal Comprehension Index	104	61st
Perceptual Reasoning Index	104	61st
Working Memory Index	88	21st
Processing Speed Index	97	42nd
Full Scale IQ	100	50th
Similarities	(9)	
Vocabulary	(13)	
Comprehension	(11)	
Digit Span	(8)	
Letter-Number	(8)	
Block Design	(13)	
Picture Concepts	(10)	
Matrix Reasoning	(9)	
Coding	(10)	
Symbol Search	(9)	

[a] Standard score, (scaled score), [*T*-score], {*z*-score}.

Table 16.2 Academic achievement

Woodcock Johnson Tests of Achievement – Third Edition, Form A	Score	Percentile	Grade equivalent
Broad reading	119	90th	13.5
Letter-word	106	65th	10.6
Reading fluency	122	93rd	14.1
Passage comprehension	116	85th	18.0
Broad math	104	62nd	10.5
Calculation	109	72nd	12.1
Math fluency	100	50th	8.9
Applied problems	102	54th	10.3
Broad written language	117	87th	13.0
Spelling	127	96th	16.0
Writing fluency	98	45th	8.4
Writing samples	118	88th	17.7

Table 16.3 Other cognitive functions

Tests	Score
Delis-Kaplan Executive Function System	
Verbal Fluency Test	
Letter fluency	(8)
Category fluency	(6)
Category switching	
Total	(7)
Accuracy	(8)
Design Fluency Test	
Condition 1 total	(12)
Condition 2 total	(10)
Condition 3 total	(11)
Color-Word Interference Test	
Color naming	(8)
Inhibition	(6)
Inhibition/switching	(9)
Tower Test	
Achievement	(14)
Move accuracy ratio	(9)
Conners' Continuous Performance Test	
Omissions	[53.71]
Variability	[74.28]
Standard error by block	[84.84]

both verbal and visual tasks requiring the greatest amount of abstract thought. Further, he demonstrated mild relative weaknesses in executive skills including verbal fluency, the inhibition of behaviors, vigilance, and attention. He demonstrated average visual fluency, overall processing speed, and problem-solving

skills. This pattern of mild executive dysfunction does not formally fall within the diagnostic category for **Attention Deficit Hyperactivity Disorder (ADHD)**. However, the conceptualization of ADHD as a neuropsychiatric disorder of executive functions leaves open for interpretation how to categorize those children with mild executive difficulties.

Formulation and Recommendations

The lack of specific diagnostic categories for various types of executive deficits often results in ADHD becoming the default diagnosis. Often these children exhibit symptoms that meet formal DSM-IV-TR criteria for the disorder, although in Robert's case, his symptoms met formal criteria only minimally. He was qualified as inattentive because of his difficulties with attention to detail, sustained attention, follow-through, organization, and forgetfulness. However, these symptoms were not clear enough to teachers and caregivers for Robert to appear as "classically ADHD." In cases like Robert's, the clinician must help those living and working with the child to understand how relative weaknesses in verbal fluency, impulsive verbal behaviors, variable attention, mild distractibility, and lower relative abstract reasoning skills can be conceptualized as a variant of ADHD and result in impaired functioning.

Individuals who experience fundamental weaknesses in executive functioning generally demonstrate a host of difficulties with their behaviors. Executive functions allow a person to solve problems, think abstractly and flexibly, plan and organize behavior, and alter behaviors based on experience and feedback. Problems in these areas can result in difficulties organizing information and efficiently managing large amounts of information. Individuals may not use prompts well and may have trouble thinking flexibly, often becoming stuck responding in inefficient manners. Formal testing offers a window into a person's executive skills but does not comprehensively measure such a complex construct. Indeed, the introduction of executive function measures is still relatively new in the field of neuropsychology, with some areas having a greater predominance of research available. Measures of fluency, verbal working memory, inhibition, and planning have relatively significant bodies of research contributing to overall validity. However, many of these measures are not available at all ages. Further, our understanding of how all aspects of executive skills develop in children continues to be an area requiring further research. Therefore, while measures in these areas can inform, they are not all inclusive in their explanation of a child's functioning. Robert appeared to struggle with some of these skills, particularly relative to his overall average intellectual abilities. These relative weaknesses were likely to impact his ability to acquire adequate study skills. However, his additional cognitive strengths were areas from which he could build upon in order to learn to compensate for his relative weaknesses.

Robert's emotional development appeared age-appropriate. However, he was struggling to reconcile his known abilities with his apparent weakness in remaining organized and studying successfully. Robert had become stuck in a pattern of expecting himself to somehow try harder. Intervening with Robert and his family to help them understand how to compensate for his weaknesses became an important step in his emotional growth and self-esteem.

