

The Science of Literacy

A Guide to Research-Based Literacy Instruction, Encompassing the Science of Reading, the Science of Writing, and Knowledge Building & Comprehension

Foreword

By Dr. Steve Graham, Dr. Katie Pace Miles, and Dr. Tanya Wright

States across the country, including California, New Mexico, Indiana, and Iowa, have enacted legislation that aims to align literacy funding with evidence-based reading instruction, and similar efforts are underway at the federal level, reflecting a nationwide consensus around the science of reading. While it may be premature to declare the long-lasting “reading wars” finally over, we believe that a focus on evidence-based reading instruction is here to stay – and rightly so. To call the decades-long debate about reading instruction a “war” is perhaps unfair, carrying too negative a connotation. The tension among practitioners, researchers, and others in education has always come from a place of good intentions. It is because educators are so passionate, resilient, and flexible that once they learn about the evidence, they embrace the body of research on reading instruction.

We know that reading is a complex cognitive process requiring both efficient word recognition and strong language comprehension. We also know that explicit, systematic instruction in foundational skills has proven essential in helping students become proficient readers. An embrace of this knowledge among educators and advocates has driven shifts in policy, practice, and instructional design that could impact generations of learners to come.

It is not enough to ensure our students have basic reading skills. Students must be fully literate to thrive in a rapidly evolving society and workforce. Therefore, we must ask educators to embrace one more critical shift in their thinking and practice: expand from the science of reading to the **Science of Literacy**.

To be truly literate is not only to be a reader, but also to be a writer, a thinker, and a communicator. The Science of Literacy reflects this breadth, integrating the science of reading, the science of writing, and knowledge building. Though the research behind the science of reading has long recognized these domains as intertwined, practice has not always followed suit. Here, we aim to discuss the three areas to highlight both their individual importance and their connections. Educators will find that evidence-based instruction in one reliably supports growth in the others.

A shift to focus on the Science of Literacy will not replace the science of reading; rather it includes the science of reading as well as a broader research base. It calls for instruction that prioritizes coherence, depth, and connection across content areas. It will empower students not only to learn to read proficiently and with comprehension, but also to write effectively, think critically, and engage deeply with the world around them.

This paper is offered in that spirit. By embracing the Science of Literacy, we can capitalize on the momentum of the present moment to advance a more complete and enduring vision of what it means to be literate.

“We often talk about the “pendulum swing” regarding our profession’s relationship with reading instruction. But I like to think of it as a spiral... We’re just drilling deeper and deeper into our collective knowledge about what it takes to teach the brain to read.”

– Dr. Douglas Fisher, Professor of Educational Leadership at San Diego State University and *McGraw Hill Literacy* author



The Science of Reading

The continually evolving body of research evidence known as the science of reading is comprised of more than forty years of research into how we learn to read and analyses of instructional practices with proven results that have been validated consistently over time. It has led to the identification of several key pillars that are the core of any effective literacy program.

The Key Pillars of the Science of Reading

- **Phonemic Awareness** refers to the understanding that there are individual sounds, or phonemes, in words. For example, the spoken word "sit" has three distinct phonemes, /s/ /i/ /t/. Phonemic awareness additionally includes the ability to isolate, identify, blend, and segment individual phonemes. It is a subset of phonological awareness.
- **Phonics and Word Recognition:** Phonics refers to the relationship between sounds (phonemes), pronunciations, and spellings (graphemes). Phonics instruction helps readers understand the relationship between letters and sounds and pronunciations and spelling patterns to recognize and decode words.
- **Fluency** is the ability to read accurately, at an appropriate rate, and with suitable expression. Developing fluency allows the reader to focus less on decoding and to organize sentences grammatically, contributing to accurate, deep comprehension, and greater motivation to read.
- **Vocabulary** comprises knowledge of word meanings and the meaningful parts of words. Vocabulary development involves words that are rich in meaning, including conversational, general academic, and domain-specific words. Students build oral vocabulary through listening, which in turn helps them better comprehend text read aloud to them. Oral vocabulary also helps readers recognize and make sense of words they see in print. Later, students need to develop a knowledge of written vocabulary, words that appear in text but are not often heard in oral language.
- **Comprehension** refers to the ability to understand what you are reading. This involves making connections to what you've read and what you already know and drawing conclusions about the text. It also requires the ability to make sense of language – vocabulary, of course, but also syntax or sentence grammar, cohesion, and discourse structure, as well as how to focus one's efforts on understanding a text (including monitoring success and making adjustments as needed).



