Think Again:
Should Elementary Schools Teach Reading Comprehension?

By Daniel Buck

May 2024

About Fordham

The Thomas B. Fordham Institute promotes educational excellence for every child in America via quality research, analysis, and commentary, as well as advocacy and exemplary charter school authorizing in Ohio. It is affiliated with the Thomas B. Fordham Foundation, and this publication is a joint project of the Foundation and the Institute. For further information, please visit our website at fordhaminstitute.org. The Institute is neither connected with nor sponsored by Fordham University.

Suggested Citation

Acknowledgments

Executive Summary

The conventional wisdom among educators and literacy gurus is that reading comprehension depends on the acquisition of isolatable, teachable, and generalizable skills. Consequently, many elementary and middle school English classrooms follow the "reading workshop" model, an approach to literacy instruction, with several variations that typically involve teachers spending a few minutes modeling a supposedly important skill before sending students off to practice by reading self-selected but appropriately "leveled" books.

This policy brief challenges that orthodoxy. It asserts that, once students have learned to decode, reading books and other texts of any purported "level" with understanding depends more on knowledge than skills and that successful knowledge building requires explicit, carefully sequenced and paced, teacher-directed instruction across multiple subjects, including but not limited to social studies, science, and literature.

Key questions

Q1: Does reading comprehension depend on acquiring a set of teachable skills?

Answer: Not really. While core "decoding" skills are clearly essential, comprehending decoded text depends mostly on broad knowledge of the world.

Q2: Do students need practice with "just right" books?

Answer: Not for that purpose. In general, the difficulty of texts is less important than the content students learn from them.

Q3: Does letting students choose the books they read foster the motivation necessary to improve reading comprehension?

Answer: To a certain extent. But in the long run, giving students too much discretion will limit their exposure to challenging texts and vital content knowledge.

Q4: Does extended literacy instruction enhance reading comprehension?

Answer: Potentially, assuming the additional time is not spent on independent reading. To become strong readers, students need the background knowledge that comes from systematic exposure to history, science, and other subjects.

The Bottom Line

Reading comprehension depends on the acquisition of decoding, vocabulary, and knowledge, not "comprehension skills" as such. Yet the instructional practices and curricula that are the foundation for many English classrooms assume otherwise. How to alter that situation for the benefit of students is an important challenge for education leaders and policy makers.

Recommendations

1. **Include essential content in state standards in a coordinated way across multiple subjects.**

2. **Require the adoption and use of knowledge-rich curricula.**

3. **Ensure that state and local accountability systems incentivize the deployment and consumption of knowledge-rich curricula.**

4. **Emphasize the importance of knowledge building in teacher preparation and development.**

Think Again:

Should Elementary Schools Teach

Reading Comprehension?

Introduction

We tend to conceive of struggling readers as lacking basic decoding skills and phonemic awareness, so busy stumbling over simple words that they can't really attend to comprehension. Yet for every kid who struggles to decode, there's another who reads fluently but betrays a lack of understanding.

As with most educational failures, this is partly about the adults. For decades, teachers of K–12 English and language arts have been taught that reading comprehension is a constellation of teachable skills and that imparting those skills to students is the surest way to assure their comprehension of whatever they read. Less-skilled readers fail to use strategies such as asking questions, monitoring comprehension, and making inferences, the thinking goes, so to help them improve, teachers must model those skills and provide substantial time to practice them. This approach is the basis for the ubiquitous "reader's workshop" or "workshop model," a varied classroom model wherein a teacher typically spends a few minutes modeling a skill before sending students off to read self-selected books independently, after which they may come together in groups to discuss what they've read.[1,2]

Yet, as explained below, this conception of reading is the product of flawed assumptions. To be sure, students benefit from *some* instruction in comprehension skills and strategies. But in practice, putting too much emphasis on these elements is counterproductive, especially insofar as it leaves students without the knowledge they need to comprehend many of the texts they will encounter.

Does reading comprehension depend on a set of teachable skills?

Not really. While core "decoding" skills are clearly essential, comprehending decoded text depends mostly on broad knowledge of the world.

The prevailing view of reading comprehension began to form in the 1970s and 1980s, as researchers investigated the cognitive processes that humans use to think. In the *Handbook of Research on Reading Comprehension,* researchers Janice Dole, Jeffery Nokes, and Dina Drits define cognitive skills and strategies as "mental routines or procedures for accomplishing cognitive goals like solving a problem, studying for a test, or understanding what is being read."[3] Less-skilled readers lack these abilities, according to the authors, so teachers need to provide "declarative knowledge" about what the strategies are and "procedural knowledge" about how to apply them.[4]

This view reached its apotheosis in April 2000 when the National Reading Panel released its report *Teaching Children to Read*. Formed in 1997 at the behest of Congress and housed in the

National Institutes of Health, this panel of experts reviewed the research on literacy instruction and produced an influential report on the importance of fluency, phonics, and vocabulary instruction. On many of those fronts, the authors' recommendations remain widely accepted among reading experts. However, the section of the report that dealt with reading comprehension was only partly right and led to dubious practices.

