

Fostering Metacognitive and Independent Readers

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“ As our student readers move through the grades, they face two distinct challenges: they must learn to self-regulate—becoming increasingly independent as they read—and they must succeed in comprehending text as the demands on their reading become increasingly complex. Metacognition helps on both these fronts.”

Dr. Peter Afflerbach

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Introduction

Picture your classroom with every student thriving as a reader. Across the school year, we anticipate our students' growth and achievement. We strive to provide the best instruction. Our students learn strategies and skills, and read increasingly complex texts, and they use what they learn from reading to perform increasingly complex tasks. Further, they are expected to develop independence with reading. How is it possible that students take on these challenges? How do our youngest students learn to read "on their own" and experience success? How can students begin, work through, and complete their reading independently?

Behind the scenes, metacognition is working—helping students to set goals for reading, monitor their progress along the reading path, address and resolve challenges to understanding, and determine that their reading goals are met. Metacognition operates in all successful reading—it guides students' use of metacognitive strategies, coordinates learning, and contributes to motivated reading. Given metacognition's pivotal role in students' reading, it is essential that we understand how it works and how best to teach it. A primary goal of reading instruction should be fostering students' metacognition through the combination of effective metacognitive strategy instruction and building students' understanding of why metacognition is important. The result is students' ongoing reading success.

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We want every student to leave our classroom as an independent reader. Across the school year, we provide detailed instruction, scaffolded support, and consistent encouragement to help students learn and apply reading skills. The true test of teaching arrives as students leave our classrooms for the last time. Are they capable of reading on their own? Can they monitor their progress, noting obstacles and applying fix-it strategies when we are not there to prompt or support them? Have they developed independence to the point where they begin, work through, and successfully complete text and tasks “on their own”? When we are successful in teaching metacognition, the answer to these questions is, “Yes!”

This book describes practical strategies for fostering metacognitive readers in K–5 classrooms. We will explore the research that supports metacognitive teaching practices in the classroom and how you, as the teacher, can build metacognitive strategies for reading into daily routines. We investigate the classroom environments that stimulate students’ metacognition, as well as specific metacognitive teaching tools, including checklists and rubrics.

“ Behind the scenes, metacognition is working—helping students to set goals for reading, monitor their progress along the reading path, address and resolve challenges to understanding, and determine that their reading goals are met. ”

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Metacognition and Student Reading



Across the school year, much of our reading instruction focuses on strategies that support students' reading development. These strategies must be taught explicitly so that students become skillful, successful readers in the five components of reading. Often referred to as the “big five,” phonics, phonological awareness, fluency, vocabulary, and comprehension make up the areas of reading students need to develop. Our instruction helps move students from the early focus on oral language to include building phonemic awareness, applying phonics, reading fluently, learning vocabulary, and comprehending text. It is our expectation that, once learned, students will use their increasingly sophisticated knowledge in these areas to read independently.

However, there is more to becoming an independent reader than simply learning the “big five.” Metacognition resides at the center of successful reading—without it, students do not know when their reading is going well or getting off track (Kolic-Vehovec, 2002). They cannot determine if they are moving toward their goals for reading, and they may be unable to comprehend text. Indeed, Thiede and de Bruin (2018) note that metacognition “plays an important role in guiding comprehension; comprehension is greater for students who better regulate their reading practices than for those who do not” (p. 125).

In This Chapter

The Path to Reading Independence
 Examining Our Own Metacognition
 Developing an Inner Guiding Voice
 Two Distinct Challenges

The Path to Reading Independence

Metacognition refers to awareness of one’s own knowledge—what one does and doesn’t know—and one’s ability to understand, control, and manipulate one’s cognitive processes. Metacognition is also at the heart of students’ metacognitive practices that support reading independence (Veenman et al., 2006). This independence requires a set of self-regulating behaviors that are complementary to “the big five” because without these behaviors our students will remain dependent on teacher support. Thus, high-quality reading instruction should help students learn these metacognitive behaviors: setting reading goals, monitoring comprehension, identifying and fixing challenges to understanding, and determining that important reading goals are met.

