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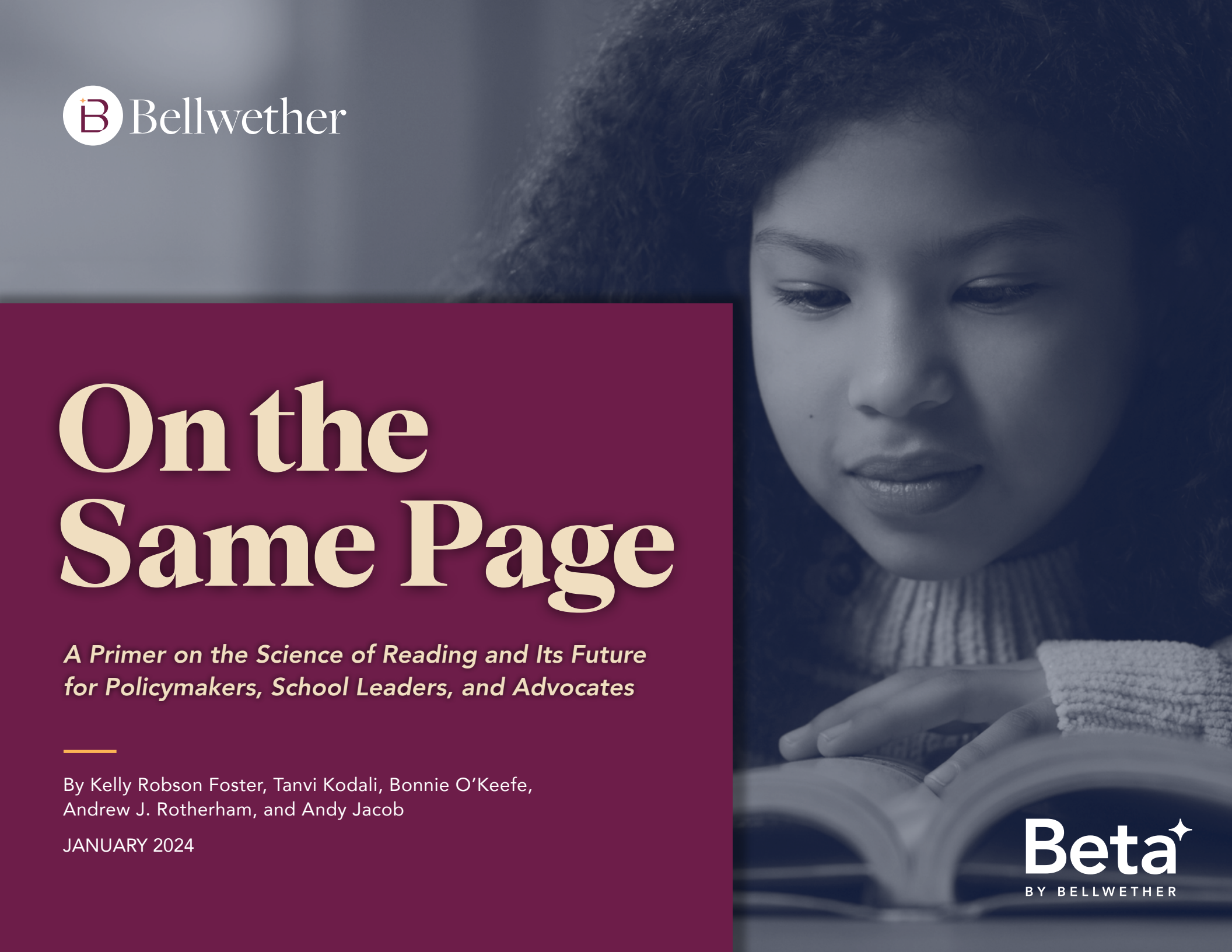

On the Same Page

A Primer on the Science of Reading and Its Future for Policymakers, School Leaders, and Advocates

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Reading is a life-transforming and essential skill. It does not come naturally; it must be taught. Nearly all children have the capability to learn to read, with the right teaching and support.

And yet, just 32% of fourth-grade students achieved reading proficiency in 2022.

Why?

Introduction

Improving reading instruction is one of the hottest topics in K-12 education today. It is also one of the most complex, encompassing pedagogy, policy, and politics — all rooted in a long history of arguments about the best way to teach kids to read.

This analysis is a primer on the "Science of Reading" and efforts to implement it across the country, designed primarily to inform policymakers, advocates, and members of the news media. It is not a curriculum or instructional guide for educators or school leaders, nor does it offer specific recommendations on the best way to implement reading policies.

Our goal is to provide a clear fact base for discussions about reading instruction, state-level policies governing it, and relevant lessons from past large-scale reform efforts.

We hope it serves as a resource for stakeholders as they navigate reading policy in their own contexts.

"Reading is not a timeless, universal capability. Advanced literacy is a specific intellectual skill and social habit that depends on a great many educational, cultural, and economic factors. As more Americans lose this capability, the United States becomes less informed, active, and independent-minded. These are not the qualities that a free, innovative, or productive society can afford to lose."

—DANA GIOIA, CHAIRMAN, NATIONAL ENDOWMENT FOR THE ARTS

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Executive Summary (1/2)

Reading is vital for academic and life outcomes — and early reading is especially important.

- The building blocks of reading start in early childhood, and the pre-K to grade 3 years are an especially critical time for young readers.
- Only 32% of fourth-grade students achieved reading proficiency in 2022, levels that were not significantly different from 1992.
- Poor reading by mid-elementary school is associated with a four-time greater risk of dropping out of high school and a greater risk of adverse outcomes in postsecondary education and life.

The evidence base on what it takes to read is strong, but trends in teaching have diverged for decades.

- Reading well requires *both* foundational skills to recognize and decode words (e.g., phonemic awareness, phonics) and a strong knowledge base to support comprehension of texts and enable deeper learning.
- For the past three decades, the dominant reading instruction philosophies, Whole Language and Balanced Literacy, have de-emphasized foundational skills and have not supported consistent knowledge building and comprehension of texts.

Advocates for the Science of Reading seek to close this gap between research and practice to achieve better reading outcomes for students.

- The Science of Reading is not a curriculum; nor is it simply an emphasis on phonics. It is a body of research from the cognitive, communication, developmental, psychological, and neurological sciences about how children learn to read and translate reading skills into other domains. Advocates for aligned instructional methods want to see a comprehensive regrounding in foundational skills continuously integrated with knowledge building across content areas.

Executive Summary (2/2)

States and localities are trying to improve student outcomes through policies to support better reading instruction.

- In the last decade, 47 states and Washington, D.C., have passed laws to encourage elements of Science of Reading-backed approaches, through bipartisan pushes by parents, researchers, and many educators frustrated by past results.
- Levers of change in K-12 at the state level are focused on 1) teacher preparation and licensure; 2) classroom practices and curriculum materials; and 3) assessment and accountability.

Leaders and advocates must plan now to address implementation challenges that could threaten otherwise promising progress.

- The rocky relationship between research, policy, politics, and classroom instruction in this critical area is rife with opportunities for misunderstanding.
- Those who share the Science of Reading ideology may have very different interpretations of the research and opinions on the knowledge they want shared.
- To turn promising results into better reading outcomes that last, advocates and policymakers should closely monitor implementation and learn from past education policy reforms.

To understand the debate around reading instruction, it is valuable to know a few technical terms around reading.

Key Terms

Complex texts: Texts that provide students opportunities to work with new language, knowledge, and ways of thinking; complex does not necessarily mean challenging.

Comprehension: Constructing meaning that is reasonable and accurate by connecting what has been read to what the reader already knows and what the reader is thinking about until the text is understood; the final goal of reading instruction.

Decodable texts: Simple books written for beginning readers containing specific grapheme-phoneme correspondences that students have learned and that encourage children to sound out words using decoding strategies.

Decoding: The act of deciphering a new word by sounding it out; the ability to translate a word from print to speech, usually by employing the knowledge of letter-sound relationships.