Robert's family was informed that he would likely function best in a structured, consistent environment free of relative distractions. Although his executive weaknesses did not appear significant enough to qualify him for special education assistance through an Individualized Educational Program (IEP), his parents were strongly encouraged to help him learn appropriate study skills and environmental controls in order to help him compensate for his difficulties (some environmental compensations in the home environment are listed in Box 16.1).

Robert was likely to experience some difficulty organizing materials and keeping track of multiple classes and assignments. More abstract assignments and concepts might be harder for him, and he might have difficulty acquiring effective study strategies, particularly compared with other young men of his age. A tutor or academic mentor was strongly encouraged to provide the structure, guidance, and assistance Robert may need to organize, synthesize, and manage the amount of information involved in high school courses. This tutor should be someone whom he can get along well with, who is less like a parent and more like a coach. The tutor

Box 16.1 Recommendations for the environment

- Keep rules clear and brief, and keep task lists short.
- Provide organizational structure, including using lists, calendars, and structured routines.
- Provide a distraction-free environment for the completion of homework or other chores, including turning off the TV, video games, and/or music, closing windows, and reducing noise.
- Assist Robert in getting started with assignments or projects, if he requires this, by ensuring that he understands all of the instructions and expectations.
- Build in breaks, planned interspersed times of sustained attention for longer assignments or projects.
- Establish a regular routine for homework with a specific time, place, and schedule.
- Monitor and give feedback, while not doing all of the work together, by praising positive effort and hard work.

Box 16.2 Where do I find a tutor?

Parents often find tutors in a wide variety of places. A few places to start inquiring might include the following:

- Family members with a background in education
- Past and current teachers
- Local universities and colleges
- Neighbors
- Pastors or church members

or mentor should have experience working with children with mild attention and executive problems (Box 16.2). Robert and the tutor should meet as necessary, probably two to three times a week, and the tutor could provide structured study skills. Such a relationship will also allow for additional presentations of material as needed, guidance in organizing and keeping track of classes and assignments, structure and discipline in study skills, and alternative explanations for more difficult abstract concepts. Further, the tutor would be encouraged to help Robert learn how to recognize hints or cues in assignments that describe what output is expected and could model and help Robert learn how to break larger tasks into logical steps. An overall goal for Robert would be to learn better self-evaluation skills, so that he can more effectively monitor and alter his own behavior and actions academically.

Robert's tutor and his parents were encouraged to work closely with each of his teachers to encourage assistance, such as additional visual study aids or written handouts of any lectures. Robert was likely to have greater difficulty than other students in taking notes in a timely fashion and remaining orientated to longer auditory lectures. Utilizing multimedia formats in the classroom may be helpful, such as tape recording lectures.

If Robert's school were to need a formal document to provide him with these recommendations, his parents were encouraged to share the neuropsychologist's report with his school's special education director and to request that Robert be evaluated for a **504 plan** to assist him with his academic weaknesses. Section 504 ensures that children with disabilities who do not qualify for formal assistance through the special education department still have access to accommodations that they may require.

Robert's family was advised to continue to monitor his academic and emotional development. Returning to a mental health care professional was recommended should any further emotional or cognitive struggles develop. However, it was anticipated that with the improved understanding both Robert and his family now had about his executive weaknesses, he would be able to develop compensatory strategies and experience increased academic success and improved self-esteem.

Additional Resources

Key Concepts and Terms

Attention Deficit Hyperactivity Disorder A disorder defined by the Diagnostic and Statistical Manual of Mental Disorders (2000) that encompasses problems with inattention, distractibility, and at times hyperactivity and impulsivity, which reach a level of impairment across environments.

Executive Functions A cluster of cognitive abilities including but not limited to working memory, attention, planning, set-shifting, and problem solving associated with prefrontal-subcortical brain systems.

504 Plan Part of the civil rights act, Rehabilitation Act of 1973, which protects the rights of people with various forms of disabilities to ensure that they are not denied access to any program that receives federal funding.

References

Resources for Clinicians

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Resources for Families

Children and adults with attention deficit/ Hyperactivity disorder: http://www.chadd.org

Edward M. Hallowell. (1994). Driven to distraction: Recognizing and coping with attention deficit disorder from childhood through adulthood. Random House, New York, USA: Pantheon Books.

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Mountain Plains Regional Resource Center. A parent and educator guide to section 504: Another service option for children with disabilities. http://www.rrfcnetwork.org/images/stories/MPRRC/Products/Generic/Section504/504parentguide.pdf.

National Resource Center on ADHD: http://www.help4adhd.org.

Parent Advocacy Coalition for Educational Rights: http://www.pacer.org/index.htm

Russell Barkley. (2000). *Taking Charge of ADHD: The Complete, Authoritative Guide for Parent*. (2nd ed.,) New York, USA: Guilford Press.

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The San Diego ADHD Project: http://www.sandiegoadhd.org.