To address the research on reading comprehension, the panel reviewed 481 studies and identified sixteen categories of comprehension instruction that had received scientific review, including seven (in bold) that appeared to have "a firm scientific basis for concluding that they improve comprehension in normal readers."[5]

- **Comprehension monitoring**
- **Cooperative learning**
- Curriculum
- **Graphic organizer**
- Listening actively
- Mental imagery
- Mnemonic
- Multiple strategies
- Prior knowledge
- Psycholinguistic
- **Question answering**
- **Question generation**
- **Story structure**
- **Summarization**
- Teacher preparation
- Vocabulary comprehension

Per the list, countless studies have confirmed that strategies such as encouraging mental imagery while reading, question asking, and story mapping improve subsequent reading comprehension."[6,7,8] Yet what's rarely asked is *how much* skills instruction is necessary, useful, or effective. Like many medicines, reading strategies can be toxic when administered too frequently or in excessive doses—in this case, because they crowd out beneficial opportunities for students to learn content from text. And while the report acknowledges the importance of "prior knowledge," the focus on skills and strategies ultimately swamped this vital aspect of literacy.

As early as the 90s, some researchers were noting important limitations in the research. For example, one meta-analysis found that the effects of reading comprehension strategies were far larger on researcher-designed assessments (which may be artificially aligned with the strategy) than on standardized tests (where the effects were usually statistically insignificant).[9] Nor did it seem to matter if teachers taught two, four, or ten comprehension strategies or if they increased the dosage for specific strategies. In fact, some of the studies with the greatest number of instructional sessions found null effects.

None of these findings should surprise us. Cognitive scientist Daniel Willingham has likened reading strategies to academic habits such as learning to "check your work" in math class.[10] There's not much to it once you've instilled the habit, so we shouldn't expect increasing the dosage to lead to greater returns.

More recent work also calls some of the early research into question. Several newer studies have found that strategies, including comprehension monitoring, clarifying, predicting, making connections, questioning, and summarizing, have null or very small effects on reading comprehension on standardized tests.[11,12,13,14] A 2019 meta-analysis also confirmed earlier conclusions: some strategy instruction works, but effect sizes are nonsignificant on standardized tests and most strategies require only brief instruction to accomplish what they can.[15] And another meta-analysis concluded that effects could be *negative* if strategy instruction wasn't paired with background knowledge instruction, which the authors defined as "teaching students vocabulary and/or content knowledge" related to the text.[16]

As that summary suggests, we must consider the opportunity cost of skills-based instruction. Most educational programming is better than nothing, so the real question is whether a skills-based approach to reading comprehension is better or worse than alternative approaches and/or uses of elementary and middle school class time.

Famously, Professor E.D. Hirsch popularized a competing conception of reading comprehension—namely, that reading depends on general knowledge of the world, rather than abstract skills.[17] Our ability to identify the main idea of a passage or make an inference, he argued, depends on our knowledge of the topic that the passage is about, not our mastery of those skills.

Perhaps the most famous piece of evidence for this knowledge-centered theory of reading comprehension is the "Baseball Study,"[18] in which researchers gave children whose reading level and knowledge of the game varied an excerpt about baseball and then tested their comprehension. Ultimately, a child's knowledge of baseball, not their predetermined reading ability, predicted their comprehension and recall of the story. Poor readers and good readers with high knowledge of the game performed equally, as did both sets of readers with low knowledge.

Since the Baseball Study was conducted, numerous other studies have confirmed that knowledge of a topic has a huge effect on a reader's ability to comprehend a text."[19,20] However, while there is a broad consensus among researchers that knowledge matters, empirical research on the link between knowledge-based *instruction* and reading comprehension is limited.[21] As proponents of this approach have noted, it is inherently difficult to study.[22] After all, knowledge of the world comes from many places—and the knowledge that school imparts is divided across multiple subjects, often taught by separate teachers—and it can take years to build the broad knowledge required to understand even a simple newspaper article.

Still, the research we do have is promising. For example, a recent meta-analysis of knowledge building during elementary literacy instruction found a significant positive effect on vocabulary and reading comprehension.[23] Such content-based instruction can include the selection of texts

for their subject content (e.g., Greek myths or historical fiction); reading nonfiction texts that relate to a classroom novel (e.g., an article about life in Victorian England while reading *A Christmas Carol*); discussions and activities that focus on *what* a text says rather than the application of strategies; and explicit vocabulary instruction.

Of the handful of [studies](#) that have investigated the effects of knowledge-based pedagogies, the most important is a six-year, small-scale, randomized-controlled trial that followed 2,300 students who applied for admission to Core Knowledge schools—a network of public charter schools that emphasized a coherent, carefully sequence, and knowledge-rich curriculum—of whom 700 were admitted via lottery.[24] When the researchers compared the performance of these students to the performance of students who didn't gain admission, they found that attending a Core Knowledge School effectively eliminated the socioeconomic achievement gap in reading.

Other studies also suggest that a knowledge-based pedagogy can be effective. For example, in a 2009 [study](#) that split classrooms into three groups—a content-focused group, a skills-focused group, and a basal reader group[25]—students in the content group significantly outperformed their peers on more open-ended recall tasks, providing both longer and more detailed summaries. Although the study's scope was limited to a single district (meaning its results don't necessarily generalize to other contexts), it is one of the few experiments to directly compare the efficacy of skills- and content-based approaches.

