

Reading Comprehension & Executive Function



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LEARNING DISABILITIES AND ADHD often go hand in hand. According to Thomas E. Brown, PhD, approximately 45 percent of those with ADHD have coexisting learning disabilities. The most common learning disability of students with ADHD is dyslexia, characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities (International Dyslexia Association). Another less widely recognized reading disorder impacting many with ADHD is specific reading comprehension deficit. Students with S-RCD have the ability to read words proficiently without understanding what they are reading. This can be compared to being able to read a foreign language without knowing the meaning of the words.

In this article, I focus on those with a specific reading comprehension deficit, hoping to shed light on this often missed disorder. These are the students who sound like good readers when reading aloud. They may even read with proper expression. Educators and parents have no reason to doubt their proficiency until it becomes clear that they are not understanding what they are reading. Often, this goes unrecognized.

In the past several years, there has been a growing interest in the connection between reading comprehension and executive function. Researchers such as Laurie Cutting from Vanderbilt Uni-

versity and Kelly Cartwright, author of the book *Executive Skills and Reading Comprehension: A Guide for Educators*, have found significant evidence that executive function skills can affect reading comprehension. While executive function skills differ in each individual and overlap across a spectrum, the core EF skills of self-regulation, working memory, and cognitive flexibility have substantial impact on reading.

Self-Regulation

Self-regulation includes external factors such as impulse control—managing behaviors and actions—as well as internal regulation, such as inhibiting irrelevant thoughts and resisting distraction.

For example, reading something which sparks a memory can derail a reading activity. For some, exercising this self-control can be so challenging that little focus remains for reading. Consider a child who struggles to sit still. Now think about what this child needs to do during quiet reading time in a classroom. It takes a considerable amount of self-control for this student to work hard at the process of reading while simultaneously working hard at sitting still. It's critical to recognize what a self-regulation challenge this is and find ways to either minimize this challenge or allow breaks to replenish self-regulation capacity.



Self-control can play a huge role in the process of reading. Many people with ADHD struggle with “putting on the brakes.” As Ned Hallowell describes, people with ADHD often feel as though they are driven by a “Ferrari engine” but have “bicycle brakes.” This mismatch can impact a wide range of aspects in one’s life. In reading, it is huge.

I’ve worked with a number of students, mostly upper elementary level, who race through text. Clearly, they are convinced that fast reading is good reading. Unfortunately, these are often struggling readers, and rather than slowing down to get it right, they speed up to show that they read well. Timed oral reading assessments, commonly used in classrooms to identify students needing support, can further this mindset for some. Unfortunately, so can the desire to sound like good readers. This can become a bad habit that is resistant to change.

Red flags that indicate poor comprehension:

- Reading too fast
- Skipping punctuation
- Reading with inappropriate expression
- Adding, omitting, or changing words
- Leaving off suffixes
- Misreading small function words (the, of)
- Losing one’s place—skipping lines
- Guessing the word after the first sound
- Filling in ideas spontaneously

Interestingly, I have often found that when a student loses comprehension during a reading—misreads a sentence, for example—they will abandon the attempt to understand the text. As they continue to read, they pay less attention to accuracy. It’s as if once they fall off the rails, they don’t recover.

What? I need to understand what I’m reading?

Surprisingly, some students aren’t aware that text needs to make sense. I recall Brittany, a fourth grader who, while literally wrapping herself around her chair, responded to my question of whether a sentence made sense by saying, “You mean I have to understand what I’m reading???” I first thought she was joking, then realized that she truly did not know that reading was more than pronouncing words. Unfortunately, she was not the only student I’ve encountered with this misunderstanding.

WHAT TO DO

Once students recognize that text needs to make sense, they are ready for strategies to improve comprehension when reading. The most effective method to teach these skills is through Guided Oral Reading (Kaufman 2011): having a student read aloud with a skilled reader who



supports the learning of these strategies and reinforces their use.

Fix-up strategies when text doesn’t make sense:

- Re-read the sentence to check for accuracy.
- Read to the end of the sentence.
- Read the next sentence.
- Go back to the beginning of the paragraph.

Consider:

- Have I read the words correctly?
- Is there a word that can be read differently? (pro duce’ vs. pro’duce)
- Can I accent a different word in the sentence?
- Did I miss any words?
- Did I understand the words?
- Is there another meaning for this word?
- Did I utilize the punctuation properly?

An effective approach to addressing inaccurate reading is through examples. The following quotes, from the child version of *Eats Shoots and Leaves* by Lynn Truss, show how commas can change the meaning of a sentence and why it’s important to pause when you see one:

After we left, Grandma, Mommy, and I skipped about in the park.

After we left Grandma, Mommy and I skipped about in the park.

Similarly, discussing the meaning change in a sentence that describes “a dog” versus “the dog” is more effective than simply telling a student they must read the words carefully.