Fluency: Recognizing the words in a text rapidly and accurately and using phrasing and emphasis in a way that makes what is read sound like spoken language.

Grapheme: A letter or letter combination that represents a sound (phoneme) in a syllable or word.

Knowledge: A reader's understanding of the specific concepts, situations, and problems associated with the words encountered in a text.

Key Terms

Orthographic mapping: The mental process readers use to permanently store words for immediate retrieval, involving the formation of letter-sound connections to bond the spellings, pronunciations, and meanings of specific words in memory.

Phonemes: The smallest segments of sounds within spoken language.

Phonemic awareness: The ability to understand that spoken words are made up of separate units of sound that are blended when words are pronounced; the ability to notice, think about, and manipulate the individual phonemes in spoken words.

Phonics: A set of rules that specify the relationship between letters in the spelling of words and the sounds of spoken language.

Sight words: A term often used to represent high-frequency words in early reading.

Systematic phonics instruction: The planned, sequential set of phonics elements that are taught explicitly and systematically.

Vocabulary: Words one needs to know to communicate with others.

Word recognition: The ability to translate a word from print to speech based on knowledge of letter-sound relationships and practice with recognizing commonly used words or words that cannot be sounded out.

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The Importance of Reading

- **Reading is a complex bundle** of skill, knowledge, and processes that must be learned – and taught.
- There is no single, shared definition of "reading" or "literacy." The common thread across many definitions is that it is **a process by which an individual makes sense of written text**.
- Unlike speaking, which the human brain is naturally wired to do, reading and writing must be taught. And the vast majority of children (approximately 95%) are neurologically capable of learning to read, **given the right instruction, resources, and support**.
- Influential frameworks for reading conceptualize skilled reading as the product of two **interdependent** components:

  1) **Word recognition**: The ability to translate a word from print to speech based on knowledge of letter-sound relationships and practice with recognizing commonly used words or words that cannot be sounded out.

  2) **Language comprehension**: The ability to understand what individual words and the text as a whole means, and to glean meaning and engage with a text based on vocabulary, prior knowledge, language structure, and context.

The early years of child development through early elementary school are a critical period for reading.

From a child's earliest days, they are acquiring the building blocks of spoken language and knowledge about the world around them. To translate that knowledge into reading, both larger components of reading — word recognition and language comprehension — must be developed.

- If a child cannot *recognize* or *decode* words, they will struggle to read with fluency and independence.

- If a child has gaps in the *background knowledge*, *vocabulary*, and *skills* needed to analyze text structures and context, they will not be able to effectively or accurately comprehend what they read.

Deficiencies in any major component of reading will make it difficult for students to acquire and apply knowledge by reading complex texts as they progress through their education. The struggle for students without strong, independent reading skills by late elementary school (around age 8) is more likely to be compounded, causing missed opportunities for learning across subject matter domains.

Policymakers and advocates have translated this into an emphasis on "reading by third grade" — which is also when states must begin to formally assess students' reading skills.

Early reading skills can be a strong predictor of future academic success.

Students with strong reading skills by the end of the third grade (combined with other components of literacy, including oral language, vocabulary, and knowledge of the world) are more likely to exhibit stronger academic performance in other areas, such as math, science, and problem-solving, and are more likely to graduate high school on time. **Conversely, students with poor reading skills at the end of the third grade have worse long-term academic outcomes than their peers**.

- Students who do not read proficiently by the third grade are *four times* more likely to drop out of high school than proficient readers.
- Among low-income students, the dropout rate is *six times* more likely.
- Among low-income Black and Latino students, the dropout rate is *eight times* more likely.

A lack of reading proficiency can continue to impact students in postsecondary education.

- More than one-quarter of students enrolled in two-year postsecondary institutions are placed in a remedial reading or writing course; these "academically underprepared" students have poorer postsecondary outcomes as measured by rates of course completion, persistence in college, GPA, and degree attainment.

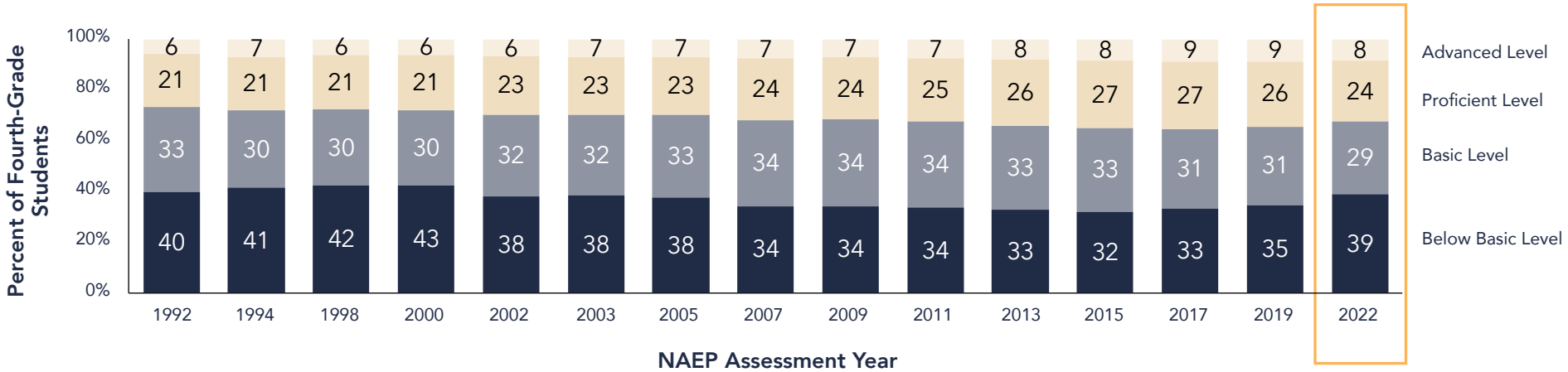
Nevertheless, only 32% of fourth-grade students are proficient readers, and progress was lost during the COVID-19 pandemic.

The National Assessment of Educational Progress (NAEP), administered every two years, reports results as percentages of students performing at or above certain achievement levels. Students performing at or above the "proficient" level demonstrate solid academic performance and competency with challenging subject matter. The key skills assessed in NAEP for reading literary and informational texts include:

- Determining the meanings of words using context from multiple sections of the text.
- Identifying key events.
- Recognizing a text's structure and organization.
- Drawing conclusions from single or multiple locations across a text.
- Developing an opinion with relevant support from a text.

In 2022, just 32% of fourth-grade students met or exceeded the reading proficiency benchmark, while 68% were at or below the basic level — which is not statistically different from 1992.

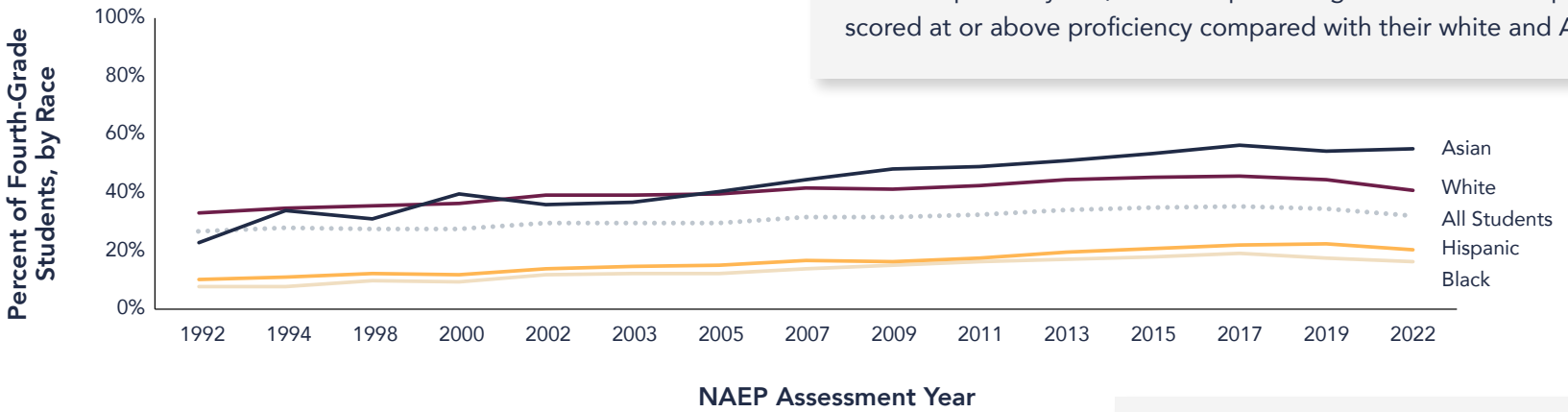
Percentage of Fourth-Grade Students at Each Achievement Level
NAEP Reading Assessment, National Public, 1992-2022