“There are several misunderstandings about reading fluency, the primary one being that reading fluently means reading fast. While “speed” (rate) is definitely one component of reading fluency, it is not the key component, and there are other important factors for educators to consider when teaching and assessing fluency....Fluent reading is not fast reading!”

– Dr. Jan Hasbrouck, researcher, educational consultant, and *Emerge!* author

Models of the Science of Reading

As research on the science of reading continues to grow and evolve, so do the models, views, and representations researchers and educators use to frame our knowledge. Here is a very high-level overview of a few widely used models of the science of reading:

The Simple View

The Simple View formula presented by Drs. Philip Gough and William Tunmer in 1986 is one model of how reading comprehension is achieved. While the model is called the "Simple View of Reading," we should not infer that the teaching of reading is simple. In fact, Dr. Louisa C. Moats refers to the teaching of reading as "rocket science" (Moats, 2020). The Simple View of Reading was developed to clarify the role of decoding in reading (Hoover & Gough, 1990).

It contends that there are two basic processes integral to reading: decoding and language comprehension. Decoding is the ability to translate text to oral language; readers then use their knowledge of language to make sense of the decoded message. Basically, reading comprehension is the product of these two processes. Readers with more limited decoding or oral language skills will have difficulty comprehending text, while stronger decoding and language comprehension skills power reading comprehension. The Simple View stands in stark contrast to approaches that have minimized the importance of decoding or oral language.

Scarborough's Rope

This popular model uses the metaphor of a rope, where reading skills are represented by different strands that "weave together" to create a strong reader. It was developed in 2001 by Dr. Hollis Scarborough to introduce and explain the complexities involved in learning to read that underlie the "simple view" (Scarborough, 2001).



Scarborough's Rope deconstructs the Simple View of Reading by revealing some of the underlying cognitive components that make up decoding and language comprehension. According to this model, the components that contribute to the ability to read words include items like phonological awareness, decoding, and automatic word recognition. Reading comprehension, on the other strand, depends upon skills like vocabulary, language structures, verbal reasoning, background knowledge, and literacy knowledge.

Research has found that all the components represented in the rope require explicit instruction and practice, and component mastery is usually accompanied by improvements in reading. As the rope metaphor suggests, these skills are not independent; students must learn how to integrate and orchestrate them together. Scarborough's apt representation doesn't purport to be comprehensive; rather, it indicates some key features of reading. In her later writings, Dr. Scarborough points out additional components of reading, such as reading comprehension strategies, working memory, and planning (Cutting & Scarborough, 2012).

"Oral language is critical to early foundational literacy skills. When students have a robust oral language vocabulary, they have a large lexicon of words they understand. This then helps them find the approximate word as they're decoding."

– Dr. Katie Pace Miles, Professor and Director of the Advanced Certificates in Reading Science at Brooklyn College, City University of New York (CUNY), and *Emerge!* author

The Active View of Reading

Drs. Nell Duke and Kelly Cartwright have identified significant overlap between word recognition and language comprehension. In "The Science of Reading Progresses: Communicating Advances Beyond the Simple View of Reading," the authors review recent research to support their findings that word recognition and language comprehension are not entirely separate, and important processes bridge them, including vocabulary, reading fluency, and morphological awareness (Duke & Cartwright, 2021). Their research synthesis also finds that many contributors that were not included in the Simple View of Reading—including self-regulatory processes such as executive function skills and motivation—play a substantial role in reading (Duke & Cartwright, 2021). These elements are part of a theory that expands upon the Simple View of Reading, which the authors call an Active View of Reading (Duke & Cartwright, 2021).



Reading-Writing Connections

Equally important to learning to read is learning to write. This isn't simply because writing is an invaluable ability that empowers learners to communicate their ideas, or because writing is an increasingly drawn-upon skill in the modern workforce. It's also important because learning to write can help students learn to read. In fact, effective writing instruction has been proven to improve students' reading comprehension and fluency.

Reciprocal Reading and Writing Skills

Many of the skills and cognitive processes involved in reading and writing overlap or are interrelated. The knowledge students draw upon when reading overlaps with the knowledge they draw upon to write. For example, knowledge about vocabulary, purpose, and text organization helps inform how students comprehend, interpret, and construct text. Additionally, phonological awareness and phonics play a role in both spelling words while writing a sentence and reading them in a book (Shanahan, 2019).

While these connections are intuitive for educators, researchers argue that recognizing the connections isn't enough, and that we should push further to leverage these connections to improve reading and writing instruction, thereby further integrating the science of writing into what we know about the science of reading (Graham, 2020).