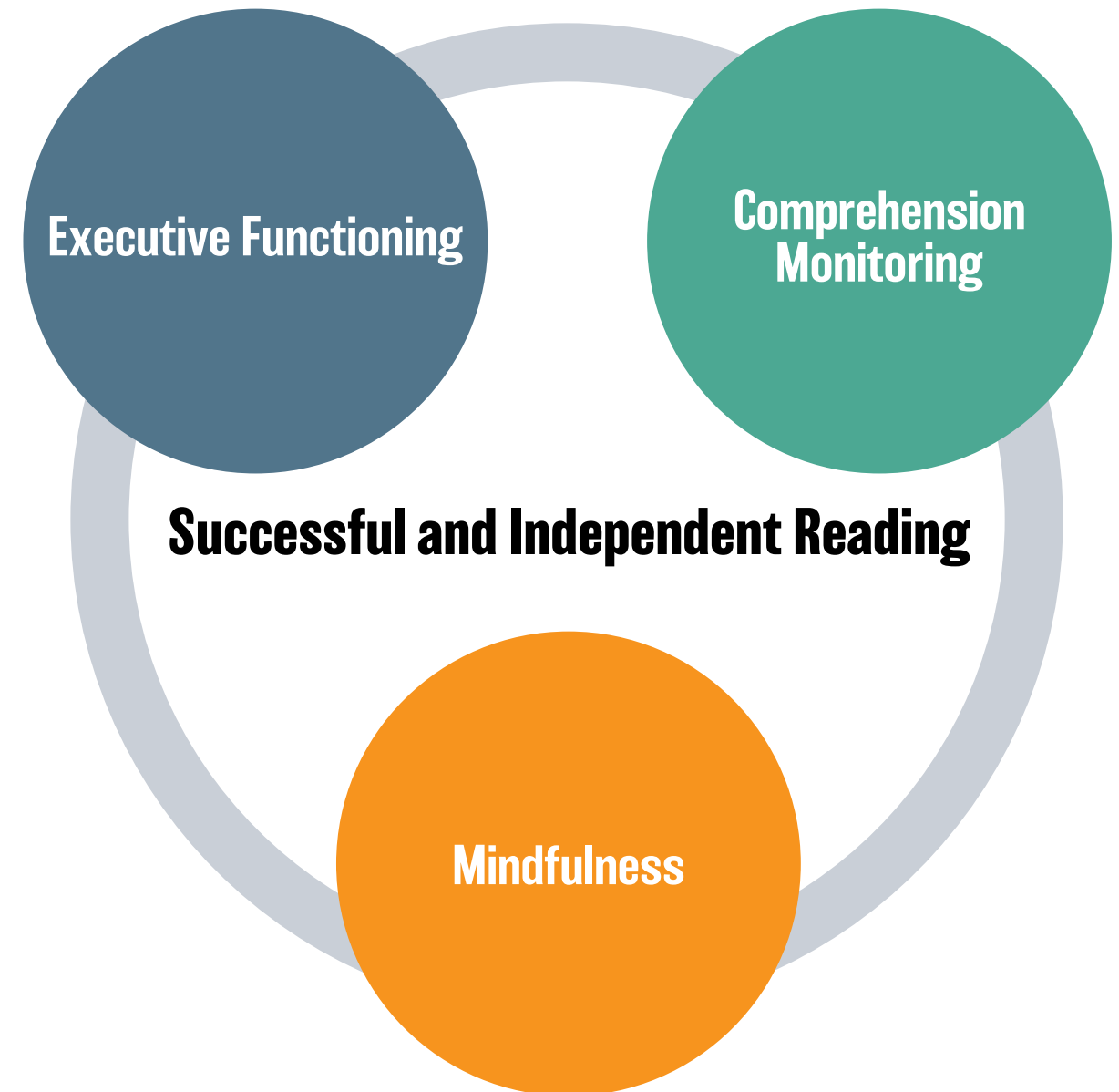
When reading is taught without attention to metacognition, many students remain dependent on their teachers’ feedback to know “how they are doing.” When we provide scaffolded instruction with metacognition, our expectation is that students will gradually assume responsibility and move toward independent reading. As we focus on helping students develop their metacognition, we help them toward the goals of reading independently, and reading successfully.

Metacognition is a key to helping those students identify and overcome those challenges, just as it aids accomplished student readers with their reading endeavors. To further understand the impact metacognition has on reading independence, let’s take a look at the related research.