Put simply, knowledge of the world, not generalizable reading comprehension skills, determines reading ability. The average American reader would breeze through an article on baseball but would likely struggle to comprehend a simple passage about cricket without prior exposure to terms like "run chase" and "wicket." Embedded within any newspaper is a vast amount of assumed knowledge that journalists and op-ed writers take for granted—from the fall of the Soviet Union to "1776." But of course, students aren't born with this knowledge, which is why the most effective teachers build the capacity for reading comprehension by relentlessly exposing students to content-rich texts rather than teaching "reading comprehension."

Do students need practice with "just right" books?

Not for that purpose. In general, the difficulty of texts is less important than the content students learn from them.

Traditionally, practitioners of the workshop model have divided texts into three levels: independent (what students can read without help), instruction (accessible with support and instruction), and frustration (so difficult that a student will struggle even with the help of a good teacher). According to the model's proponents, students need time practicing their comprehension skills and strategies on "just right" books that are at their instructional level— that is, books that are neither too hard nor too easy. In practice, this means that many students—in some schools, most students—are taught with below-grade-level texts that expose them to easier language and different content.

There are several systems for predicting how hard texts may be based on sentence structure and vocabulary, Lexile and Guided Reading Level being among the most common. To determine a student's score, teachers mark errors as students read aloud and then answer basic comprehension questions. Typically, students are assigned to read texts that supposedly match their reading levels. The most popular curricula actively encourage teachers to organize their classroom resources or even the classroom library by supposed textual difficulty.[26,27]

Matching textual difficulty to a student's competency makes intuitive sense; high schoolers need more than Dr. Seuss, and first graders needn't struggle through Chaucer's *Canterbury Tales* in the original Middle English. Still, such leveling shouldn't be taken too literally, especially if reading comprehension mostly depends on knowledge of specific topics as opposed to some generalizable and measurable "skill."

Reading researcher Timothy Shanahan, one of the experts on the National Reading Panel, has traced the genesis of text leveling to a researcher named Emmet Betts and his graduate student P.A. Killgalon, who determined that students who could accurately read 95 percent of the words in a passage could answer the majority of comprehension questions.[28] Unsurprisingly, higher rates of inaccuracy were associated with a breakdown in comprehension. However, at no point did the researchers posit that *teaching* students at particular levels was beneficial. Rather, it was literacy gurus Irene Fountas and Gay Su Pinnell who popularized text leveling with their Guided Reading curriculum, along with fellow guru Lucy Calkins, who stressed the importance of moving students "up levels of text complexity by providing them with lots of just-right, high-interest texts and the time to read them."[29]

Ultimately, there is little research to support this approach. For example, to defend the use of text leveling, Calkins' Reading and Writing Workshop site invokes a research review from professor Richard Allington, but the evidence Allington cites is a series of correlational studies from the 1970s and 80s.[30,31] For example, Allington cites a 1979 study by Linda M. Anderson, Carolyn M. Evertson, and Jere E. Brophy as evidence that students need lots of practice reading with minimal errors.[32] But in addition to being fundamentally correlational, the study only mentions reading out loud in group scenarios.[33] To conclude that students benefit from text leveling based on such paltry evidence borders on malpractice.

If anything, more recent and rigorous research that investigates text leveling—including several randomized controlled trials—demonstrates the benefits of challenging texts. For example, an interesting cluster of studies that examined "dyad reading," where teachers pair weak readers with strong readers, found that "students progressed more quickly by reading frustration-level materials."[34,35] Similarly, one (admittedly short-term) study found that students benefited from reading instruction-level texts (i.e. texts that were supposedly too challenging) with supports such as partners or pretaught story diagrams instead of independent level texts alone.[36] Finally, one meta-analysis that examined text difficulty as it pertains to fluency—a precursor to comprehension—concluded that "our best guess is that more difficult materials would lead to greater gains in achievement."[37]

In fact, research suggests that other considerations matter more than textual difficulty. For example, one study found that students who were exposed to a sequenced, knowledge-centric curriculum that used challenging texts saw larger gains in fluency and comprehension than

students who were exposed to a skills-centric curriculum that emphasized practicing reading comprehension strategies on leveled texts.[38] In another experiment, researchers asked students to read six texts that cohered around one idea (e.g., "birds") *or* a collection of disparate topics. In their words, "Results revealed that students who read the conceptually coherent texts demonstrated more knowledge of the concepts in their texts, more knowledge of the target words in their texts, and had better recall of the novel text compared to students who read unrelated texts."[39] Other studies have confirmed this finding.[40]

As these examples suggest, a careful reading of the research suggests that text leveling is less important and effective than constructing a coherent instructional sequence that exposes students to a thoughtful variety of genres and related topics. In other words, rather than obsessing over textual difficulty, educators might better serve students by asking themselves other questions. For example, does our curriculum expose children to topics they might not encounter outside of school? Does it offer opportunities to discuss related historical events? Does it include significant works of literature or nonfiction that are important for understanding modern society?

Does letting students choose the books they read foster the motivation necessary to improve their reading comprehension?

To a certain extent, but in the long run, giving students too much discretion will limit their exposure to challenging texts and necessary content knowledge.

Proponents of the workshop model often claim that letting students choose the books they read will make them more motivated readers, increase the amount of time they spend reading, and improve their literacy.[41] However, embedded within this seemingly plausible theory are at least two assumptions that deserve closer examination: first, that motivation drives achievement, and second, that letting students choose books is the most effective way to motivate them.