Integrating Reading and Writing Instruction

A best practice for integrating reading and writing instruction is to have students write about what they read to improve comprehension. This can occur in any discipline, not just the ELA block. Students can write in response to a text, summarize a text in writing, or answer questions about a text in writing. Teaching the writing skills and processes required to create text also benefits comprehension and word fluency. These best practices and more were identified in a report from the Carnegie Corporation called *Writing to Read: Evidence for How Writing Can Improve Reading*. This powerful meta-analysis is a foundational piece for evidence-based reading-writing connections (Graham & Hebert, 2010).



“When students read with purpose, they write with clarity. When they write to express, they read with greater insight.”

– Dr. Steve Graham, Regents Professor, Arizona State University, and *McGraw Hill Literacy* author

The Science of Writing

The science of reading has dominated conversations about literacy education for a long time. But placing equal weight on the science of writing will not only enable educators to capitalize on reading-writing connections and strengthen reading skills but will also foster a generation of capable writers who can express their ideas with confidence.

Provide frequent opportunities for writing during instruction

This practice, along with a few others below, is recommended by the What Works Clearinghouse in their Educator’s Practice Guide, *Teaching Elementary School Students to Be Effective Writers*. It’s intuitive, of course, that to become proficient writers, students need to practice writing. But research shows that classroom time dedicated to writing is often limited, particularly in early grades.

The researchers behind the What Works Clearinghouse guide recommend thirty minutes to an hour of writing instruction per day in elementary school. They clarify that the designated time alone isn’t sufficient — that time needs to be spent explicitly teaching writing strategies, techniques, and skills, followed by an opportunity for students to apply what they learned in their writing (Graham, et al., 2012). According to Dr. Steve Graham, “When we increase how much students write in grades 1–6 by about 20 additional minutes a day, we can expect to see a 12-percentile jump in writing proficiency.”

Form a community of writers

Creating a classroom environment where students are acknowledged, encouraged, and inspired can have a considerable impact on young writers. In writing communities, teachers write alongside their students and conference with them regularly. They demonstrate the value of writing and elevate student voice and choice. When provided the opportunity to learn and practice collaboratively, the tools to provide and receive productive feedback with peers, and the creative space to make choices about their writing, writing communities have the potential to



boost student engagement and motivation (Graham et al., 2012). Studies have even shown that collaborative writing opportunities boost autonomous motivation — in other words, writing for pleasure (de Smedt et al., 2019).

Provide explicit writing instruction

Researchers recommend that instruction follow a gradual release of responsibility model, where teachers provide explicit instruction, model strategies, then guide students to practice applying those strategies first collaboratively and ultimately independently (Graham, et al., 2012).

Model writing

The research is also clear that the best writing teachers are writers themselves. Modeling the writing process — and, importantly, the vulnerability that accompanies writing — is critical. Teachers should share their writing with students, including modeling revisions and edits, to demonstrate the perseverance required to complete a piece of writing and the satisfaction gained from becoming a writer (Graham et al., 2012).

Teach foundational writing skills

Much like reading, students need to master fundamental skills to become fluent writers. Sentence construction, spelling, handwriting, and typing are essential skills that enable students to communicate their thoughts and ideas (Graham et al., 2012; Graham et al., 2015). Students need explicit instruction in these foundational skills. As learners develop a degree of automaticity, they can devote their writing focus to conveying their ideas. From understanding sentence types to constructing a multi-sentence paragraph and even a multi-paragraph essay, the research is clear that we cannot expect students to simply “pick up” foundational writing skills. Time must be devoted to explicit instruction.

Teach the writing process

Writing can feel overwhelming for learners because it’s a recursive process. To navigate this creative, iterative work, students need clear strategies and support.

Research shows they benefit from explicit instruction in each stage of the writing process: planning, drafting, sharing, revising, and editing. Using a gradual release model can help students see how moving back and forth between these stages strengthens their ability to synthesize ideas and refine their thinking. Students should practice strategies for each phase, such as setting goals, using graphic organizers, taking notes, revising outlines as they draft, and adding or reworking paragraphs during revision. Grammar and writer’s craft are most effective



when taught within the context of students' own writing. This kind of instruction should begin early, as even young learners can engage in simple planning and revising.