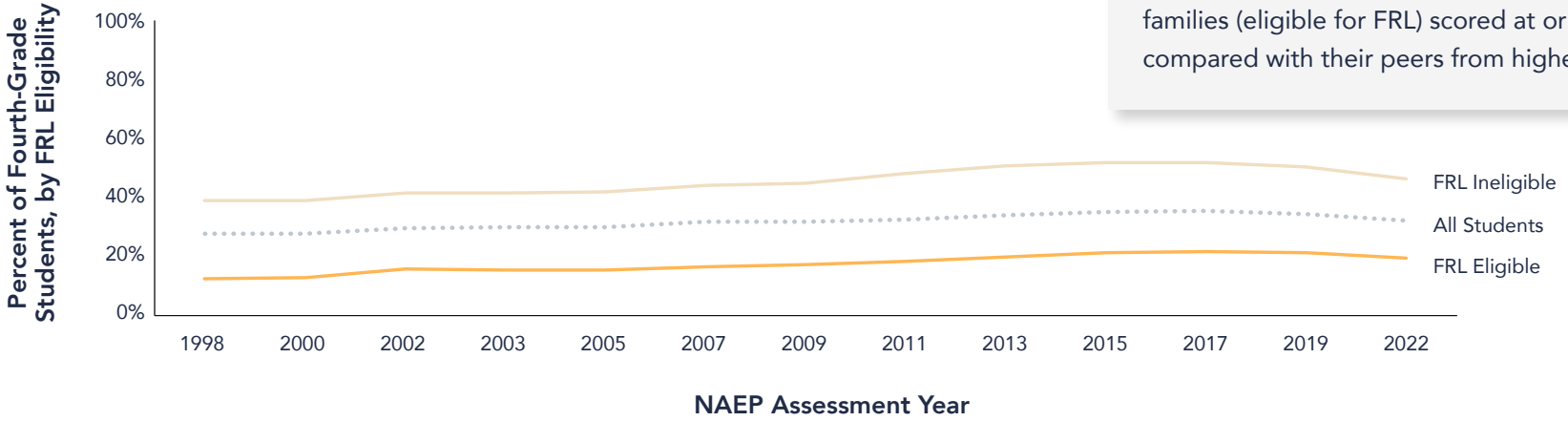
Reading proficiency rates are consistently low — with longstanding gaps by race, ethnicity, and socioeconomic class.

Percentage of Fourth-Grade Students At or Above Proficient Level, by Race, and Free and Reduced-Price Lunch (FRL) Eligibility
NAEP Reading Assessment, National Public, 1992-2022

Over the past 30 years, a smaller percentage of Black and Hispanic fourth graders scored at or above proficiency compared with their white and Asian peers.



A smaller percentage of students from low-income families (eligible for FRL) scored at or above proficiency compared with their peers from higher-income families.



Millions of students in the U.S. are learning to read and speak in English and other languages simultaneously.

More than 5 million public school students in the U.S., or more than 10% of the total, are classified as English learners (ELs).

In the early grades, the concentration of ELs is even higher: Nearly 13% of incoming kindergarten students in 2020 qualified for English-learner services, and an estimated 32% of children under age 8 have a parent who speaks a language other than English at home. These students are also known as emergent bilinguals, dual language learners, or multilingual learners.

Research shows that bilingualism and biliteracy are assets in many aspects of learning and cognitive development. And strong language and literacy skills in a child's home language can facilitate the development of those same skills in English. For example, in one recent study, students formerly classified as ELs who achieved English language proficiency by the eighth grade did as well as their peers on reading tests, and better in terms of math, attendance, and class grades.

Too many ELs, however, do not receive the instructional support they need to develop into proficient readers in English and their home language.

***Note**: This analysis focuses on reading in English; however, there is a rich and growing literature on the benefits of and instructional strategies for multilingual literacy and dual language instruction.*

Left unaddressed, poor reading skills are associated with challenges that extend far beyond K-12 classrooms.

Adults and youth with poor reading skills are at higher risk for many negative outcomes.

Crime and Incarceration

- While poor reading skills are not a direct determinant of a person's likelihood to be convicted of a crime, there are correlations between poor literacy, high school dropout rates, and crime.
- Among young people involved with the juvenile court system, 85% are functionally low literate.
- Individuals with below-average education levels are overrepresented among people in prison, and 70% of incarcerated adults cannot read at a fourth-grade level.

Physical Health, Mental Health, and Social Impacts

- Some research suggests that there is a strong association between lower literacy and mental health difficulties, such as anxiety and depression.
- People who are unable to read often have low self-esteem and feel shame, fear, and powerlessness; they may avoid situations where their challenges will be noticed.
- Poor health literacy can result in challenges securing health care due to a lack of the skills needed to read and fill out medical and health insurance forms or follow written instructions.

Un- and Underemployment and Wage Loss

- Because low literacy skills are tied to poor academic outcomes, they often correlate with low-paying jobs and unemployment.
- Those with the lowest literacy scores are nearly *17 times* more likely to receive public financial aid and are more likely to be in the lowest-measured wage group, earning less than $300 per week.

***Note**: Although this analysis does not focus on the specific challenges of adult and adolescent illiteracy, many of these issues can be prevented through early and elementary education, and the strategies to tackle reading challenges at different ages are often similar.*

"Because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency … [b]eginning in the earliest grades, instruction should promote comprehension by actively building linguistic and conceptual knowledge in a rich variety of domains, as well as through direct instruction about such comprehension strategies as summarizing the main idea, predicting events and outcomes of upcoming text, drawing inferences, and monitoring for coherence and misunderstandings."

—NATIONAL RESEARCH COUNCIL, 1998

"There is a profound disconnection between the science of reading and educational practice. Very little of what we've learned about reading as scientists has had any impact on what happens in schools because the cultures of science and education are so different."

—MARK SEIDENBERG, *LANGUAGE AT THE SPEED OF SIGHT*, 2016

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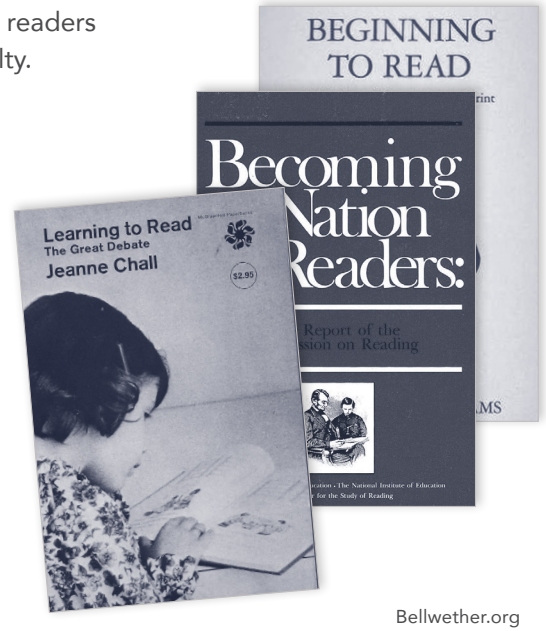
Instructional Approaches to Reading

- Reading is a skill that must be taught — **but exactly how to teach it** has been the subject of one hundred years of debate.
- Research demonstrates that, unlike speaking, which the human brain is naturally wired to do, **reading and writing must be taught**. While educators and policymakers largely agree on this, opinions diverge on *how* to teach children to read.
- There are many **high-level philosophies** about how children read — which inform beliefs and shape instructional decisions about how to teach reading.
- These guiding principles do not translate neatly into teaching techniques or curricula, **so there is significant variability** in how different philosophies show up in classrooms. These practices are centered on elementary education, primarily in pre-K through grade 3.