“Metacognition refers to awareness of one’s own knowledge—what one does and doesn’t know—and one’s ability to understand, control, and manipulate one’s cognitive processes.”

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Metacognitive Behaviors and Mindsets



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Key Metacognition Research

We are fortunate to have decades of research that describes the nature of metacognition in reading. In effect, the research base demonstrates that metacognition is an important member of the science of reading. Hundreds of studies have described both the nature and value of metacognition, how children’s metacognition develops, the role of metacognition in reading, and how to teach it effectively. Here is a sampling of the research I consider critical to understanding metacognition.

Defining Metacognition

You will find some varying definitions of metacognition in the research literature. The term “metacognition” came into use in the late 1970’s. For the purposes of this book, we will adopt the definition provided by the Teaching & Learning Team, Cambridge International (2019), described as “the processes involved when learners plan, monitor, evaluate, and make changes to their own learning behaviors” (p. 1).

Siegesmund (2016) and Griffin and colleagues (2019) note that metacognition helps students focus on an active participation in their thinking processes. Combined, the above research describes metacognitive readers as active, strategic, and mindful. These readers are aware of the task at hand, their reading strengths, and reading challenges. Further, research describes metacognition as essential for our students’ independent, successful reading (Schraw, 1998).

Developing Metacognition

Students’ metacognition must be encouraged. We ask early elementary students literal questions about a simple story and anticipate that years later these same students will be able to evaluate texts critically in high school—and we expect that metacognition will be operating across our students’ history of reading. The development of cognition and metacognition are at the center of this growth. How does metacognition develop as students grow in their independent reading ability? Kuhn (2000) describes how children develop a “dawning awareness” of their thinking and then progress to increasingly elaborate and useful metacognitive knowledge that is “explicit, powerful, and effective” (p. 178).

As we focus our instruction, we can anticipate that our students will learn, use, and benefit from metacognition (Eisenberg et al., 2010; Greene, 2021). Even young elementary school students can learn and benefit from metacognitive instruction (Perry, 1998; Roebbers & Spiess, 2017). Subsequently, metacognition enhances each act of reading and contributes to students’ ever-increasing independence and success. With our careful instruction, students’ metacognition can develop as a “sophisticated and academically oriented repertoire” of strategies and mindsets (Veenman et al., 2006, p. 8). Such metacognitive development is a hallmark of students who manage their cognitive resources, comprehend text, and achieve their reading goals (Burin, 2020; McLeod, 1997).

We hope that all students develop metacognition quickly. However, Veenman and colleagues (2006) note that some students do not “spontaneously acquire a metacognitive repertoire, either because the opportunity to do so is missing or they do not see the relevance of investing effort in building up such a repertoire” (p. 9).

It is these students who frequently face challenges in our classrooms, for they must learn both reading skills and strategies, and metacognitive behaviors and mindsets. By “metacognitive behaviors,” I mean behaviors that support students using and managing their reading practices. By “mindsets,” I mean ways of approaching reading tasks, and of thinking about reading beyond the “big five”—mindsets that promote a greater awareness of strategies we employ to read. Both behaviors and mindsets help students become more metacognitive and are part of a larger metacognitive family.

The Metacognitive Family

Metacognition is a powerful force in reading success, and it is related to other essential reader characteristics that include mindfulness, executive functioning, and comprehension monitoring (Dinsmore et al., 2008). In our reading classrooms, we want to foster student growth in each of these four areas. While related, mindfulness, executive functioning, and comprehension monitoring all reflect different aspects of metacognition. In essence, these areas make up the family of metacognition (see illustration on p. 17). When our teaching focuses on each area, we help our students develop into insightful and lifelong readers.

Mindfulness

Mindful readers understand the positive contributions that reading makes to their lives. These readers connect reading with their accomplishments in and out of school. The students who understand the connection between reading well and earning good grades, who know how reading helps them further learn about hobbies and explore life issues, and who appreciate how

reading and discussing books can be both fun and informative, are mindful of the value of reading. Mindful student readers understand the varied uses of reading: to be informed, to be entertained, and to explore new worlds. These students readily identify themselves as readers. Indeed, these readers have reading woven into their daily routines, and into their personalities. Mindful readers know that factors such as reading motivation, self-efficacy, and effort make significant contributions to their reading success. Mindfulness is a hallmark of successful students, and successful people in and out of school.



