



Learning Problems Commonly Associated with ADD and ADHD

Several learning problems are common among teenagers with ADD or ADHD. Some learning problems are the result of: 1) the actual symptoms of ADD or ADHD, and others occur because a student also has 2) deficits in executive functions, 3) a Specific Learning Disability (SLD), or 4) coexisting conditions such as depression or anxiety that are not being treated. Most studies of students with attention deficits have found that 25 to 50 percent have learning disabilities.

One study published in *ADHD Reports* found that up to 65 percent of students with ADHD had major problems with written expression. These problems, as well as practical implications for a student's school performance, are discussed below. However, keep in mind that each teenager with ADD or ADHD is *unique* and may have *some*, but not all of these learning difficulties.

Under the Individuals with Disabilities Education Act (IDEA), **students with attention deficits are clearly eligible for classroom accommodations** if their learning is adversely affected by their disorder. (See Summaries 43 & 44.) However, all too often behavior problems related to the ADD or ADHD become the primary focus of school interventions. Consequently, learning problems and related executive function deficits such as disorganization are often overlooked.

A study by Dr. Marc Atkins, professor, University of Illinois Chicago, clearly makes the point that academic issues should be addressed first when our students are struggling or misbehaving in the classroom. When Dr. Atkins implemented behavioral interventions for children with attention deficits in a classroom, their behavior did improve, but academics did not. Amazingly, when he next provided tutoring for similar students, not only did their academic performance improve, but their behavior improved also. **Many students with attention deficits are experiencing serious academic problems that may be at the root of much of their misbehavior!** Special efforts must be made to identify these academic problems and to provide appropriate accommodations in the classroom. Accommodations should be individualized and designed to address each student's specific learning problems.

Symptoms of ADD/ADHD That Interfere with Learning

Several characteristics that are a direct result of having an attention deficit cause serious learning problems. Most teens with ADD or ADHD have problems in these areas:

1. Inattention/Poor Concentration

- Difficulty listening in class: may daydream, space out, and miss lecture content or homework assignments
- Lack of attention to detail: makes "careless mistakes" in work; doesn't notice errors in grammar, punctuation, capitalization, spelling, or changes in signs (+, -, x) or exponents in math
- Difficulty staying on task and finishing school work; distractible: moves from one uncompleted task to another; when distracted, has difficulty refocusing on work.
- Lack of awareness of grades: may not know if passing or failing a class.

2. Impulsivity

- Rushes through work: doesn't read directions; takes shortcuts in written work (such as doing math in his head); may not read the whole question before giving an answer; doesn't double check work (a greater problem among students with ADHD hyperactive/impulsive)

- Difficulty delaying gratification: gives up working for rewards occurring in too distant future (two weeks to six months or more). (Working for grades requires delaying gratification for six weeks or more.)

Executive Function Deficits That Have a Profound Effect on School Work

The majority of students with ADD/ADHD also have deficits in the key executive functions listed below. For more details, see Summary 12 and Section 3.

1. Poor organizational skills
2. Poor working memory
3. Difficulty activating and maintaining alertness
4. Reconstitution (taking issues apart, analyzing the pieces, and combining into a new whole)
5. Internalizing language
6. Controlling emotions
7. Shifting (from one issue or event to another)
8. Planning and organizing materials and assignments
9. Controlling emotions
10. Planning and organizing materials and assignments
11. Self-monitoring

Common Learning Problems Often Accompanying ADD and ADHD

Several learning problems, although not directly related to ADD or ADHD, often occur along with the disorder. If these problems are severe enough, the student will be diagnosed with a Specific Learning Disability (SLD). The ADD/SLD connection is discussed in more detail in Summary 50.

1. **Language Deficits:** Several language-processing problems are common among teenagers with ADD or ADHD. Deficits marked with an asterisk (*) are considered Specific Learning Disabilities.

1.1. Spoken Language* (Oral Expression)

- Talks a lot spontaneously (ADHD), if he can choose the topic.
- Has difficulty responding to questions when he must think and give organized, concise answers; may talk less or give rambling answers.
- Reluctant to speak in class (ADD) because of slow processing speed and difficulty organizing ideas; may even be willing to accept failing grade rather than speak in front of the class.

1.2. Written Language* (Verbal Expression; Input and Output)

- Slow reading and writing; takes longer to complete work, produces less written work.
- Difficulty writing essays; difficulty organizing ideas and putting them in proper sequence.
- Difficulty getting ideas out of head and on paper; written test answers, discussion questions, or essays may be brief.
- Written expression is adversely affected by deficits in key executive skills: working memory and analysis, sequencing and synthesis.

