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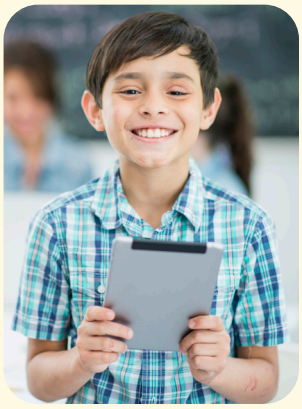
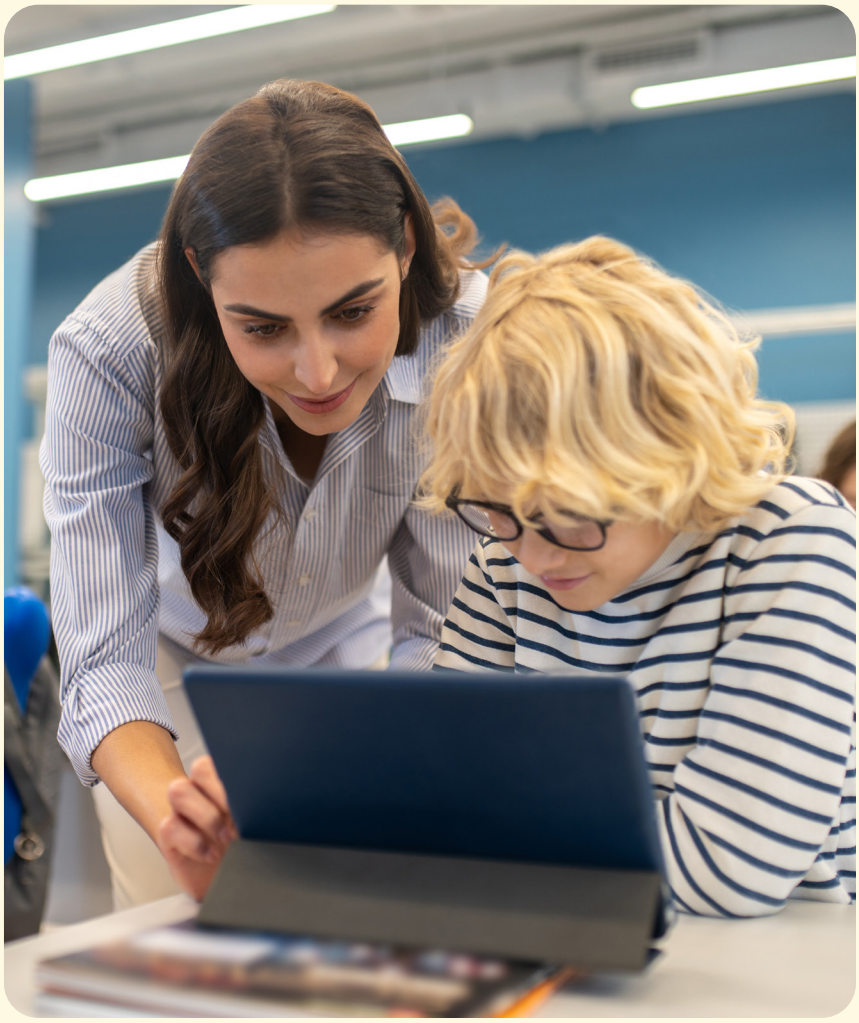
How to Integrate Strategy Instruction and Background Knowledge: A Both/And Approach

Molly Ness, Ph.D.





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In today's literacy conversations centered on the Science of Reading, there's growing recognition that background knowledge is essential for comprehension (Cabell & Hwang, 2020; Cervetti & Wright, 2020); research indicates that higher levels of background knowledge enable students to better understand a text (Smith et al., 2021). Simply put, students can't understand what they read if they don't have enough knowledge to make sense of it. Conversations about the importance of knowledge have gained traction in mainstream press (e.g. Wexler, 2019), among literacy scholars and advocates (Knowledge Matters Campaign, 2022), and with curriculum developers. The narrative seems to suggest that building and activating students' background knowledge is the single key to unlocking comprehension.