Decades of reading research has solidified the importance of both foundational skills and knowledge building.

Research since the late 1960s indicates that two things are necessary to build motivated, proficient readers: 1) instruction in systematic phonics, phonemic awareness, and other foundational skills to develop decoding skills and word recognition; and 2) exposure to complex texts and knowledge building to develop comprehension.

- **1967: Jeanne Chall, *Learning to Read: The Great Debate* —** For effective instruction, direct phonics must be prioritized, especially in the early years. Decoding is particularly effective for students from lower-income households, where they may have limited early exposure to books or support in reading.
- **1985: National Academy of Education, *Becoming a Nation of Readers* —** While phonics-centric instruction can support early word identification and comprehension, the advantage in comprehension fades in later years, emphasizing the importance of both foundational skills instruction and knowledge building.
- **1990: Marilyn Jager Adams, *Beginning to Read: Thinking and Learning about Print* —** Readers who begin with a "systematic code instruction" based in phonics, phonemic awareness, etc., show better results, but young readers should also have opportunities to practice reading through exposure to texts at appropriate levels of difficulty.
- **2001: Hollis Scarborough, "Connective Early Language and Literacy to Later Reading (Dis)Abilities: Evidence, Theory, and Practice" —** Word recognition is a result of phonological awareness, decoding, and sight recognition, and language comprehension is a result of background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge. Each component must work together for strong skilled reading.
- **2023: Grissmer et al., "A Kindergarten Lottery Evaluation of Core Knowledge Charter Schools" —** Interventions that increase knowledge-building opportunities have positive outcomes in terms of comprehension ability by building the academic vocabulary and background knowledge for readers to better understand texts.



But this body of scientific evidence has not translated into a consistent, aligned approach to reading instruction.

Dominant instructional strategies in early childhood education and early elementary school classrooms for developing reading and comprehension skills have undergone several major shifts, often diverging from the research literature on reading. The key points of contention among these camps have been:

1) A relative emphasis on foundational skills, including systematic phonics instruction.
2) The selection and choices of books and texts.
3) The integration of reading instruction with other subjects and knowledge-building opportunities.

There are not always neat time periods of demarcation between these philosophies, and many have coexisted with different regions, schools of education, curricula, districts, or individual teachers adopting divergent approaches. Major instructional trends in the 20th and 21st centuries include, in roughly chronological order:

Early Phonics-Centered Reading Instruction

Beginning as early as the 1600s and persisting in various forms.

Whole Language

Emerging in the 1880s and gaining new popularity in the 1980s and 1990s.

Balanced Literacy

Emerging in the 1990s and peaking in popularity in the early to mid-2000s.

Science of Reading

Emerging in the late 1990s and growing in present-day popularity.

Curricula have emphasized foundational skills for hundreds of years, but not always in engaging or effective ways.

Early Phonics-Centered Reading Instruction: A system of teaching reading that builds on the alphabetic principle — a central component of which is the teaching of correspondences between letters or groups of letters and their pronunciations.

Approach to Decoding and Word Recognition: Focuses on letter-word relationships to build decoding skills. In early skills-based instruction (around Colonial times), students were first taught the alphabet and the phonemic significance of each letter (e.g., A is for apple). This instruction was paired with exercises in simple syllables and spelling.

Approach to Texts, Knowledge Building, and Comprehension: Instructors in this era often used short instructional readers (aka basal readers) such as the McGuffey Readers from the late 1800s. These texts were moralistic in tone (e.g., stories that described appropriate table manners, attitudes toward God, teachers, the poor) and included excerpts from the Bible or nationalistic or patriotic essays.

Instructional Characteristics: Direct instruction, extensive drills and repetition, reliance on workbooks and readers.

Notable Supporters and Examples: William Holmes McGuffey and the McGuffey Readers (1830s-1960); Rudolf Flesch, *Why Johnny Can't Read, And What You Can Do About It* (1955); the Beacon Readers (1913).

Phonics instruction gives children direct guidance on how sounds correspond to letters, with increasing complexity.

Children learn to read phonetically by first identifying letters, then their corresponding sounds, then combinations of letters, then complete words. Eventually, students can independently decode and orthographically map all words in a sentence or paragraph.

A phonics scope and sequence begins with the most basic skill — matching letters to sounds — and slowly builds on that foundation, teaching more complex letter-sound combinations.

Sample Phonics Instruction Scope and Sequence

Alphabetic Principle	Digraphs and Blends	Vowels	Complex Consonants	Complex Vowels	Multisyllabic Words
Consonants	**Digraphs** *(e.g., ph, sh)*	**Long vowels**	**Consonant clusters** *(e.g., st, fr)*	**Long vowels**	**Inflected endings** *(e.g., -s, -es, -ed, -ing)*
Short vowels	**Blends** *(e.g., bl, gr)*	**Y as a vowel**	**Double consonants** *(e.g., nn, ll)*	**R-controlled vowels** *(e.g., ar, ir)*	**Affixes** *(e.g., prefixes and suffixes)*
	Simple endings			**Vowel team syllables** *(e.g., ou, ea)*	**Bases and roots**

Foundational skills are essential — but early curricula missed the mark in other ways.

Instruction in direct foundational skills, including phonics, is imperative to build foundational reading skills, especially when children are first learning to read. More recent research on direct phonics instruction finds it to be:

- More effective than other approaches in helping to prevent reading difficulties, especially among low-income students, students with learning disabilities (particularly dyslexia), and other children who lack access to a high-quality early literacy environment.
- Most effective when it begins early — in kindergarten or the first grade.
- Especially good for word recognition skills, which contribute to strong reading comprehension.

However, there were clear weaknesses in the pre-1980s approaches to reading that damaged the reputation of direct phonics instruction, especially among progressive educators. Many early models that persisted through the 1980s used texts and instructional tactics in phonics instruction, read-alouds, and other reading instruction activities that were not engaging or culturally relevant for many children.

Popular readers also "presented the white, Anglo-Saxon Protestant as the model American." In the 1980s, influential Christian activists embraced and promoted phonics, further associating it with a politicized narrative.

"Whole Language" emerged in the 1980s, favoring child-led exploration of texts over direct instruction and decoding.

Whole Language: Reading and writing are taught as meaning-centered processes through experiences with and exposure to child-selected texts. It proposes that reading is a natural process and children will learn to read through "active participation," and will read for meaning and pleasure, versus studying the "mechanics of language."

Approach to Decoding and Word Recognition: Includes implicit phonics instruction through language exploration. Phonics is taught in context, such as when teachers read a book; readers are encouraged to recognize patterns and memorize whole words or infer from context, rather than decoding from letter-sound relationships.

Approach to Texts, Knowledge Building, and Comprehension: Emphasizes children's choices in selecting texts and the knowledge and experience they bring to the texts. Generally does not intentionally integrate reading time and instruction with knowledge building in other topic areas.

Instructional Characteristics: Surrounds children with opportunities to read and write for meaning and pleasure such that they are motivated to learn. A product of the constructivist movement, this approach purports that children should be active learners — motivated to construct their own knowledge through their own discoveries.

Notable Supporters and Examples: Whole Language, inspired most influentially by education theorist Kenneth Goodman in the 1970s and '80s, adopted parts of a philosophy promoted by early 19th- and 20th-century education reformers like Horace Mann, suggesting that children learn how to read by first reading "whole, meaningful words." Other supporters included William S. Gray and Frank Smith.