1.3. Processing Speed: Low scores on the Processing Speed Index (PSI) of the Wechsler Intelligence Scale for Children (WISC-IV) or Wechsler Adult Intelligence Scale (WAIS-IV) may be indicative of problems with **hand-eye coordination** or **slow processing speed**. Several subtests are indicative of these problems: Coding and Symbol Search for both the WISC and WAIS, plus Cancellation for the WAIS. One way to rule out handwriting problems is to look at scores on the Symbol Search. Low scores on the Symbol Search alone may be indicative of problems with slow speed in processing of information since handwriting is not required on the subtest. These are the students who will need shorter assignments or extended time.

- Slow processing of information: reads, writes, and responds slowly; may take twice as long to do homework and class work and to complete tests; doesn't have time to double check answers;
- Recalls facts slowly;
- Can't quickly retrieve information stored in memory such as math facts, algebra formulas, foreign languages, history dates or facts, or grammar rules.

1.4. Math Computation*

- Difficulty automatizing basic math facts/slow math computation: cannot rapidly retrieve and use basic math facts such as multiplication tables, division, addition, or subtraction facts (Summaries 21-24).

1.5. Listening Comprehension

- Difficulty following directions: becomes confused with lengthy verbal directions, may not "hear" or pick out homework assignments from a teacher's lecture;
- Loses main point; difficulty identifying key points to write while taking notes.

1.6. Reading Comprehension*

- Can't remember what is read, then has to read it again; difficulty understanding and remembering what is read; difficulty with long reading passages.
- Makes errors when reading silently; may skip words, phrases, or lines; may lose place when reading.
- Difficulty identifying and remembering key facts from reading; linked to executive functioning deficits (holding key information in working memory).

2. Poor Memory: Students with ADD or ADHD may have difficulties with short-term, long-term, and/or working memory. Often these memory skills are interrelated. For example, if the student's working memory is limited, not as much information gets into storage or is retrieved from long-term memory.

2.1. Short-Term Memory Problems

- Difficulty remembering information in the here and now, for roughly 20 seconds: may not remember teacher requests, instructions, multi-step directions, or verbally presented math problems.

2.2. Working Memory Problems (an executive skill)

- Low scores on the Working Memory Index (WMI) of the Wechsler Intelligence Scale for Children (WISC-IV) or the Wechsler Adult Intelligence Scale (WAIS) are indicative of problems with **working memory**.
- Difficulty holding information in mind while actively processing it; for example, may have difficulty holding a math problem in short-term memory while reaching into long-term memory to retrieve needed formulas and math facts to solve the problem.

- Difficulty retrieving information from long-term memory that is needed in working memory to solve a problem;
- May take longer on assignments and tests because of poor access to memory.

2.3. Long-Term Memory Problems

- Difficulty placing information into, and retrieving it from, long-term storage.
- Difficulty memorizing material such as multiplication tables, math facts, or formulas; spelling words; foreign languages; and/or history dates; lacks memorization strategies.
- Difficulty quickly retrieving information stored in long-term memory.
- May not recall information memorized the night before, such as math facts, spelling words, or history facts.
- May not do well on tests requiring recall of information from long-term memory, even though the student studies.
- Memory is consolidated during sleep; since 56 percent of our children have problems getting restful sleep, memorization and recall is often more difficult for them.

2.4. Forgetfulness Related to Short- and Long-Term Memory Problems

- May forget homework assignments.
- May forget to take books home.
- May forget to turn in completed assignments to the teacher.
- May forget special assignments or make-up work or tests.
- May forget to stay after school for teacher conferences or detention.

3. Poor Fine-Motor Coordination

- Handwriting is poor; sometimes, small and difficult to read.
- May write slowly; may avoid writing and homework because writing is difficult.
- May prefer to print rather than write cursive, even as an adult. Mel Levine, M.D., provides a good reason for their preferred printing: printing requires less memory than writing cursive. Produces less written work.
- May be artistic; motor coordination required for art may be quite good.

Difficulties in school may be caused by a combination of several learning problems. One student may not take good notes in class because he can't pay attention, can't pick out main points, and has poor fine-motor coordination. Another student may not do well on a test because he reads, thinks, and writes slowly, has difficulty organizing his thoughts, and has difficulty memorizing and quickly retrieving the information from memory.

Examples of how teachers and parents may use information about a student's specific learning problems and possible accommodations are provided in Summaries 48, 51, and 52.