Teach how to write for a variety of audiences and purposes

Not every piece of writing serves the same purpose, and to achieve varying purposes for writing requires different writing techniques. Students need opportunities to analyze narrative, informational, and argumentative writing models, identifying the form and features of each genre. In studying how the purpose of writing influences the form, they can practice writing in the genre. They should be able to apply that knowledge by selecting a genre for a writing task that best suits their objective. Practice writing in different genres should include a combination of explicit instruction and opportunities to write for authentic audiences (beyond the teacher) and authentic writing tasks (Graham et al., 2012; Purcell-Gates et al., 2007). In elementary school, authentic writing tasks might include journaling or letters to friends.

Use assessment to inform and differentiate instruction

Finally, differentiation is key in writing instruction. Researchers recommend using formative assessment to understand students' skills and needs, make decisions about instruction, and provide feedback to learners (Graham et al, 2016). The data gleaned from formative assessments can support a variety of important differentiation strategies — from small group instruction to conversations in student-teacher conferences. Additionally, as with all instruction, students' learning differences, backgrounds, and other contextual factors influence their needs as growing writers, making personalization critical.

The above practices are of course not comprehensive, and ongoing research continues to provide valuable insights into effective practices.

"So long as humans need to communicate the ideas, emotions, stories, and identities that are uniquely nuanced to the human experience, writing instruction won't disappear anytime soon — despite some of the pundits who have been concerned that that may be the case."

– Dr. Steve Graham, Regents Professor, Arizona State University, and *McGraw Hill*



Writing in the Age of AI

In the era of generative AI, many have questioned the need for writing instruction. Why teach students to write an essay when AI can do it for them?

Dr. Steve Graham, among other literacy experts, has argued that writing remains essential in the age of AI because it is more than a means of producing text. It is a fundamental tool for thinking, learning, and human connection. While AI can generate competent writing, it cannot replicate the deeply personal, reflective, and meaning-making processes that occur when individuals write themselves, nor can it replace writing's role in helping students analyze information, integrate ideas, and develop understanding.

Writing instruction strengthens reading, critical thinking, and communication skills, all of which are necessary not only for academic success but also for effectively using AI as a support tool rather than a substitute for thought. Given that many students already struggle with basic writing proficiency, teaching writing is more important than ever to ensure learners can engage meaningfully with content, communicate their ideas, and navigate an AI-assisted future.

Building Comprehension and Knowledge

"Knowledge without comprehension has limits. Comprehension turns knowledge into a renewable resource."

– Dr. Douglas Fisher, Professor of Educational Leadership at San Diego State University, and *McGraw Hill Literacy* author

Why does knowledge matter for the Science of Literacy? There are many types of knowledge that readers bring to comprehending texts. This includes knowledge of the topic of the text, disciplinary knowledge, world or general academic knowledge, cultural knowledge, and genre knowledge. Research repeatedly finds that the more related knowledge a reader has to the ideas in a text, the easier it is for the reader to comprehend the text (Cervetti & Wright, 2020).

Models of reading that inform the Science of Reading, such as the Reading Rope, the Active View, and the DIER model, all recognize the importance of knowledge in the reading process.



Knowledge helps readers to make inferences as they read, including to fill in information that the author may not provide, to make sense of ambiguous information, and to figure out what unknown vocabulary words mean. More knowledge even helps readers to engage in more effective comprehension strategies as they read a text! (Cervetti et al., 2026). Readers with more knowledge are better at integrating what they read into what they already know. Therefore, knowledge helps readers to comprehend text and to learn from text, which is the ultimate objective of reading.

The knowledge that readers bring to a text is referred to as *prior knowledge* or *background knowledge*. Readers acquire background knowledge through their life experiences, including through reading and previous learning in school. Some research has shown that activating relevant background knowledge before reading a text can be helpful to support reading comprehension. The challenge is that activating knowledge is most helpful *if* readers already have background knowledge that is related to the text being read. It would be unreasonable to expect all students in a classroom to have acquired the same background knowledge through prior experiences or for every student to have relevant knowledge to texts read in school. Therefore, for literacy instruction, it is helpful to focus on *building knowledge* rather than only activating existing knowledge.

Building knowledge, or *knowledge-building*, refers to the process students undertake as they learn new things, expand on what they already know, and deepen their understanding of interconnected concepts and ideas. Knowledge-building instruction enables all students to acquire the new knowledge they need for strong comprehension of the texts being read in school.

Importantly, research studies show a bidirectional relationship between knowledge and reading (Hwang et al., 2023b). That is, knowledge supports reading and reading also supports knowledge development. We want readers to learn from text beginning in early childhood and across the lifespan! So, instruction should focus on knowledge-building as well as on foundational skills, fluency, and comprehension skills and strategies.