A Whole Language classroom prioritizes exposure to child-selected books and inferring meaning over direct decoding.

Educators who adhere to this model use a variety of teaching strategies in their classrooms, including having students:

- Memorize high-frequency "sight words."
- Read short, predictable stories with repetitive vocabulary supported by illustrations, from which they can infer meaning.
- Participate in independent reading with books they selected themselves.
- Write stories about what was meaningful to them.
- Use cues, such as pictures, syntactic cues, or context clues (i.e., three-cueing), to make predictions about unknown words.

The combination of these elements — with an emphasis on reading, writing, and speaking — is meant to provide a full experience of language and motivate learning.

Example "three-cueing" or meaning, structure, and visual (MSV) prompts for a child encountering an unfamiliar word in an illustrated book:

Meaning Cues
What word would make sense next for the story?

Syntactic and Structural Cues
What kind of word might make grammatical sense to come next?

Visual Cues
What does the picture tell you about what is happening in the story?

The Whole Language approach resonated strongly with many teachers' beliefs about learning.

In the 1980s and '90s, the Whole Language approach was popular among teachers, teacher educators, and progressive education thought leaders.

In part, this was a reaction to the direct- and rule-based instruction in phonics-centric approaches, which may not have provided opportunities for students to engage with books they found engaging or relevant.

This philosophy resonated with progressive educators seeking more interactive, culturally responsive, and child-led classroom strategies.

Spotlight: Bill Honig and California Curriculum Reform

In the late 1980s, Bill Honig, California's then-superintendent of public education, enacted major reform by initiating a reading program that was founded on Whole Language principles — an emphasis on exposure to "great books" and rich literature. Under these standards, the only K-8 textbook series that got the state's stamp of approval was based in Whole Language. At the time, Honig said of his approach:

> *"Taught well, these works will intellectually and spiritually engage our students and provide vehicles for extending comprehension, writing, thinking, and speaking skills."* (1985)

But by 1994, reading scores in California were in significant decline. Later in his career, Honig recanted his support for the approach and advocated for more organized foundational skill instruction, especially in the early years:

> *"Many school reading programs de-emphasize the word side and the tools by which students become automatic with a growing number of words. … These programs are based on the theory that ... extensive research and practical experience shows that learning to read does not come as naturally to most children as learning to speak does. It needs to be taught."* (1997)

But research on its impact largely discredited the Whole Language approach.

Despite its popularity among large groups of educators, especially in the 1990s, a body of literature found Whole Language to be ineffective, especially among students from economically disadvantaged backgrounds, ELs, and students with dyslexia and other learning disabilities.

Whole Language approaches did not improve reading achievement. The very students progressive educators most hoped to reach and motivate with this style of instruction were the ones who failed to acquire the reading skills they needed to pursue further opportunities for learning. Notable findings include:

- Whole Language is ineffective at building word-recognition skills and integrating purposeful knowledge-building opportunities to support comprehension.
- The Whole Language approach is less effective at supporting students' spelling accuracy and reading fluency.
- Students who learn to read using a Whole Language approach may have difficulty learning how to spell.
- Three-cueing is ineffective, and three states have gone so far as to ban the practice from classrooms.

Balanced Literacy grew in popularity as Whole Language declined, with the claim that it would be the best of both worlds.

Balanced Literacy: An approach to reading and writing instruction that incorporates both direct instruction and child-led activities, "where literacy is taught using a balance of teacher and student-initiated activities" with "equal attention to phonics and whole-language approaches."

Approach to Decoding and Word Recognition: Emphasizes patterns in words. During "word work," teachers introduce common spelling patterns and high-frequency words to students and follow the lesson with opportunities to explore words that contain the same pattern.

Approach to Texts, Knowledge Building, and Comprehension: Similar to Whole Language, Balanced Literacy encourages students to select their own books, increasing their motivation for and interest in reading, and emphasizes building a rich classroom library. It also uses "leveled/guided reading" in small groups categorized by reading ability, and does not intentionally integrate reading instruction time with other topic areas for knowledge building.

Instructional Characteristics: Encourages cuing in texts to make educated guesses about unknown words, read-alouds, independent reading time, and leveled reading in small groups (guided reading) during which students are given texts based on their reading levels.

Notable Supporters and Examples: Lucy Calkins (professor at Columbia Teachers College and creator of the Units of Study curriculum), Carmen Fariña (former NYC Chancellor), Marie Clay (University of Auckland, creator of Reading Recovery), Irene Fountas and Gay Su Pinnell (Lesley University and Ohio State University, respectively, and creators of Fountas and Pinnell Literacy).

Many teachers employ strategies with Balanced Literacy that were very similar to those of Whole Language.

Because Balanced Literacy is a philosophy about reading instruction and not a curriculum or set of instructional materials, educators who ascribe to it use a variety of instructional methods (as with all other approaches described here). Hallmarks of Balanced Literacy instruction strategies include:

MSV Cueing or Three-Cueing	Independent Reading Time	Guided Reading in Leveled Groups	Word Study
Students use "cues" in the text to make educated guesses about unknown words. The three common sources of cues are context, sentence structure, and letters.	Students select their own books as a way to increase motivation for and interest in reading.	Students are grouped based on their reading skills, using "just right" texts identified by reading level. Students read together in small groups. The words in these texts are often not decodable based on the phonics instruction students received.	Students receive some instruction in phonics and phonemic awareness paired with study of high-frequency vocabulary words.

More than two-thirds of K-2 educators say they embrace Balanced Literacy, but their definitions of it vary widely.

Spotlight: New York City and Balanced Literacy

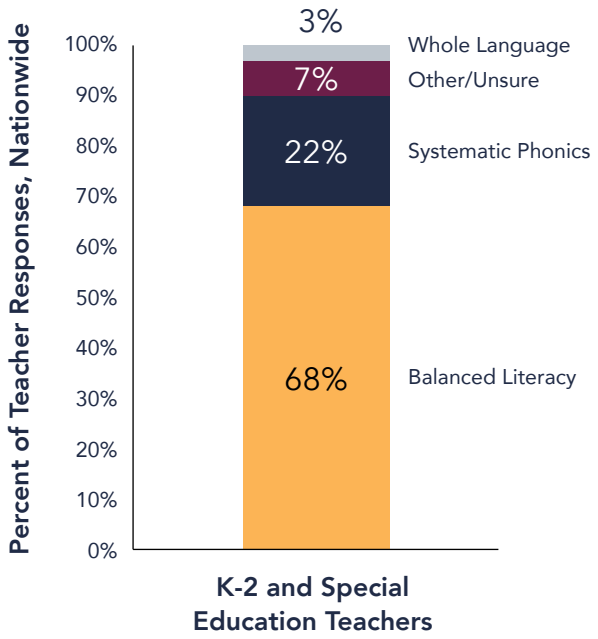
In 2003, Joel Klein, the chancellor of the New York City Department of Education, chose a Balanced Literacy curriculum for all New York City public schools: Calkins' Units of Study.

Calkins developed the Units of Study curriculum, which is rooted in the belief that children will be natural readers the way they are speakers, and that reading ability can be developed through exposure to rich and interesting texts. In 2008, however, Klein began turning away from Units of Study and piloted a more structured and content-focused approach, Core Knowledge. Reading curriculum remained inconsistent among New York City schools, with broad latitude for principals to choose materials.

The pendulum swung again when Chancellor Fariña advocated for a return to a Balanced Literacy approach, especially Units of Study, in 2014.

Most recently, in 2023, Chancellor David Banks introduced a mandate for supplementary foundational skill and phonics instruction, and restricted the literacy curriculum choice in many elementary schools to one of three, all generally more aligned with the Science of Reading, and not including any Balanced Literacy approaches.

