

The Essential Role of Metacognition in the Sciences of Reading

How metacognition, motivation, and engagement make a critical difference

Q&A with Peter Afflerbach, Ph.D.



Peter Afflerbach, Ph.D. is a professor of Reading in the Department of Teaching and Learning, Policy and Leadership at the University of Maryland. He is a leading expert in the areas of reading assessment, self-efficacy, and metacognition.

The Science of Reading research speaks to best practices necessary to support successful readers; however, today's discourse around the "Science of Reading" often limits the scope of reading instruction needed to support all learners. In this brief Q&A, Dr. Peter Afflerbach explains why the "Sciences of Reading" provides a more comprehensive framework of the factors necessary for reading achievement, and the crucial role that metacognition plays in providing lasting reading competencies that ensure life-long reading success.

Q. What are the Sciences of Reading?

A. **The Sciences of Reading represent research** that is conducted on factors that influence students' reading achievement, including metacognition, motivation and engagement, and self-efficacy. These factors have been found to have a significant impact on students' reading development, above and beyond teaching the "big 5" of phonemic awareness, phonics, fluency, vocabulary and comprehension. While the Science of Reading focuses only on cognitive strategies and skills, the Sciences of Reading includes the broader sampling of research results and allows for incorporating relevant research findings in the development of effective reading instruction.



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Q. How does Metacognition factor into the Sciences of Reading?

A. **Students need to be in control of their reading** on the road to independence and success. Metacognition is at the foundation of this control, helping students in goal-setting, monitoring the construction of meaning, looking out for problems and fixing them, and completing reading tasks in relation to goals. The Science of Reading research stresses the importance of building cognitive skills and strategies systematically. However, students need more than the ability to apply these important strategies and skills. As such, metacognition includes our student readers' knowledge of the strategies and skills that are involved in learning, and the related strategies that help them control and adjust their learning. Metacognition is essential for students to be able to independently and successfully begin, work through, and complete reading tasks.

Metacognition makes learning more efficient and long-lasting. It allows our students to conceptualize, control, and manage learning processes and strategies, contributing to "...the mindful regulation of one's own learning processes" (Schneider, 2008). Indeed, it is difficult to imagine student learning and independence without metacognition.

Q. Why is metacognition important in literacy instruction?

A. **Metacognition distinguishes successful readers from struggling readers.** Whether working to decode words and string them together to comprehend a sentence, or reading multimedia texts to critically evaluate different authors' perspectives, metacognition must be operating to

bring students to the successful completion of reading and related tasks.

Metacognition operates behind the scenes—helping us set goals, plan, call up relevant prior knowledge, choose and use strategies, regulate our work, and coordinate the entire suite of these actions. When we are successful, metacognition hardly calls attention to itself, and we may not be aware of it. All teachers share the goal of helping our student readers become independent and successful. Metacognition, a member of the Sciences of Reading, helps ensure these outcomes.

Q. What Science of Reading research describes the value of metacognition?

A. **Science of Reading advocates often refer to Scarborough's Reading Rope** to define the integrated components of successful reading comprehension, or what the Rope refers to as skilled reading: "fluid execution and coordination of word recognition and text comprehension" (Scarborough 2001). Metacognition is related to this "fluid execution"; indeed, it is essential for students' independent and successful reading.

For example, recent intervention studies examined the influence of metacognition instruction on elementary students' reading comprehension. At the earliest levels of formal schooling, researchers taught comprehension monitoring strategies to kindergarten and pre-kindergarten students as they listened to stories, and determined that these students performed better than schoolmates who didn't receive this metacognitive strategy instruction (Johanson & Arthur, 2016). A conclusion was that young children's listening comprehension could serve as the initial

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“place” for learning and practicing metacognition, and as a base for elementary students’ reading comprehension.

Following, Schneider (2008) found that

...even children 7-8 years of age can be taught to monitor the relative efficacy of strategies that they are using and to use utility information gained from monitoring in making future strategy selections.

Boulware-Gooden and colleagues investigated how third grade students who were taught metacognitive strategies increased their reading comprehension and vocabulary achievement (Boulware-Gooden, et al., 2007). Results of this research determined that metacognitive reading comprehension instruction had significant impact on the academic achievement of third-grade students in both reading comprehension and vocabulary.

Similarly, Connor and colleagues (Connor et al., 2018) provided classroom metacognition instruction that fostered third graders’ development, and this led to the students’ superior reading comprehension performance. Slavin (2013) conducted a systematic review of research studies, and found that reading programs that included metacognition instruction were more effective in promoting students’ reading achievement.

Finally, Allen and Hancock (2008) developed a metacognitive instruction intervention to help elementary students improve their reading. Students who received this modified reading instruction had significantly greater gains on a standardized state reading test. The results of research from the Sciences of Reading demonstrate that metacognition has a direct and positive influence on students’ reading achievement. Returning to Scarborough’s Reading Rope, metacognition is vital for students’ “skilled reading.”

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Conclusion

In summary, research conducted across the last four decades describes metacognition as a necessary and powerful component of students' reading. Metacognition contributes to students' reading development and reading achievement. As such, metacognition should be viewed as an essential partner with the strategy and skill instruction that we associate with Science of Reading.

Helping students develop metacognitive mindsets and strategies should be a focus in the classroom. There is a rich research base in the Sciences of Reading that focuses on the nature of metacognition and how metacognition develops. This research details students' strategies and mindsets, and the common challenges to developing students' metacognitive reading routines. Related research documents the metacognitive needs of successful readers, and how effective reading instruction can meet those needs as students develop mindfulness and self-awareness. The benefits of teaching metacognition—and the connection of metacognition to the Science of Reading—could not be more clear.