With this growing interest in knowledge, however, we must be careful not to sideline and minimize the research showing the essentiality of comprehension strategies. Further, we must be intentional about using better teaching strategies than we have in the past. A close examination of the research indicates the necessity of a both/and approach: students need both background knowledge and purposeful comprehension strategy instruction to successfully understand text. As explained in a 2021 article, comprehension is "not a balance scale … in which knowledge building is on one side and comprehension strategy instruction on the other" (Duke, Ward, & Pearso, p. 669). The aim of this white paper is to move away from an either/or approach (either background knowledge or comprehension strategies) and to highlight the interplay between knowledge and strategies with immediate classroom applications.

How Did We Get Here?

Looking back at the narratives around comprehension, it is understandable that well-intentioned teachers and school leaders are scratching their heads around the seemingly oppositional conversation: "Is it either background knowledge or comprehension strategies? Can both exist? What's the best way to improve comprehension for students?" After all, the often-circulated infographic from the National Reading Panel (2000) depicted reading comprehension as its own pillar, or a standalone component requiring focused strategy instruction (Catts, 2021). Instructional materials doubled down on strategies like identifying main ideas, predicting, and many familiar others; what was problematic was the application of these singular strategies across disconnected text. As the work of reading researchers and literacy advocates like Daniel Willingham, E.D. Hirsch, and Natalie Wexler came to the forefront, background knowledge earned its much-needed moment in the spotlight. And, as is characteristic of trends in education, conversations became bifurcated—pushing a false narrative of either/or. Reading researchers Peter Dewitz and Michael Graves (2024) noted that "pitting the development of knowledge against the teaching of strategies is a false dichotomy" (p. 18). What has been overlooked, however, is the role of knowledge in students' successful application of strategies.

The Spotlight on Knowledge: What It Is and Why It Matters

Of the unconstrained components of language comprehension, arguably, background knowledge has received the most recent attention. Many high-quality instructional materials are intentionally designed to be "knowledge-rich," with deep dives into a topic or theme across multiple weeks of instruction. The advantage of these knowledge-rich materials is that students build schema and vocabulary across text sets or cohesive texts. Background knowledge—whether it comes from students' preexisting knowledge or is directly built by teachers—allows readers to make inferences throughout a text, to unpack inferential meaning, to make sense of unfamiliar words, to process information more effectively, and to better connect to what they read. In his 2021 article, Hugh Catts of the Florida Center for Reading Research explained the many ways in which knowledge contributes to reading: by freeing up working memory, enabling deep thinking, and helping us to organize new information. Further, knowledge sets forth an upward spiral; the more you know, the better you understand, thus the more reading is accessible and enjoyable, hence encouraging more reading. Knowledge—whether shorter units about more topics or longer units over fewer topics—supports the learning of new information, which then becomes the background knowledge for future reading.

Undoubtedly, knowledge is a significant predictor of comprehension—for both monolingual and emerging bilingual learners (Davis et al., 2017). A 2023 study (Hwang et al.) revealed a positive relationship between domain knowledge and elementary year reading growth. A 2021 synthesis of research (see Smith et al.) highlights that strong knowledge of a topic allows readers to compensate for below-average reading skills.

We intentionally use the term *prior knowledge* to be more inclusive of the many types of academic and experiential knowledge that students bring to the classroom (Hattan, 2024). Prior knowledge can be defined as "the sum of individuals' existing knowledge, including personal, domain, topic, strategic, social, cultural, and linguistic knowledge" (Hatan & Lupo, 2020). Thus, knowledge is more comprehensive than what students know about an academic subject—also including knowledge that is grounded in their homes, cultures, languages, and experiences.

Let's also examine the difference between knowledge building and knowledge activation. Knowledge activation encourages students to access what they already know about a topic, even though that knowledge might be inaccurate. Knowledge building entails the construction of new knowledge. Research indicates that though knowledge building and activation should occur continuously throughout reading, it largely occurs prior to reading (Hattan & Alexander, 2020). To maximize the instructional potential of knowledge, Hattan (2024) recommends several principles about knowledge building and activation: (a) activate knowledge before, during, and after reading; (b) activate knowledge collaboratively; (c) support students in understanding connections between concepts; (d) support students in recognizing discrepancies between their knowledge and text-based information; (e) address misunderstandings; and (f) consider the amount of students' topic-specific knowledge.