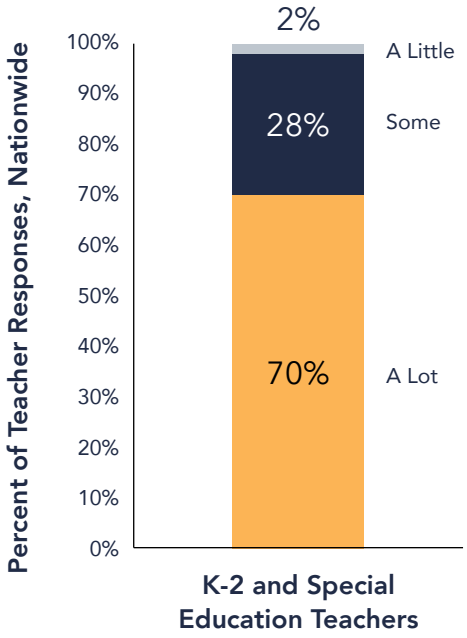
What Is Your Philosophy of Teaching Early Reading?
2020



In a national survey, more than two-thirds of teachers said their reading instruction philosophy is Balanced Literacy.

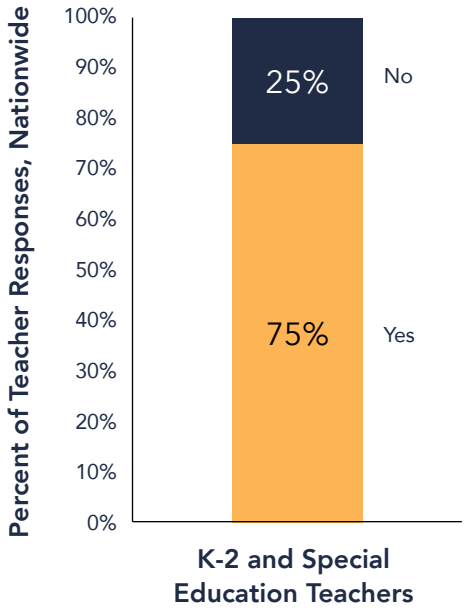
Balanced Literacy educators in the early grades say they emphasize phonics — but spend relatively little time on it.

When You're Teaching Students to Read, How Much Emphasis Do You Place on Phonics?
2020



In a national survey, among K-2 and special education teachers, 70% say they place "a lot" of emphasis on phonics; however, it is unclear what the instruction looks like — direct or indirect. This lack of clarity is pertinent, as more than half of the survey respondents also stated that children can read without a strong grasp of phonics.

When You're Teaching Students to Read, Do You Teach the Three-Cueing System?
2020



In a national survey, three-quarters of teachers still teach the three-cueing system, which has been both discredited in the research and banned as an instructional strategy in several states.

Much like its predecessor, Whole Language, Balanced Literacy has not produced the hoped-for results.

Research on various curricula and strategies associated with Balanced Literacy has not shown its strong impact. Growing policy consensus has turned against the strategy, despite its broad prevalence and popularity among teachers and schools of education.

- Like Whole Language, Balanced Literacy approaches do not produce strong results, particularly among children with dyslexia and other learning disabilities.
- Analyses of two widely used Balanced Literacy materials – Units of Study and Fountas and Pinnell – showed that both failed to meet expectations for text quality, vocabulary, complexity, and alignment with standards. It found gaps in foundational skill-building (phonemic awareness and phonics) and an over-emphasis on discredited reading strategies such as cueing.
- Three-cueing as a strategy for learning to read has largely been discredited by research.
- Studies of Balanced Literacy implementation in classrooms found relatively little of the foundational skill instruction that is meant to be part of the balance, and the child-led method of selecting books creates inconsistency in knowledge building and comprehension.
- Guided Reading has also shown poor outcomes, as the lowest-performing students never progressed to the level of reading of students in the highest-performing groups.

It is difficult to study the impact of an instructional philosophy. But with so many teachers claiming to use Balanced Literacy in recent decades, if it were effective we would expect to see improvement in national reading results. That has not happened.

Policymakers, educators, advocates, and parents have called for a renewed push for Science of Reading instruction.

Science of Reading: The convergence of a body of research from the cognitive, communication, developmental, psychological, and neurological sciences about how children learn to read and translate reading skills into other domains. It emphasizes phonemic awareness, phonics, vocabulary, fluency, and comprehension.

Approach to Decoding and Word Recognition: Early readers are taught decoding skills systematically with a dedicated portion in the day when phonics and related foundational skills are taught directly and sequentially, starting from sounds, phonemes, and graphemes. Students also practice these decoding skills by applying them to real texts.

Approach to Texts, Knowledge Building, and Comprehension: Science of Reading is based on the belief that children need to acquire knowledge of the world beginning in the early years to enable reading comprehension. It begins comprehension-building instruction simultaneously with the development of word recognition. Science of Reading integrates literacy instruction into other subjects, leveraging high-quality, knowledge-rich instructional materials to deepen students' understanding of various topics like science, math, social studies, history, art, etc., via engaging, culturally relevant texts.

Instructional Characteristics: Uses structured curriculum and instructional materials that encompass literacy along with other subjects, including a consistent scope and sequence for building decoding skills and word recognition alongside knowledge, comprehension, writing, speaking, and other dimensions of literacy. Science of Reading makes extensive use of formative and benchmark assessments to track student progress and inform instructional differentiation.

Notable Supporters and Examples: Emily Hanford (journalist, "Sold a Story" podcast), the Reading League (nonprofit provider of professional development and resources), EdReports (nonprofit reviewer of curriculum quality aligned with standards), Knowledge Matters Campaign (focused on the knowledge-building components of literacy development), National Council on Teacher Quality (advocate for reform in teacher education), Penny Schwinn (former Tennessee Education Commissioner), Linnea Ehri (reading scientist), Natalie Wexler (education writer, knowledge-building advocate), Daniel Willingham (psychologist), Mark Seidenberg (cognitive scientist).

 ***Note**: Natalie Wexler reviewed an early draft of this analysis. Her contribution in no way unduly influenced key findings.*

A critical milestone in the current Science of Reading movement was a 2000 report of the National Reading Panel.

In 1997, Congress convened the National Reading Panel to assess the effectiveness of different strategies for teaching children to read. In 2000, the panel released a report detailing five necessary elements of reading instruction:

Phonemic Awareness	Phonics	Fluency	Vocabulary	Comprehension
Awareness of, and ability to focus on, individual sounds, called phonemes. In English, there are approximately 44 phonemes, represented by the 26 letters of the alphabet individually and in combination.	The systematic relationship between the sounds we hear in words (phonemes) and the letters that spell those words (graphemes). Understanding phonics allows students to decode, or sound out words by applying knowledge of letter-sound relationships.	The ability to read with speed, accuracy, automaticity, and proper expression.	The words students need to recognize and understand when reading, and the processing of new words.	The ability to understand and interpret what is being read, and both apply and gain knowledge from text as a whole.

These "five pillars of reading" are frequently cited as the foundation of Science of Reading instruction. However, each is complex in its own right, and the thinking on comprehension and knowledge building has evolved. Many in the field now put comprehension in a different category from "foundational skills" like phonics and phonemic awareness.

Although the Science of Reading is strongly associated with a return to phonics, that is only one part of its approach.

While research strongly supports phonics instruction as a key early reading practice to build decoding and word-recognition skills, phonics alone will not support students to be strong, fluent readers. Even at an early age, when language skills are still developing, students benefit from instruction that builds knowledge and comprehension, exposure to a wide variety of texts, and knowledge-building opportunities.

- Reading comprehension strategies are best taught through **integration with content** so that students will be better able to understand, analyze, and retain the content as they learn to read.
- Intentionally sequenced in-depth exposure to **complex texts** via reading, writing, and discussion builds students' base of knowledge and capacity to understand a wide variety of reading material — which will be imperative as they move through school and into adulthood.
- Phonics instruction must be embedded in a comprehensive **language-rich framework** of foundational skills and reading comprehension; in addition to phonics, students should be exposed to oral reading, opportunities to build knowledge and comprehension, and writing.
- Children should also develop familiarity with the **complex syntax** of written language.
- Fostering a "love of reading" in children through engaging, culturally relevant texts supports their **motivation to read widely**, and reading widely supports their development of critical language skills, including vocabulary, spelling, writing style, and the ability to use and understand complex texts.