Start with the first assumption. Although it's certainly plausible that motivation boosts achievement, it's equally plausible that high achievement is motivating. After all, we tend to enjoy what we're good at (and be frustrated by activities that make us feel incompetent). In fact, there is some evidence for this view, at least in mathematics, where two longitudinal studies have found that achievement in early grades predicted motivation in later grades, but early motivation did not predict subsequent achievement.[42,43] In reading, the research is less conclusive. One study found that the relationship between motivation and self-efficacy was reciprocal.[44] Another study drew the same conclusion but found that self-efficacy had a stronger effect on motivation than vice versa.[45] In other words, there is little evidence that motivation boosts achievement and at least some evidence that achievement boosts motivation.

The second contention, that unfettered choice is the best means to foster motivation, is equally suspect. After all, there are plenty of other mechanisms teachers can employ to improve motivation, from extrinsic motivators such as grades, to the sense of community that comes from shared reading, to connections to students' personal experiences, and to the use of inherently interesting books.[46] Perhaps a shared reading of a classic work with an impassioned

teacher, engaged classmates, and thoughtfully designed final projects is more motivating than reading a self-selected book in a lonely corner.

Regardless, many studies that ostensibly interrogate the effect of choice on motivation have designs that preclude sweeping conclusions.[47] For example, in one study about the role of student choice during free-reading time, half of participants got their top-ranked book and the other half their bottom choice.[48] But of course, being assigned a text that you have consciously ranked last is demotivating and differs fundamentally from being asked to read a teacher-selected text about which you haven't expressed a preference. In another study, the reading of self-selected books was accompanied by the renovation of classrooms and libraries, making it impossible to determine the causative factor.[49]

The link between choice and achievement is even weaker than the link between choice and motivation. For example, one study found a positive relationship between students' self-reported choice of books and their scores on the Progress in International Reading Literacy Study (an international, standardized reading assessment), but the authors could not determine if choice caused reading achievement or if the two were merely correlated.[50] Notably, several studies that have looked at the impact of giving students choice over other instructional tasks, such as which math problems to complete or vocabulary words to learn, have found null to slightly negative effects.[51,52,53]

As these studies suggest, choice is one of several strategies that can increase motivation; however, it is less clear that it improves achievement, and there is reason to suspect that too much choice can be a barrier to progress. Left to his or her own devices, a student may flip through graphic novels or books about football, thus encountering neither the challenge nor the unfamiliar content required for growing knowledge—and, thus, literacy. Furthermore, it should be obvious that teachers can harness the motivational effects of choice without the academic tradeoffs. For example, one small-scale study found that students performed better on end-of-unit tests when given their choice of preapproved homework options.[54]

In short, effective teachers harness the motivational effects of choice by giving students *some* control over where they sit, how they spend their class time, and which book they read next, but it doesn't follow that reading teachers should give their students *carte blanche*.

Does extended literacy instruction enhance reading comprehension?

Potentially, assuming the additional time is not spent on independent reading. To become strong readers, students need the background knowledge that comes from systematic exposure to history, science, and other subjects.

American elementary students spend more time in English language arts than in any other subject—about twice as much as they spend on math, up to four times as much time as they spend on social studies or science,[55] and upwards of 40 percent of their total class time.[56] In theory, a strong focus on ELA instruction at the elementary level could be a good thing. Yet in practice, much of the typical literacy block is spent reading independently. This activity has many names—Sustained Silent Reading (SSR), Drop Everything And Read (DEAR), Silent Quiet

Uninterrupted Independent Reading Time (SQUIRT)—but regardless of what it is called, it's not clear that it is a good use of class time.

Since 1980, there have been [eleven separate meta-analyses](#) on silent reading.[57] [A 2002 meta-analysis](#) is emblematic: Effects are positive, according to the authors, but small compared to interventions such as [phonics, vocabulary instruction, or repeated readings](#).[58,59] In 2000, the National Reading Panel concluded that research had "not yet demonstrated" that independent reading benefited students "in a clear and convincing manner."[60] Similarly, a [2021 review](#) found "no meaningful beneficial effects of independent reading on reading outcomes."[61]

The emphasis on silent reading makes sense if you believe that reading comprehension depends on a set of generalizable skills taught in mini lessons that students can then practice independently. Yet anyone with a knowledge-centric understanding of reading comprehension—that content knowledge, not skills, supports understanding—should have concerns. No doubt, independent reading provides some benefit (almost anything is better than nothing), but explicit, teacher-led, content-centered instruction might improve reading comprehension more. A student who spends hours reading "just-right" books of their choosing will not necessarily acquire the knowledge of science, social studies, art, and music that competent readers possess, particularly if he or she is not exposed to these things at home.

Research on the impacts of social studies and science classes supports this intuition. For example, [a nationally representative study](#) by Fordham's Adam Tyner and early childhood researcher Sarah Kabourek found that "students who receive an additional thirty minutes of social studies instruction per day . . . outperform[ed] students with less social studies time by 15 percent of a standard deviation on the fifth-grade reading assessment"[62] (notably, effects were particularly strong for girls and students from low-income and non-English-speaking homes).