Executive Functioning

Executive functioning aids students in allocating their mental resources. From the beginning of learning to read, each child must go about the business of reading within the limitations of working memory. Executive function operates here to help organize resources, and eventually to help our developing readers succeed with increasingly challenging texts, as well as increasingly challenging reading tasks. As teachers, we have had much practice with our own reading—to the point where much of that reading is relatively effortless, fluent, and automatic. While our students can aspire to such accomplished reading, they have much to manage during their reading. It is here that the executive function helps readers build and maintain attention to their reading while avoiding distractions. Executive functioning helps our students manage working memory, which is the limited space in which we must conduct our mental operations. Coordinating the myriad strategies and skills, knowledge and goals, and emotions when reading is a critical aspect of executive functioning. We expect our students to take on (and succeed at) increasingly challenging reading, and executive functioning helps our student readers “see the big picture” and navigate their paths through those challenges.

Comprehension Monitoring

Comprehension monitoring is comprised of the set of strategies that keeps students focused on the goal of reading: to understand what we read. As students read for meaning, they ask, “Does that make sense?” at the end of a sentence, paragraph, or story. This question prompts students’ consistent focus on comprehension. When students answer in the affirmative to “Does that make sense?” they can continue their effective reading. When the answer is “No,” students can apply related metacognition strategies including rereading, locating a problem, and fixing the problem. Over time, successful student readers develop independent comprehension-monitoring routines that accommodate the increasingly complex demands of texts and reading-related tasks.

The Metacognitive Family

Mindfulness

Mindful, accomplished readers understand the positive contributions that reading makes to their lives. These readers connect reading with their accomplishments. They readily identify themselves as readers. Indeed, these readers have reading woven into their daily routines, and into their personalities. Mindful readers know that factors such as their motivation, self-efficacy, and effort make significant contributions to their reading success.

**Executive Functioning**

Executive functioning allows readers to allocate their cognitive resources to undertake and succeed at increasingly challenging reading texts and tasks. It helps readers build and maintain attention to their reading while avoiding distractions. It also helps students manage strategies and skills, knowledge and goals, and emotions when reading, all within the constraints of working memory.

**Comprehension Monitoring**

A special form of metacognition, comprehension monitoring reflects students’ reading for meaning. As students read to understand text, comprehension monitoring leads them to ask, “Does that make sense?” at the end of sentences and paragraphs. The same question can be asked whenever a student seeks clarification of the understanding they are developing.



Combined, mindfulness, executive functioning, and comprehension monitoring provide student readers with powerful tools to both succeed at reading on their own and to gain reading independence. These metacognitive behaviors and mindsets complement our students’ cognitive work as they construct meaning from text. Consider this table, which presents typical relationships between cognitive tasks and metacognition in reading. The student who is reading fluently, who is focused on vocabulary, and who is understanding the text—all cognitive endeavors—is supported by metacognition.

Cognitive Tasks and Metacognitive Questions

Cognitive Task	Related Metacognitive Questions
Fluency	Am I reading at a good pace, with sufficient understanding, so that I can finish with spare time to respond to my teacher’s questions?
Vocabulary	Am I monitoring my use of context to try to determine this unfamiliar word? Do I remember my suffixes so that I can sufficiently understand these words?
Comprehension	Does this sentence make sense? Am I understanding this chapter well enough to succeed at my task of doing a character sketch?