Cognitive Flexibility

Cognitive flexibility, also called set-shifting, is another core executive function and describes the ability to see things from multiple perspectives and to modify perspective as needed. Cognitive flexibility includes basic reading skills such as:

- Shifting from focusing on word reading to understanding the meaning
- Considering different meanings of word
- Shifting point of view as one learns new information
- Flexibility of letter sounds: *ch* as in *chase* or *Christmas*; *ea* as in *bread* or *read*
- Where to place the accent in words and sentences: *pro' duce* vs. *pro duce'*

WHAT TO DO

Riddles and books such as *Amelia Bedelia*, which presents silly ways she confuses multiple-meaning words, help to strengthen cognitive flexibility. My favorite card games for reinforcing reading skills are those from Washington Reads (<https://www.phono-graphix.com/>). Students love these games, which can build automaticity and flexibility. Other games that may be helpful include Uno and Set, both of which require flexible thinking. Another fun activity that may help build flexibility is to look at pictures like the one below. Is this a vase or two faces, and can you shift your perspective to see it both ways?



Working Memory

Working memory is considered the third core executive function and plays a large role in reading comprehension. Working memory involves holding information in mind

while working with it. This is what you use when you are trying to hold a phone number in mind while someone is talking to you about something else. It's what enables a child to remember all of the directions that you have just given. In reading, it is the skill that allows one to hold onto information just read while continuing to read the next sentence.

For individuals with dyslexia, limited working memory presents additional challenges. When reading, they must give full attention to decoding words, often slowly, while simultaneously holding onto meaning of the text. A strong working memory enables a reader to create a big picture, necessary for inferencing, creating context, and connecting ideas. A limited working memory can interfere with holding onto enough text long enough to build an overview of the text.

WHAT TO DO

Automaticity is key

For those with dyslexia, it is critical to provide intervention to improve phonemic awareness and fluency. When words become automatic, more attention can be paid to comprehension. *Speed Drills* (I usually do this without the timed aspect) by Phyllis Fischer and Great Leaps are good tools for word fluency practice. In addition, David Kilpatrick's *Equipped for Reading Success* is an excellent resource for building phonemic awareness and automaticity. Automaticity lightens the load on working memory. For students who have reached a stage that requires them to learn from reading, there are many tools that will read text aloud, allowing them to have access to the same material as their peers while they continue to build automaticity.

Download thinking

Holding information in mind taxes working memory. Bonnie Singer says that it can be helpful for those with working memory challenges to “make language stand still.” “Downloading” information, whether on a graphic organizer or other visual format, enables us to remember, organize, sequence, and apply information.

Preparing to read

When a reader is familiar with a topic prior to reading, they will learn more. If they know something about the topic, review what they know before they read it. If the topic is completely new, it's important to discuss relevant vocabulary as well as foundational information about the topic. Find articles or basic books or media about the topic to provide as much information as possible before the reader dives into a complex text.

SQ3R

An excellent strategy for textbook reading is SQ3R, a reading comprehension method named for its five steps: survey, question, read, recite and review. The goal behind this strategy is to gain an overview of the chapter and create questions prior to reading, which provides purpose and greater understanding. This is a highly effective method for nonfiction text, and in my experience, can dramatically change the learning experience for students.



Metacognition

Metacognition is thinking about one’s own thinking. The first step in changing poor reading habits is for students to learn what good reading is and recognize that the goal of reading is to understand what is written. This includes raising awareness of their own reading behaviors and what they need to do to become effective readers.

It can help to demystify reading and executive function challenges by explaining how we read and what is different in the brains of those with executive function deficits and reading disorders. There are some great child-friendly videos and books that explain these functions. When readers understand the basic brain functions associated with reading and learning and how to improve reading, they can overcome the feelings of hopelessness, shame and low self-esteem associated with reading challenges.

Cumulative Effects

Students with ADHD/EF deficits may suffer from its cumulative effects on their reading skills. If they have been inattentive or distracted in school all along, there is a lot they may have missed. Students with an inability to focus, pay attention, or process information effectively may have missed:

- skills for word reading
- vocabulary

- background knowledge
- syntax
- terminology for instructions

We will best serve these children by never assuming knowledge or understanding. To create an equitable literacy experience for all, we need to make sure that supplemental instruction is available for those with holes in their knowledge, thereby leveling the playing field in each classroom.

The Bottom Line

First and foremost, students must be taught that the goal of reading is to understand the content. To create successful readers, we must teach good reading behaviors, increase fluency and automaticity, prepare to read with background information, and teach each student to monitor their comprehension as well as the strategies to use when text is not making sense. **A**



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SQ3R: <https://in.nau.edu/academic-success-centers/sq3r-reading-method/>

RESOURCES FOR TEACHING CHILDREN ABOUT ADHD AND READING DISORDERS

<https://www.verywellmind.com/books-for-children-with-adhd-20450>

<https://dyslexia.yale.edu/resources/tools-technology/suggested-reading/young-peoples-books-about-dyslexia/>

See Dyslexia Differently: <https://www.youtube.com/watch?v=11r7CFIK2sc>

The Learning Brain: <https://www.youtube.com/watch?v=cgLYkV689s4&t=2s>

<https://www.understood.org/articles/en/adhd-comorbidity>