Several smaller randomized-controlled trials dovetail with Tyner and Kabourek's conclusions. For example, in [one study](#), elementary students who were randomly assigned additional class time that focused on science and social studies content showed improvement in both these subjects *and* "reading comprehension."[63] [Other studies](#) [that have](#) [focused](#) on the effects of additional science instruction have found similar results.[64,65,66]

Such research tracks with what we know about reading comprehension. Just about any student could decode the words "Berlin Wall." But to grasp their full import, a student would need a knowledge of basic geography (where is Berlin?), history (why was the Berlin wall built?), and political philosophy (what qualities of the Communist regime caused people to flee from East to West?). More time in social studies and other subjects—and an English class that makes the most of its time—is a plausible way of acquiring such knowledge.

Recommendations

1. Include essential content in state standards in a coordinated way across multiple subjects.

Currently, many state standards are little more than a list of vacuous skills. For example, ELA students in Kansas are to "read and comprehend high-quality literary text," but there is no discussion of which texts should be read at what grade level.[67] Given the importance of content knowledge, a better approach would be to specify the movements and literary periods (e.g., classical myths and American slave narratives) that all students in a particular grade level should cover or provide a list of specific texts from which teachers or districts can choose.[68] Ideally, states would also coordinate and thereby reinforce content across multiple subjects—for example, by reading a novel set during the industrial revolution while students learn about that same period in their social studies class.

2. Require the adoption and use of knowledge-rich curricula.

Many states now require districts to adopt K–3 curricula that align with the science of reading, but too often these requirements focus exclusively on phonics while neglecting content knowledge. What's more, the dearth of essential content is not necessarily confined to the early grades. In many states, the work of ensuring the quality of curriculum falls to districts. Still, nineteen states and the District of Columbia already prescribe textbooks at the state level, and those same agencies could theoretically approve curricula that promote a knowledge-centric understanding of reading comprehension.[69] In the states where districts choose their curricular materials, the Knowledge Matters Campaign has begun reviewing and approving knowledge-rich curricula to provide much-needed guidance to both state and local education agencies.

3. Ensure that state and local accountability systems incentivize the deployment and consumption of knowledge-rich curricula.

Although they are often accused of narrowing the curriculum, standardized tests could be part of the solution. For example, there is no law that prevents states from embedding essential content in ELA tests—second-grade tests could include passages about ancient civilizations, for example—to incentivize ELA teachers to cover certain topics. And, in fact, Louisiana has partnered with Great Minds, NWEA, and other organizations to develop and pilot such tests.[70] Alternatively, separate standardized tests in other subjects could directly measure historical, civic, and scientific knowledge. For example, most states already test elementary and/or middle school students in science, and about a dozen test them in social studies.[71,72] Ideally, every state would do so.

4. Emphasize the importance of knowledge building in teacher preparation and development.

Many states now require that teachers learn the "science of reading" in both university teacher prep programs and district-level teacher professional development. Yet if such requirements focus solely on phonics and phonemic awareness, they'll fail to teach educators the full account of how children learn to read and comprehend.[73] Moving forward, such mandates must include a cogent account of the importance of knowledge to reading comprehension, and those charged with preparing in-service educators must teach them accordingly.

Endnotes

1 "Reading workshop," Children's Literacy Initiative, https://learn.cli.org/best-practices/reading-workshop/overview.

2 "The workshop model best practices," *Teaching Channel* (blog), January 7, 2021, https://www.teachingchannel.com/k12-hub/blog/workshop-model-best-practices.

3 Janice A. Dole, Jeffery D. Nokes, and Dina Drits, "Cognitive Strategy Instruction," in *Handbook of Research on Reading Comprehension*, ed. Susan E. Israel and Gerald D. Duffy (New York: Routledge, 2014).

4 Ibid.

5 National Reading Panel, *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction* (Washington, D.C.: National Reading Panel, National Institute of Child Health and Human Development, 2010), https://www.nichd.nih.gov/sites/default/files/publications/pubs/nrp/Documents/report.pdf.

6 G. Michael Pressley, "Mental imagery helps eight-year-olds remember what they read," *Journal of Educational Psychology* 68, no. 3 (1976): 355–59, https://doi.org/10.1037/0022-0663.68.3.355.

7 Harry Singer and Dan Donlan, "Active comprehension: Problem-solving schema with question generation for comprehension of complex short stories," *Reading Research Quarterly* 17, no. 2 (1982): 166–86, https://doi.org/10.2307/747482.

8 Lorna Idol and Valerie J. Croll, "Story-mapping training as a means of improving reading comprehension," *Learning Disability Quarterly* 10, no. 3(1987): 214–29, https://doi.org/10.2307/1510494.

9 Barak Rosenshine and Carla Meister, "Reciprocal teaching: A review of the research," *Review of Educational Research* 64, no. 4 (1994): 479–530, https://doi.org/10.3102/00346543064004479.

10 Daniel T. Willingham, "Ask the Cognitive Scientist: The Usefulness of Brief Instruction in Reading Comprehension Strategies," *American Educator* (Winter 2006–2007): 39–50, https://www.aft.org/sites/default/files/media/2014/CogSci.pdf.

11 Stephanie I. Wassenburg, Lisanne T. Bos, Björn B. de Koning, and Menno van der Schoot, "Effects of an Inconsistency-Detection Training Aimed at Improving Comprehension Monitoring in Primary School Children," *Discourse Processes* 52, no. 5–6 (2015): 463–88, https://doi.org/10.1080/0163853X.2015.1025203.