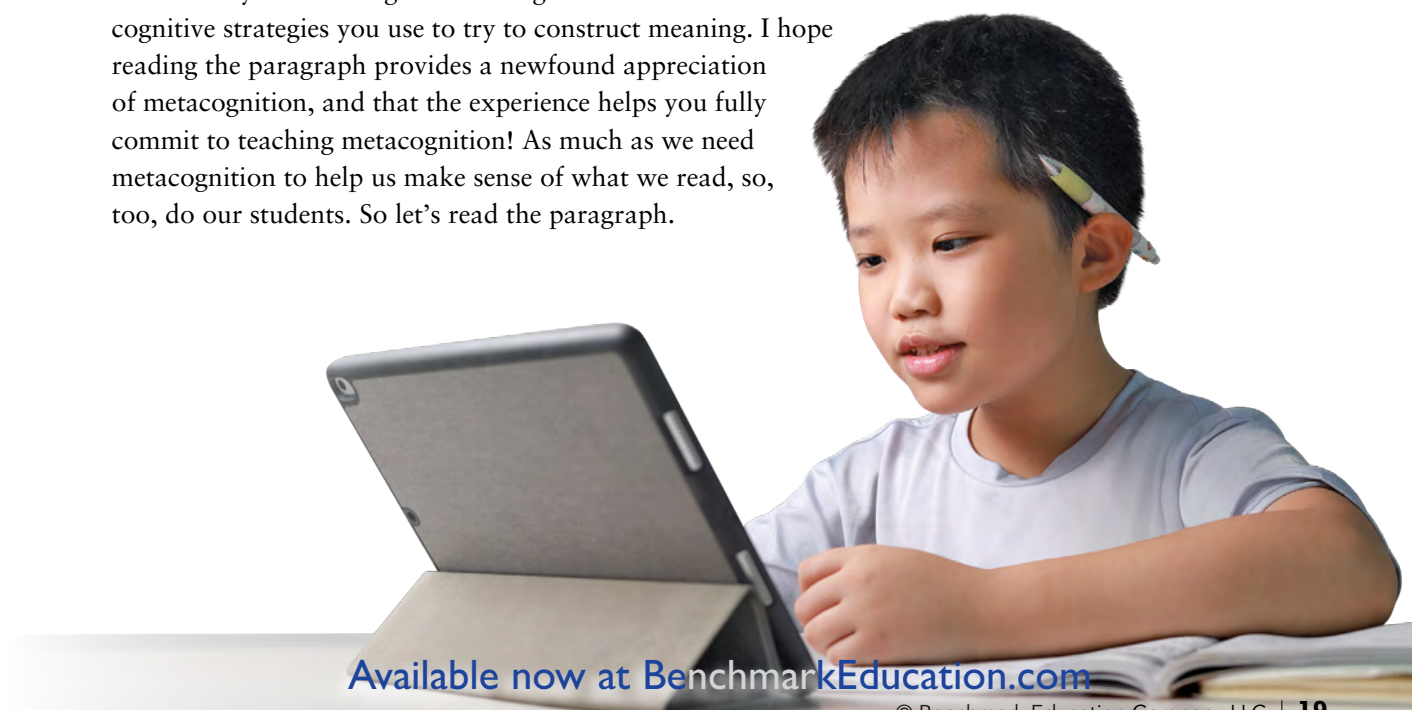
The relationship of cognitive reading tasks to metacognitive questioning.

Mindfulness, executive function, and comprehension monitoring work collectively to promote metacognition. With these behaviors and mindsets, students become increasingly aware of—and in control of—the strategies they use to comprehend text. Research shows us that metacognition plays a vital role in fostering independent readers. Next, let’s observe our own metacognition as we read.

Examining Our Own Metacognition

For accomplished readers, metacognition is a silent partner in reading success. Most often, literate adult readers encounter texts they can read easily without explicitly thinking about how they know what the words on the page mean or the strategies they are employing to read the text. When we are reading smoothly, experiencing success, and regularly using automatic reading skills, we are hardly aware of metacognition. Our reading is going according to plan, and strategies and skills are contributing to our accomplished reading. Even so, cognition and metacognition work hand in hand. It takes a reading challenge to bring metacognition to center stage in an act of reading, and for us to appreciate its power.

To illustrate both the nature and necessity of metacognition, I’ve chosen a very difficult paragraph to read. The purpose is to help us dig down into the nature of metacognition so that we can better understand it. As a result of reading the paragraph, I expect that you will gain insight as to how metacognition works and your metacognitive strategies—as well as some of the cognitive strategies you use to try to construct meaning. I hope reading the paragraph provides a newfound appreciation of metacognition, and that the experience helps you fully commit to teaching metacognition! As much as we need metacognition to help us make sense of what we read, so, too, do our students. So let’s read the paragraph.



Metacognitive Reading Exercise

Read the paragraph and try to construct meaning. Take note of what you are doing as you try to construct meaning.