The growing prominence of the Science of Reading stems from concerns among many stakeholders.

Parents

- Frustration with their children's reading performance and unaddressed reading difficulties, especially among parents of students with dyslexia.
- New insights into instructional methods gained during remote learning due to the pandemic and increased urgency to address missed learning.

Policymakers and Advocates

- Dissatisfaction with stagnant student reading outcomes and persistent achievement gaps by race/ethnicity, income, and language, fueled by inequitable access to effective instruction and enrichment opportunities in and out of school.
- Long-term efforts to incentivize more effective and research-supported instructional practices through more rigorous standards, accountability, and assessment.

Educators and Researchers

- Incentives as a result of standards reform to revisit and rebuild curricula in alignment with standards and make more high-quality instructional tools available to teachers.
- Growing efforts to organize among teachers and teachers unions, including within the American Federation of Teachers (AFT), in support of science-driven reading instruction.

Researchers

- Misalignment between widespread teacher practices and the consensus of researchers across multiple fields on the nature of learning to read and effective teaching methods to support the learning process.

The term "Science of Reading" reached a new level of public awareness and policy prominence with the popularity of the 2022 podcast "Sold a Story" by journalist Emily Hanford, which explores research, parent advocacy, and district- and state-level reform efforts.

Science of Reading-aligned instruction offers promise for students who have historically underperformed.

ELs

- Research suggests that many of the same Science of Reading instructional principles regarding the knowledge and skills that enable monolingual children to learn to read in English also serve ELs well.
- However, ELs also need tailored instruction and attention to continue developing in areas such as oral language skills, home language and literacy development, and culturally/linguistically responsive texts, materials, and assessments. Some EL advocates are concerned that these additional needs have not been consistently considered in the shift to Science of Reading-aligned instruction.

Students With Dyslexia and Other Reading-Related Learning Disabilities

- Students with dyslexia and other reading disabilities can learn to read with additional support and intervention focused on developing both foundational decoding skills and language comprehension.
- To date, 39 states and the District of Columbia have adopted mandatory dyslexia screening to identify children for additional support and services as early as possible.

A growing body of evidence suggests that the combination of strong foundational skills, complex texts, and integrated knowledge building captured by Science of Reading could accelerate achievement among student groups that have not been well served by other modes of instruction. However, because this is not a single approach or curriculum, specific results are difficult to quantify.

Spotlight: Key Events in Reading Instruction and Research in the United States

1850-2023

- **1850s**: Horace Mann, an early advocate for universal education and secretary of the Massachusetts Board of Education, rejects teaching the alphabet and embraces the teaching of whole words.
- **1886**: Psychologist James Cattell publishes a study on eye movement, showing that adults perceive words more rapidly than letters, ostensibly supporting the teaching of whole words rather than individual letters.
- **1948**: Leading reading scholar William S. Gray publishes *On Their Own in Reading: How to Give Children Independence in Analyzing New Words*, endorsing a meaning-first reading instruction method called "look-say."
- **1955**: Writer Rudolf Flesch publishes *Why Johnny Can't Read, And What You Can Do About It*, attacking meaning-focused reading instruction and advocating for explicit instruction in letter-sound relationships.
- **1967-1968**: Harvard professor Jeanne Chall publishes *Learning to Read: The Great Debate*, which synthesizes the "reading wars" taking place and analyzes studies of three reading approaches, ultimately finding that explicit phonics instruction results in better reading outcomes in the early grades.

  Project Follow Through is announced, intended to be an extension of Head Start as part of President Johnson's War on Poverty. In 1968, it evaluates 22 models for supporting low-income learners and finds that the Direct Instruction model outperformed all other models.
- **1969**: Scholar Kenneth S. Goodman challenges Chall's findings and proposes a theory of reading instruction based on syntax and semantics; this method becomes known as Whole Language.
- **1970s**: Psycholinguist Frank Smith publishes *Understanding Reading*, *Psycholinguistics and Reading*, and *Reading Without Nonsense*, hypothesizing that reading is natural and that to become a skilled reader, one need only to read; phonics instruction is unnecessary.

  Cognitive psychologist Keith Stanovich begins exploring Smith's theories but finds through experimental data that poor readers — not strong readers — rely heavily on context to facilitate word recognition.

  A growing body of evidence supports the need for direct phonics instruction, though much of it fails to reach educators and policymakers.

1981: Lucy Calkins joins the faculty at Teachers College, Columbia University, and founds the Teachers College Writing Project (which eventually becomes the Teachers College Reading and Writing Project, through which the Units of Study curriculum was developed and used to train thousands of teachers in a Balanced Literacy approach to reading instruction).

1985: The National Institute of Education (NIE) and the National Academy of Education's Commission on Education and Public Policy publishes *Becoming a Nation of Readers*, which, among other findings, affirms the value of phonics instruction.

1987: Bill Honig, California's then-commissioner of education, adopts new reading textbooks that de-emphasize skill instruction and phonics, embracing the Whole Language movement and child-centered pedagogy.

1989: Steven Stahl and Patricia Miller publish a review of Whole Language approaches to reading instruction, finding some benefits in kindergarten but inferior results in the first grade compared with phonics-based instruction. The study also finds that Whole Language methods have the greatest benefit for middle- and upper-class students as opposed to students from more disadvantaged backgrounds.

1990: Developmental psychologist Marilyn Jager Adams publishes *Beginning to Read: Thinking and Learning about Print*, which echoes earlier findings from Chall and the NIE report about the importance of phonics instruction.

1992-1998: Data from the new state-level NAEP assessments show that 52% of California's fourth-grade students read at a below basic level; by 1994, the number is 56%.

President Clinton proposes a national literacy campaign, America Reads, focused on promoting third-grade reading proficiency through out-of-school tutoring.

Between 1994 and 1997, one or more phonics bills are introduced during legislative sessions in 18 states; California alone passes seven aimed at reducing its focus on Whole Language and requiring more phonics instruction.

The Texas Education Agency creates the Texas Reading Initiative after then-governor George W. Bush challenged all Texans to focus on ensuring that all children can read.

The National Reading Council convenes leading scholars to synthesize findings from the scientific literature; their report, *Preventing Reading Difficulties in Young Children*, is published in 1998.

The United States Senate Committee on Appropriations authorizes the director of the National Institute of Child Health and Human Development to assemble a national panel, the National Reading Panel (NRP), to synthesize research on the effectiveness of different approaches to teaching reading.

2000: The NRP publishes its report, showing that instruction in phonemic awareness and phonics improves children's ability to read, but phonics alone is not a total reading program.

2001: President George W. Bush signs No Child Left Behind into law, creating the federal Reading First program, which provides grants to states to support districts and schools to implement scientifically based reading instruction.

2003: New York City Chancellor of Education, Joel Klein, mandates the use of Calkins' Units of Study in the vast majority of public elementary schools citywide.

2009: Professor Stanislas Dehaene publishes *Reading in the Brain: The New Science of How We Read*, reaffirming the importance of a bottom-up, phonics-based approach to reading instruction.

2013: Mississippi adopts the Literacy-Based Promotion Act, sparking a new wave of state-level reading policy adoption.

2020: Seven literacy experts conduct independent reviews of Calkins' Units of Study, concluding that "following the course of Units of Study would be unlikely to lead to literacy success for all of America's public schoolchildren."

2021: Nonprofit organization EdReports evaluates two popular balanced literacy curricula, Units of Study and Fountas and Pinnell Classroom, and finds that neither program meets expectations for text quality or alignment with standards.

Calkins announces plans to revise the Units of Study curriculum to include daily phonics instruction in grades K-2.