A Both/And Approach: Knowledge Plus Strategies

As powerful as knowledge activation is, it is not a panacea. Knowledge contributes to comprehension in instances where students have some familiarity with the topic of a text. However, knowledge activation doesn't support comprehension if students are working with texts about unfamiliar topics (Kaefer, 2020). A 2020 study showed that brief instruction about an unfamiliar topic did not support kindergarteners' comprehension during a read-aloud.

The most effective approach is the integration of knowledge and intentional strategy instruction. A recent meta-analysis (Peng et al., 2024) found that comprehension strategy instruction was effective when combined with background knowledge instruction. Another meta-analysis (Filderman et al., 2022) specifically focused on struggling readers in upper elementary and beyond, finding an effect size of 0.59, supporting the inclusion of background knowledge and strategy instruction to support comprehension. In fact, strategy instruction, including inferencing, main idea, text structure, and retelling, improved reading comprehension along with background knowledge. Let's unpack three high-leverage strategies that—in conjunction with background knowledge—improve students' reading comprehension: 1) text structure, 2) summarizing, and 3) inferencing.

Effective Strategy	Description (Shanahan et al, 2010)
Text Structure	The way in which a text is organized to convey meaning, encompassing the organization of ideas
Summarizing/Retelling	Briefly describe, orally or in writing, the main point of the text
Drawing Inferences	Generating information that is important to construct meaning, but that is missing from or not explicitly stated in the text

Text Structure

Without a doubt, students benefit from instruction in text structure, defined as "the organization of ideas, the relationship among the ideas, and the vocabulary used to convey meaning to the reader" (Pyle et al., 2017, p. 469). For narrative text, story elements including characters, goal, problem, and resolution are equally impactful (see Duke et al., 2021). A 2021 meta-analysis demonstrated that when provided with explicit instruction in text structure, students in secondary grades improved their ability to organize their memory of text, thus resulting in increased reading comprehension (Bogaerds-Hazenberg et al., 2021). Text structure enables students to identify the main ideas and to build a mental model of what they read (Oakhill, Cain, & Elbro, 2015).

Classroom Implications—Supporting Students With Text Structure

- Teach students about the various types of text structures, including description, sequence, compare and contrast, cause and effect, and problem/solution (Meyer, 1975).
- Model how signal words (*because, first, for example,* etc.) serve as clues to identify text structure.
- Use graphic organizers to visually depict text structure. For example, a t-chart visually organizes compare/contrast text.
- Intentionally call students' attention to text structure in texts they encounter beyond ELA classrooms, so as to better transfer this strategy across any content area text (Wijekumar et al., 2023).

Summarizing

Reading researcher Tim Shanahan (2005) synthesized research on comprehension and reported that summarization is one of the important techniques for improving reading comprehension. In a summarization, readers must differentiate between essential and non-essential ideas and logically connect them. Pervasive across commercial reading materials as well as the Common Core State Standards, summarization is often problematic for children. In an analysis of grades four and five performance on standardized tests, students performed statistically significantly lower on summary questions (Wijekumar et al. 2020).

Classroom Implications—Supporting Students With Summarizing and Main Idea

Introduce consistent sentence stems—particularly impactful for struggling readers and multilingual students—to jumpstart language for summarization, such as the following:

- "The most important idea is … "
- "The key point is … "
- "In summary, the author explains … "

During and after read-alouds of high-quality children's texts, model summarization with the GIST (Generating Interactions between Schemata and Texts) (Cunningham, 1982). Tackle your text in chunks and follow these basic steps to verbalize your GIST for students:

- Step 1: "Who or what is this section about?"
- Step 2: "What is the most important information about the who or the what?"
- Step 3: "Generate a main idea/gist statement in your own words, from steps one and two."