12 Nancy K. Scammacca, Greg Roberts, Sharon Vaughn, and Karla K. Stuebing, "A meta-analysis of interventions for struggling readers in Grades 4–12: 1980–2011," *Journal of Learning Disabilities* 48, no. 4 (2015): 369–90, https://doi.org/10.1177/0022219413504995.

13 Mienke Droop, Willy van Elsäcker, Marinus J. M. Voeten, and Ludo Verhoeven, "Long-Term Effects of Strategic Reading Instruction in the Intermediate Elementary Grades," *Journal of Research on Educational Effectiveness* 9, no. 1 (2016): 77–102, https://doi.org/10.1080/19345747.2015.1065528.

14 Marloes Muijselaar et al., "The effect of a strategy training on reading comprehension in fourth-grade students," *The Journal of Educational Research* 11, no. 6 (2018): 690–703, https://doi.org/10.1080/00220671.2017.1396439.

[15] Elizabeth A. Stevens, Sunyoung Park, and Sharon Vaughn, "A Review of Summarizing and Main Idea Interventions for Struggling Readers in Grades 3 Through 12: 1978–2016," *Remedial and Special Education* 40, no. 3 (2019): 131–49: https://doi.org/10.1177/0741932517749940.

[16] Peng Peng et al., "The Active Ingredient in Reading Comprehension Strategy Intervention for Struggling Readers: A Bayesian Network Meta-analysis," *Review of Educational Research* 94, no. 2 (2024): 228–67, https://doi.org/10.3102/00346543231171345.

[17] E.D. Hirsch, *Cultural Literacy: What Every American Needs to Know* (New York: Vintage, 1988).

[18] Donna Recht and Lauren Leslie, "Effect of Prior Knowledge on Good and Poor Readers' Memory of Text," *Journal of Educational Psychology* 80, no. 1 (1988): 16–20, https://doi.org/10.1037/0022-0663.80.1.16.

[19] Tenaha O'Reilly, Ziyweu Wang, and John Sabatini, "How much knowledge is too little? When a lack of knowledge becomes a barrier to comprehension," *Psychological Science* 30, no. 9 (2019): 1344–51, https://doi.org/10.1177/0956797619862276.

[20] Rachel Best, Randy Floyd, and Danielle McNamara, "Differential Competencies Contributing to Children's Comprehension of Narrative and Expository Texts," *Reading Psychology* 29, no. 2 (2008): 137–64, https://doi.org/10.1080/02702710801963951.

[21] Reid Smith, Pamela Snow, Tanya Serry, and Lorraine Hammond, "The Role of Background Knowledge in Reading Comprehension: A Critical Review," *Reading Psychology* 42, no. 3 (2021): 214–40, https://doi.org/10.1080/02702711.2021.1888348.

[22] Natalie Wexler, *The Knowledge Gap* (New York: Avery, 2019).

[23] HyeJin Hwang, Sonia Q. Cabell, and Rachel E. Joyner, "Does Cultivating Content Knowledge during Literacy Instruction Support Vocabulary and Comprehension in the Elementary School Years? A Systematic Review," *Reading Psychology* 44, no. 2 (2023): 145–74, https://doi.org/10.1080/02702711.2022.2141397.

[24] David Grissmer et al., "A Kindergarten Lottery Evaluation of Core Knowledge Charter Schools: Should Building General Knowledge Have a Central Role in Educational and Social Science Research and Policy?" (EdWorkingPaper: 23-755, Annenberg Institute at Brown University, 2023), https://doi.org/10.26300/nsbq-hb21.

[25] Margaret G. McKeown, Isabel L. Beck, and Ronette G. K. Blake, "Rethinking reading comprehension instruction: A comparison of instruction for strategies and content approaches," *Reading Research Quarterly* 44, no. 3 (2009): 218–53, https://doi.org/10.1598/RRQ.44.3.1.

[26] Irene C. Fountas and Gay Su Pinnell, "Teacher tip: How to organize your Fountas & Pinnell classroom," *Fountas & Pinnell Literacy* (blog), August 28, 2018, https://fpblog.fountasandpinnell.com/teacher-tip-how-to-organize-your-classroom.

[27] Lucy Calkins et al., *Units of Study for Teaching Reading, Grade 4*, Teachers College Reading and Writing Project (Portsmouth, NH: Heinemann, 2015).

[28] Timothy Shanahan, "Why Children Should Be Taught to Read with More Challenging Texts," *Perspectives on Language and Literacy* (Fall 2019): 17–23, https://www.shanahanonliteracy.com/publications/why-children-should-be-taught-to-read-with-more-challenging-texts.

[29] Lucy Calkins, Mary Ehrenworth, and Christopher Lehman, *Pathways to the Common Core: Accelerating Achievement* (Portsmouth, NH: Heinemann, 2012), 17.

[30] "Research Base Underlying the Teachers College Reading and Writing Workshop's Approach to Literacy Instruction," The Reading and Writing Project, Columbia Teachers College, http://members.readingandwritingproject.org/about/research-base.

[31] Richard L. Allington, Kimberly McCuiston, and Monica Billen, "What research says about text complexity and learning to read," *The Reading Teacher* 68, no. 7 (April 2015): 491–501, https://sites.bu.edu/summerliteracyinstitute/files/2013/11/Allington-et-al.-2015.pdf.