How to Build Knowledge

Recent research demonstrates that students benefit from instruction that integrates literacy and knowledge-building (Hwang et al., 2022; 2023a). Studies of programs that include “content-rich” ELA instruction (ELA instruction that includes a focus on knowledge) show gains for students in their knowledge development, reading comprehension, and vocabulary development.



Varying approaches to building knowledge can help students become better readers. Here are a few key tenets of strong knowledge-building literacy instruction:

Include lots of opportunities for students to read

The best way to build knowledge during ELA instruction is for students to read a lot! Exposure to texts predicts reading achievement and knowledge development (e.g., Sparks et al., 2014; Stanovich et al., 1995). The more we read, the more we learn! Even before children learn to decode, teachers can read aloud to students from texts that include engaging new ideas. Throughout the elementary grades, read-alouds that include discussion of the ideas and vocabulary in a text can support children to access more complex texts than they can read independently. Across grade levels (and outside of school), it is critical to ensure that students are reading a broad range of engaging texts.

Focus on Text Sets

Text sets (group of texts with related concepts) have been studied as a key mechanism for building knowledge during ELA (Cervetti et al., 2016, Wright et al., 2022; Cervetti et al., 2026). Students read, or participate in read-alouds, of a set of related texts that are organized to build knowledge related to key ideas and concepts being taught. In a series of studies across the elementary grades comparing reading of conceptually-connected texts (e.g., six texts about the ocean) to reading unrelated texts (text about a range of topics), researchers found that reading a set of conceptually-related texts builds knowledge and vocabulary, and also supports stronger comprehension compared to reading unrelated texts. This makes sense! Reading related texts builds depth of understanding of ideas and reinforces new vocabulary words that relate to the ideas being studied, both of which contribute to reading comprehension. Text sets can include a range of text genres and text types. The goal is for students to build knowledge BY reading, and then to bring that knowledge to support comprehension of the next text that is read.

“Text sets are a great strategy for knowledge building. They’re an intentionally planned set of related texts that help students develop concept knowledge by deeply exploring a subject across genres and modalities, rather than reading an array of isolated facts.”

– Dr. Douglas Fisher, Professor of Educational Leadership at San Diego State University, and *McGraw Hill Literacy* author



Build knowledge across content areas and through diverse voices and perspectives

One of the most pressing questions around knowledge building is simply: What knowledge should students build? There's no single right answer, but some central guideposts can help us narrow down to a feasible scope. Many studies focus on units around science and social studies topics (e.g., Hwang et al, 2023a; Kim et al, 2023). The goal is to supplement and enrich, but not replace, the learning that takes place during science and social studies. Starting with an interesting question, such as *how does space exploration help us learn how Earth and space systems interact?*, can be a powerful way to get students excited about a knowledge building unit. Students can also explore knowledge in the arts and literature. An interesting question for that knowledge might be, *"How do people use art to share a message?"* The key is to select a focus that provides opportunities for exposure to engaging concepts, new vocabulary, and complex academic texts.

It is also important to consider the sources of knowledge, perspectives and voices of texts, and cultural implications of the ideas students explore. Text sets and supporting multimodal resources throughout a unit should feature diverse authors, characters, geographies, points of view, and cultures.

Teach vocabulary that represents key ideas and concepts

When we learn new ideas about the world, this is usually associated with learning new vocabulary (Wright, 2021). There are specific words for concepts, practices and tools across different disciplines, different topics, and even for different activities (when a runner talks about a *split*, it has a different meaning than when a dancer talks about a *split*). Knowledge-building instruction includes a focus on the language that students need to discuss ideas they are learning. As students read a set of texts, key vocabulary words will likely repeat across these texts. Therefore, teaching concepts and vocabulary together is critical for knowledge building. The goal is for students to learn new ideas and gain the vocabulary they need to communicate about their learning.

Provide opportunities for students to demonstrate knowledge.

One way to support knowledge-building is to provide students with opportunities to write about what they read. Reading and writing about content area concepts can make literacy activities purposeful, which boosts students' motivation (Graham & Hebert, 2010). As students explore topics in-depth, they should have opportunities to write about those topics in different genres and illustrate connections between concepts.



Students can also engage in other flexible opportunities to show what they know. Creative projects that incorporate elements of student choice can be valuable for students to demonstrate the knowledge they have gained on the unit topic.