“There have been changes in our views on the origin of sedimentary organic compounds. Earlier, these were considered as the random transformation products of biological source materials. Treibs’ work and much of the succeeding effort in this field have revealed identifiable structures of biological origin in ancient geological specimens. In many instances, seemingly unaltered biochemicals have been isolated, even from Precambrian sediments. Examples are the straight-chain, iso, anteiso and isoprenoid hydrocarbons and the corresponding fatty acids, the amino acids and certain carbohydrates. In other chemical fossils, the biochemical architecture remains recognizable, but peripheral groups have been altered, polar substituents have been reduced or eliminated and the overall size of the molecules may have been changed” (Blumer, 1973, p. 591).

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First, thank you for taking on this task! Second, I’m sure you are happy that most of your reading doesn’t involve such challenges. Imagine if you encountered such difficulty each time you read—as some of our struggling readers do. Third—and more to the point of reading the challenging paragraph—what did you find yourself doing? What strategies did you use to try to comprehend the paragraph? How were you metacognitive?

Many of our metacognitive strategies are predictable: Did you reread the phrase “identifiable structures of biological origin in ancient geological specimens” to try to get a grip on its meaning? Did you slow down when you read “Examples are the straight-chain, iso, anteiso and isoprenoid hydrocarbons”? Did you adjust your goal for reading when you encountered “polar substituents have been reduced or eliminated”? Were you asking yourself, “Does that make sense?” or “Why doesn’t that make sense?” Did you try to call up any and all background knowledge that you thought might be helpful, keying on words like “biological” and “sedimentary”? Did you check to determine if your background knowledge actually helped you? Did you tell yourself, eventually, “This is not going well!”?

I hope that you see yourself in some (or all!) of the above metacognitive reading strategies. If so, you have joined the ranks of accomplished readers who try their best to comprehend this challenging paragraph, and who are unfailingly metacognitive. Our reading of this brief paragraph helps illustrate the different types of metacognitive strategies that we use, and the essential nature of metacognition for helping us manage—and in this case, troubleshoot and try to fix—our reading. While we would never require elementary school students to read such a difficult text (the text is taken from a specialized science journal whose readership is researchers, PhDs, and doctoral students), we know that some of our students face daily challenges to reading and understanding. For these students, reading what we consider a simple second-grade or third-grade level text can feel like reading about ancient geological specimens. Simple texts can present substantial challenges.

As part of my research on reading and metacognition, I've had many (thousands actually) accomplished readers read the above paragraph. These readers report diverse strategies as they try to comprehend the challenging text.

Metacognitive Strategies for Reading Complex Texts

- Slow down the rate of reading.
- Reread to clarify or establish understanding.
- Stop reading to check on comprehension.
- Identify the problem.
- Fix the problem.
- Try to “get back on track.”
- Set a goal for reading, which typically involves hoping to comprehend the text fully.
- Check on progress toward the goal.
- Adjust the goal as the difficulty of the text becomes apparent.
- Note that it is difficult to make sense of the text.
- Predict an anticipated degree of success.

In order for students to become metacognitive readers and employ these strategies, it is also necessary to foster students' inner metacognitive voice—a voice that will make them more aware and conscious readers.

Developing an Inner Guiding Voice

Part of developing an inner guiding metacognitive voice is being explicitly taught to recognize and listen to it. As such, classroom teachers are instrumental in helping children develop as metacognitive thinkers (Steiner et al., 2020), and effective instruction boosts elementary school children's metacognitive strategy use (Schneider & Löffler, 2016). Schneider (2007) determined that children aged 7–8 years benefited from metacognition instruction in which they learned to monitor the effectiveness of strategies they used. Elementary school children's accurate comprehension monitoring reflects both successful metacognition and achievement (Schneider & Löffler, 2016). Further, research describes effective elementary-grade metacognition instruction (Dignath et al., 2008) and the effect of this metacognitive instruction can have long-lasting and positive influence on students' academic achievement (de F... et al., 2018). Explicitly teaching metacognitive strategies enhances children's learning across elementary school grades (Dignath et al., 2018; Donker et al., 2014). Our instruction focuses on helping all students develop an inner guiding voice.