[32] Linda M. Anderson, Carolyn M. Evertson, and Jere E. Brophy, "An Experimental Study of Effective Teaching in First-Grade Reading Groups," *The Elementary School Journal* 79, no. 4 (March 1979): 193–223, http://www.jstor.org/stable/1001250.

[33] Ibid.

[34] J. Lloyd Eldredge and D. William Quinn, "Increasing Reading Peformance of Low-Achieving Second Graders with Dyad Reading Groups," *The Journal of Educational Research* 82, no. 1 (1988): 40–46, https://doi.org/10.1080/00220671.1988.10885863.

[35] Lisa Trottier Brown, Kathleen A. J. Mohr, Bradley R. Wilcox, and Tyson S. Barrett, "The effects of dyad reading and text difficulty on third-graders' reading achievement," *The Journal of Educational Research* 111, no. 5 (2018): 541–53, https://doi.org/10.1080/00220671.2017.1310711.

[36] Steven A. Stahl and Kathleen M. Heubach, "Fluency-Oriented Reading Instruction," *Journal of Literacy Research* 37, no. 1 (2005): 25–60. https://doi.org/10.1207/s15548430jlr3701_2.

[37] Melanie Kuhn and Steven A. Stahl, "Fluency: A review of developmental and remedial practices," *Journal of Educational Psychology* 95, no. 1 (2003): 3–21, https://doi.org/10.1037/0022-0663.95.1.3.

[38] Sharon Walpole et al., "The Promise of a Literacy Reform Effort in the Upper Elementary Grades," *The Elementary School Journal* 118, no. 2 (2017): 257–80, https://doi.org/10.1086/694219.

[39] Gina N. Cervetti, Tanya S. Wright, and HyeJin Hwang, "Conceptual coherence, comprehension, and vocabulary acquisition: A knowledge effect?" *Reading and Writing* 29 (2016): 761–79, https://doi.org/10.1007/s11145-016-9628-x.

[40] Tanya S.Wright, Gina N. Cervetti, Crystal N. Wise, and Nicola A. McClung, "The Impact of Knowledge-Building through Conceptually-Coherent Read Alouds on Vocabulary and Comprehension," *Reading Psychology* 43, no. 1 (2022): 70–84, https://doi.org/10.1080/02702711.2021.2020187.

[41] Richard L. Allington and Rachael Gabriel, "Every Child, Every Day," *Educational Leadership* 69, no. 6 (March 1, 2012), https://www.ascd.org/el/articles/every-child-every-day.

[42] Gabrielle Garon-Carrier et al., "Intrinsic Motivation and Achievement in Mathematics in Elementary School: A Longitudinal Investigation of Their Association," *Child Development* 87, no. 1 (2016), 165–75, https://doi.org/10.1111/cdev.12458.

[43] Katariina Nuutila et al., "Consistency, longitudinal stability, and predictions of elementary school students' task interest, success expectancy, and performance in mathematics," *Learning and Instruction* 56 (2018): 73–83, https://doi.org/10.1016/j.learninstruc.2018.04.003

[44] Karin Hebbecker, Natalie Förster, and Elmar Souvignier, "Reciprocal Effects between Reading Achievement and Intrinsic and Extrinsic Reading Motivation," *Scientific Studies of Reading* 23, no. 5 (2019): 419–36, https://doi.org/10.1080/10888438.2019.1598413.

[45] Susan Lutz Klauda and John T. Guthrie, "Comparing Relations of Motivation, Engagement, and Achievement among Struggling and Advanced Adolescent Readers," *Reading and Writing* 28 (2015): 239–69, https://doi.org/10.1007/s11145-014-9523-2.

[46] John T. Guthrie and Nicole M. Humenick, "Motivating Students to Read: Evidence for Classroom Practices that Increase Reading Motivation and Achievement," in *The Voice of*

Evidence in Reading Research, ed. Peggy McCardle and Vinita Chhabra (Baltimore, MD: Brookes Publishing, 2004).

[47] Timothy Shanahan, "Should Kids Pick their Own Reading Texts?" *Shanahan on Literacy* (blog)*,* January12, 2019, https://www.shanahanonliteracy.com/blog/should-kids-pick-their-own-reading-texts.

[48] Vonnie C. McLoyd, "The effects of extrinsic rewards of differential value on high and low intrinsic interest," *Child Development* 50, no. 4 (December 1979), 1010–19, https://doi.org/10.2307/1129327.

[49] Lesley Mandel Morrow, *Motivating Reading and Writing in Diverse Classrooms: Social and Physical Contexts in a Literature-Based Program* (NCTE research report no. 28, National Council of Teachers of English, Urbana, IL), https://files.eric.ed.gov/fulltext/ED398543.pdf.

[50] Nicola McClung et al., "Choice Matters: Equity and Literacy Achievement," *Berkeley Review of Education* 8, no. 2 (2019): 147–78, https://doi.org/10.5070/B80037656.

[51] Hsiao d'Ailly, "The Role of Choice in Children's Learning: A Distinctive Cultural and Gender Difference in Efficacy, Interest, and Effort. Canadian Journal of Behavioural Science," *Canadian Journal of Behavioural Science* 36, no. 1 (2004): 17–29, https://doi.org/10.1037/h0087212.

[52] Louise Parker and Mark R. Lepper, "Effects of Fantasy Contexts on Children's Learning and Motivation: Making Learning More Fun," *Journal of Personality and Social Psychology* 62, no. 4 (April 1992): 625–33, https://doi.org/10.1037/0022-3514.62.4.625.