For more sophisticated readers, model summary writing with the basic steps proposed by researcher Ann Brown and colleagues (1983), a protocol which assists readers in deleting unnecessary information, grouping similar ideas together, and generating a sentence to describe the remaining important ideas:

- Delete trivial information.
- Delete redundant information.
- Substitute superordinate terms for lists (e.g. instead of "I went to the store and bought apples, bananas, and oranges" use "I went to the store and bought some fruit.")
- Substitute superordinate terms for series of events (e.g. instead of "John got out of bed, put on his clothes, ate a bowl of cereal, and brushed his teeth. Then he grabbed his backpack and headed out the door to catch the bus." use "John got ready for school and headed out the door to catch the bus.")
- Select a topic sentence.
- Generate a topic sentence—if not provided by the text.

Inferencing

Remember the beloved picture book *Miss Nelson Is Missing* (Allard, 1977)? In this classic, a sweet teacher is frustrated by her students' behavior. To remedy the situation, she disguises herself as a no-nonsense substitute teacher. Her students are so grateful for the return of their kind teacher that their behavior is instantly improved. Young readers must put together clues from the text to reach the key inference: that Miss Nelson and the wicked substitute teacher are, in fact, the same person. For too many students, the joy and wit of this text vanish because of their struggle to infer.

Much of the message of a text must be deduced through inferencing, or understanding the implied message. A 2017 article reminds us, "if every idea had to be explicitly articulated in a text, the text would be lengthy and boring" (Ellerman, p. 761). That same meta-analysis shows moderate to large effect sizes for inference instruction—for both skilled and less-skilled readers.

Classroom Implications—Supporting Students With Inferencing

Use think-alouds to model combining text clues with background knowledge to make inferences. Think-alouds are when proficient readers use first-person narrative language to demonstrate their internal thought processes (Ness, 2017). The following sentence starters may be useful:

- "From the text clues, I get the sense that … "
- "The author doesn't come right out and tell me, but I'm thinking that … "
- "When I add up this clue and what I already know, I can infer … "

Incorporate inference-based questions, which require students to make conclusions not directly stated in the text. Keep in mind that these wh- questions may require additional levels of support for multilingual students. Examples are as follows:

- "Why do you think … ?"
- "What might happen … ?"
- "What is the author implying … ?"
- "How do you know … ?"
- "What probably caused …?"

Help students differentiate between the four general types of inferences: 1) anaphoric, when an author replaces one word with another, 2) prior knowledge, requiring readers to connect knowledge and text information, 3) predictive inferences, which enable readers to predict what happens next, and 4) retrospective, in which readers connect ideas across sections of a text.

The Powerful Interaction of Strategy Instruction and Knowledge Building

We are at an opportune moment in the literacy landscape where conversations about the Science of Reading are commonplace across schools, state legislatures, and communities in general. Teachers are widely recognizing that too many students struggle with comprehension; a 2024 report indicated that teachers reported that half of students always or nearly always had difficulty reading and comprehending text (Shapiro, Sutherland, & Kaufman, 2024). Teachers themselves are clamoring for more professional development, specifically on reading comprehension; a 2024 survey revealed that 31% of elementary school teachers requested additional resources and training to support students' reading comprehension (Shapiro, Sutherland, & Kaufman, 2024). Research demonstrates that teachers may not yet have mastered the reading comprehension skills they are expected to teach; Wijekumar and colleagues demonstrated that teachers had moderate abilities to summarize text (2020) and to accurately identify text structure (2019).

So what are teachers and school leaders to do amid the confusing messages about comprehension? We must push against any unnecessary bifurcation and adopt a centrist stance to comprehension. We must prioritize effective strategy instruction in conjunction with knowledge-rich instructional materials. We must continue to inform ourselves about connecting research and practice. We must embrace our powerful responsibilities as architects of knowledge and integrators of understanding. We must read aloud from rich knowledge-building text at the same time as we purposefully model and scaffold strategy application. And we must understand that comprehension is facilitated *both* through knowledge building *and* purposeful strategy instruction.

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