The Role of Language Development in Reading Comprehension

The roots of reading comprehension can be found in the knowledge and language development of young children. However, as students progress up the grades, the oral language and the linguistic demands of text diverge. For example, students begin to confront vocabulary rarely heard in oral language (e.g., trudge, forlorn, colossal, moreover).

Likewise, the complexity of written sentences outstrips the demands of oral language. Sentences get longer and require the interpretation of multiple clauses and phrases. Ideas are linked more subtly and extensively across texts, requiring students to make sense of repetitions, synonyms, and pronouns as well as other conjunctions and connections. The discourse structure of text varies from oral language, too. Readers need to recognize the organizational schemes of texts (e.g., sequence, cause and effect, problem and solution) to fully understand and remember the information, and various genre features also have to be dealt with.

If students are to gain the language sophistication required for reading comprehension, they need opportunities to read texts that are rich in content, and sufficiently rich in language complexity and textual elaborateness (Shanahan, 2025). Younger students benefit from being read to from such texts, and students as they learn to read need to confront such challenges in their own reading with the support of a teacher. Instruction can also explicitly address these aspects of written language.

“Students need to learn to read and comprehend texts—even complicated and difficult texts that they cannot easily grasp on a first attempt. To accomplish that, reading instruction must engage students in dealing with such text demands without telling them what the text says or reading it to them.”

– Dr. Timothy Shanahan, Distinguished Professor Emeritus, University of Illinois at Chicago, and *McGraw Hill Literacy* author

The Role of Comprehension Skills and Strategies



While building knowledge is key, students should still receive instruction on developing comprehension skills and strategies. Both are important to comprehension. We know that students should use prior knowledge while reading, but they also need support using reading strategies to make sense of texts when they don't have sufficient background knowledge.

Strategies are powerful tools that enable students to stretch beyond the boundaries of their prior knowledge and explore new ideas, new cultures, and new perspectives. If we only set students up to rely on their prior knowledge, their horizons would be too limited.

Elementary teachers can teach self-monitoring strategies such as re-reading, making predictions, asking and answering questions, making inferences, summarizing, and visualizing. Students can also learn to use text or story structure to identify main ideas or events and work to summarize or retell the contents of the text. It's important to remember that these strategies lose their impact when taught in isolation and are most effective when implemented within a knowledge building program.

"It's clear that knowledge supports text comprehension, but what if kids want to read something they know very little about? We want kids to be able to read to figure out something new. So in addition to building knowledge, they also need to build strong comprehension skills and strategies."

– Dr. Tanya S. Wright, Professor, Marsal Family School of Education at the University of Michigan, and *Emerge!* author

Building Knowledge to Read, Think, and Write in the Disciplines

All three elements of the science of literacy – the science of reading, the science of writing, and knowledge building – when implemented through evidence-based practices across grades PreK-12, should support students as simultaneous readers, writers, and learners throughout their lives.

By building knowledge on science, social studies, and the arts in K-5, students can confidently navigate and even write their own discipline-specific texts in upper grades. For example, students who learned to read using texts about science will have the vocabulary, background knowledge, and genre familiarity to explore a chemistry textbook, write a lab report, and think like a scientist. Students who learned to read with texts about history will have the background knowledge, genre familiarity, and confidence to analyze a primary source about the



Revolutionary War and write up that analysis like a historian. Students who learned to read with poems and short stories will have the command of literary devices to be able to craft their own works.

The science of literacy challenges the notion that to be literate is only to be able to read and write. To be truly literate is to be able to draw upon literacy knowledge and skills to think critically, to inquire and analyze, and communicate effectively.

Conclusion

"Once you see literacy across ages, languages, and classrooms, it becomes difficult to treat it as a single science or a single framework. What begins as the Science of Reading quickly reveals itself as something much larger — a network of interconnected sciences shaping how students learn, persist, and find their voice. And once you notice that, it raises a bigger question: what other "sciences" have we been siloing that actually belong together?"

– Alex Luciano, 2nd Grade Bilingual Teacher

Just as an embrace of the science of reading is not sufficient, we should not be satisfied with this preliminary exploration of the science of literacy. The science of literacy is interconnected with other domains of the science of learning. Instructional practices should expand to meaningfully integrate evidence-based practices for motivating and engaging students, fostering self-efficacy, and cultivating a sense of belonging. Students are complex people learning within complex environments, and a truly evidence-based approach to literacy instruction should consider the whole child.



Our understanding of the science of literacy must continue to evolve, addressing not only how students read and write, but also examining how educators might create conditions that motivate students to persist, engage, and grow.

Learn more at:

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