[53] Terri Flowerday, Gregory Schraw, and Joseph Stevens, "The Role of Choice and Interest in Reader Engagement," *The Journal of Experimental Education* 72, no. 2 (2004): 93–114, https://www.jstor.org/stable/20157361.

[54] Erika Patall, Harris Cooper, and Susan Wynn, "The Effectiveness and Relative Importance of Choice in the Classroom," *Journal of Educational Psychology* 102, no. 4 (November 2010): 896–915, https://doi.org/10.1037/a0019545.

[55] Kathleen M. Hoyer and Dinah Sparks, *Instructional Time for Third- and Eighth-Graders in Public and Private Schools: School Year 2011–12*, Statistics in Brief (Washington, D.C.: National Center for Education Statistics, 2017), https://nces.ed.gov/pubs2017/2017076.pdf.

[56] Adam Tyner and Sarah Kabourek, *Social Studies Instruction and Reading Comprehension: Evidence from the Early Childhood Longitudinal Study* (Washington D.C.: Thomas B. Fordham Institute, September 2020), https://fordhaminstitute.org/national/resources/social-studies-instruction-andreading-comprehension.

[57] Maryann Manning, Marta Lewis, and Marsha Lewis, "Sustained Silent Reading: An Update of the Research," in *Revisiting Silent Reading: New Directions for Teachers and Researchers,* edited by Elfrieda H. Hiebert and D. Ray Reutzel (Santa Cruz, CA: International Reading Association, 2010), 112–28.

[58] Jun-Chae Yoon, "What a Meta Analytic Review of Three Decades of SSR Says about Reading Comprehension," *Journal of Curriculum and Evaluation* 6, no. 2 (2003): 171–86, https://doi.org/10.29221/jce.2003.6.2.171.

[59] John Hattie, *Visible Learning* (London, UK: Routledge, 2008).

[60] National Reading Panel, *Teaching Children to Read*.

[61] Florina Erbeli and Marianne Rice, "Examining the Effects of Silent Independent Reading on Reading Outcomes: A Narrative Synthesis Review from 2000 to 2020," *Reading & Writing Quarterly* 38, no. 3 (2022): 253–71, https://doi.org/10.1080/10573569.2021.1944830.

[62] Tyner and Kabourek, *Social Studies Instruction and Reading Comprehension*.

[63] Carol McDonalds Connor et al., "Acquiring science and social studies knowledge in kindergarten through fourth grade: Conceptualization, design, implementation, and efficacy testing of content-area literacy instruction (CALI)," *Journal of Educational Psychology* 109, no. 3 (2017): 301–20, https://doi.org/10.1037/edu0000128.

[64] James S. Kim et al., "Improving reading comprehension, science domain knowledge, and reading engagement through a first-grade content literacy intervention," *Journal of Educational Psychology* 113, no. 1 (2021): 3–26, https://doi.org/10.1037/edu0000465.

[65] Michael R. Vitale and Nancy R. Romance, "Adaptation of a Knowledge-Based Instructional Intervention to Accelerate Student Learning in Science and Early Literacy in Grades 1 and 2," *Journal of Curriculum and Instruction* 5, no. 2 (November 2011): 79–93, https://doi.org/10.1037/edu0000465.

[66] Michael R. Vitale and Nancy R. Romance, "Using in-depth science instruction to accelerate student achievement in science and reading comprehension in grades 1-2," International Journal of Science and Mathematics Education 10 (2012): 457–72, https://doi.org/10.1007/s10763-011-9326-8.

[67] Kansas State Department of Education, Kansas Standards for English Language Arts, May 8, 2023, https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(A-E)/English_Language_Arts/Kansas%20Standards%20for%20English%20Language%20Arts.pdf?ver=2023-05-17-150345-123.

[68] Mark Bauerlein, *Restoring the Canon to K–12 English Language Arts Standards* (Washington, D.C.: American Enterprise Institute, January 11, 2024), https://www.aei.org/research-products/report/restoring-the-canon-to-k-12-english-language-arts-standards.

[69] Erin Whinnery, Lauren Bloomquist, and Gerardo Silva-Padron, "Response to information request," Education Commission of the States, January 1, 2022, https://www.ecs.org/wp-content/uploads/State-Information-Request_Textbook-Adoption-Policies.pdf.

[70] Lior Klirs, "How Louisiana Created a More Equitable Reading Test," *ed post* (blog)*,* August 24, 2022, https://www.edpost.com/stories/how-louisiana-created-a-more-equitable-reading-test.

[71] State Education Practices, *National Center for Education Statistics,* Table 8.4.1. Science statewide assessments in grades 3–8, by state: 2017–18, https://nces.ed.gov/programs/statereform/tab8_41.asp.

[72] State Education Practices, *National Center for Education Statistics,* Table 8.5. Social studies statewide assessment name/title and grade administered, by state: 2018, https://nces.ed.gov/programs/statereform/tab8_5.asp.

[73] Christie Ellis et al., *Teacher Prep Review: Strengthening Elementary Reading Instruction* (Washington, D.C.: National Council on Teacher Quality, June 2023), https://www.nctq.org/dmsView/Teacher_Prep_Review_Strengthening_Elementary_Reading_Instruction.