2022: Journalist Emily Hanford hosts the podcast "Sold a Story," detailing how discredited ideas about how children learn to read continue to be promoted by educators and used in classrooms across the country.

2023: Columbia Teachers College dissolves the Teachers College Reading and Writing Project, and Founding Director Calkins steps down. New York City announces a new set of three reading curriculum and supplementary phonics instruction for schools, broadly aligned with the Science of Reading approach.

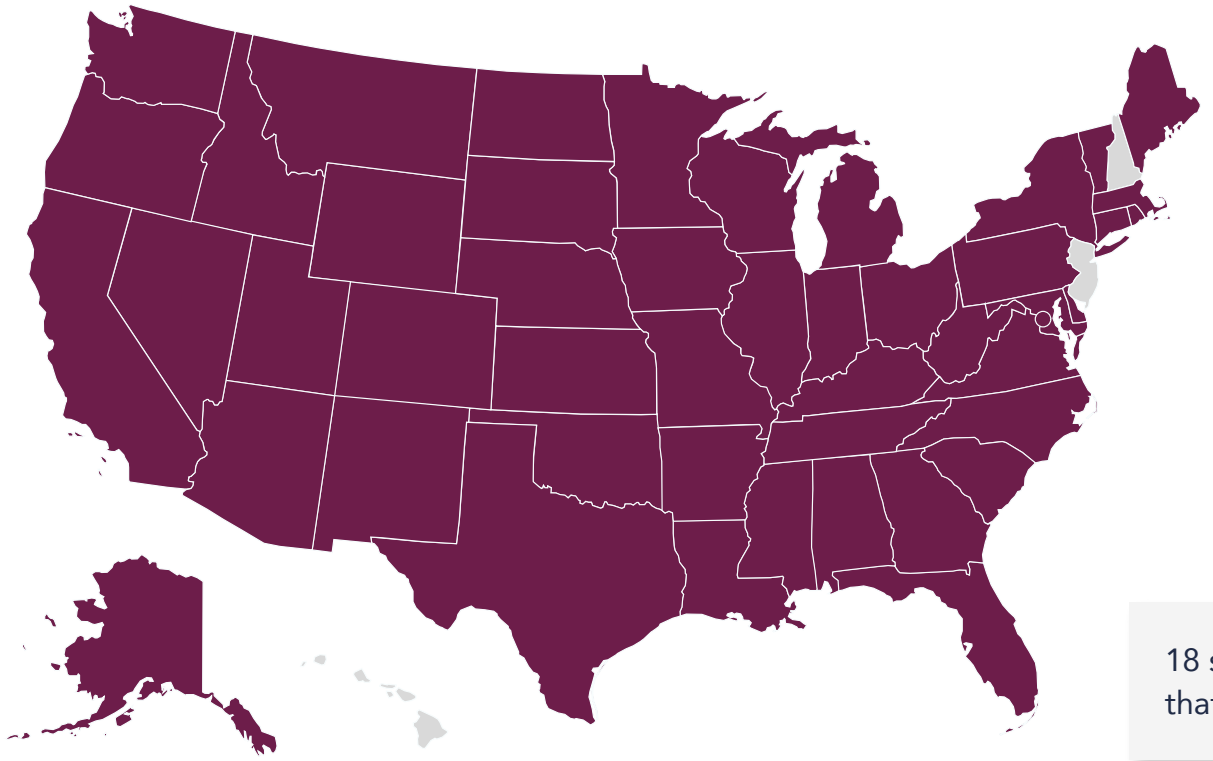
Contents

How States Are Encouraging the Science of Reading

- In the last decade, 47 states and the District of Columbia have passed laws or policies **to encourage Science of Reading-aligned practices**.
- Those efforts have generally focused on three areas: **1)** teacher preparation and licensure, **2)** classroom practice, and **3)** accountability and assessment.
- At a time when political polarization is higher than ever, it is notable that support for these shifts has **cut across traditional partisan and ideological lines**.

Since 2013, 47 states and the District of Columbia have passed laws or policies to encourage Science of Reading-aligned practices.

States With One or More Science of Reading-Based Policies
2013-2023



State *has* adopted one or more Science of Reading-inspired policy approach

State *has not* adopted a Science of Reading-inspired policy approach

18 states passed legislation from 2019 to 2022 that includes the phrase "Science of Reading."

 ***Note**: Map is current as of September 2023.*

Generally, state legislative efforts to improve reading instruction are focused on three action areas.

Teacher Preparation and Licensure

- Change teacher certification and licensure requirements.
- Mandate changes in teacher preparation curriculum.

Classroom Practice

- Require (or ban) specific instructional practices or interventions for reading support.
- Change curriculum approval and/or recommendation standards at the state or district level.
- Require coaching or professional development for educators.

Accountability and Assessment

- Require screenings or K-2 assessments to identify reading difficulties and provide individual action plans when difficulties are evident.
- Link third-grade reading results to student retention.

Legislation in many states includes multiple strategies for improving reading outcomes.

APPROACH	DESCRIPTION	NUMBER OF STATES
Teacher Preparation and Licensure		
Teacher Certification or License Renewal	Requires pre-service teachers to pass a test demonstrating knowledge of reading instruction and in-service teachers to earn a credential or pass a test to renew their license.	17
Teacher Preparation	Requires teacher preparation programs to review course offerings and make changes to bring instructional approaches in line with evidence-based practices.	19
Classroom Practice		
Curriculum	Establishes requirements for the type of curricula and materials schools can use to identify reading difficulties.	38
Instruction/Intervention	Requires specific instructional methods and/or type and frequency of support for struggling readers.	40
Professional Development/ Coaching	Requires training for educators in evidence-based reading instruction and/or implementation of an instructional coaching program.	45
Accountability and Assessment		
Assessment	Establishes requirements for the types of assessments schools can use to identify reading difficulties or mandates a process districts must use to select assessments.	45
Third-Grade Retention	Requires the retention of third-grade students who do not meet cut-points on state tests. May include exceptions for certain students or circumstances.	16

***Note**: The number of states for each strategy are estimated and reflect research completed in summer 2023. Additionally, they were calculated using multiple sources that all categorized policy approaches differently. States totals include the District of Columbia.*

Spotlight: Mississippi's 2013 reading law was followed by a dramatic rise in the state's reading proficiency.

In 2013, the Mississippi legislature passed the Literacy-Based Promotion Act, which was followed by large improvements in reading scores and served as a model for other states. Key provisions of the law included:

Teacher Preparation and Licensure

- N/A

Classroom Practice

- Districts to provide intensive reading instruction and support for struggling students.
- Mississippi State Board of Education to adopt policies necessary for implementation.

Accountability and Assessment

- Retention of students not reading proficiently by the end of the third grade.
- Mississippi Department of Education to establish a panel to identify and adopt appropriate screening tools.
- Local school boards to submit quarterly progress reports to parents on their students' reading progress and publish data on reading performance in a local newspaper.

Key Components of Successful Implementation:

- Adopted Language Essentials for Teachers of Reading and Spelling, which was used to train teachers in new teaching methods.
- Added literacy coaches to the state's lowest-performing schools.
- Implemented regular universal screening for early identification of struggling students and development of individual reading plans.
- Provided intensive tutoring and summer literacy camps for students at risk of retention.

In 2002, just 16% of Mississippi fourth graders scored at proficient level or higher on the NAEP reading assessment, compared with the national average of 30%. By 2022, the state's students had nearly closed the gap with the national average.

More recently, other states have passed packages of policies that address reading instruction (1/2).

TENNESSEE

Tennessee Literacy Success Act, 2021

Teacher Preparation and Licensure

- Educator prep programs should emphasize evidence-based foundational skills approach.

Classroom Practice

- School districts and public charter schools to use a phonics-based approach for early reading instruction.
- Specific literacy training provided for teachers.
- English language arts (ELA) textbooks and materials must come from a state-approved list with a focus on foundational skills and knowledge building.
- Districts and schools to develop foundational literacy skills plans.

Accountability and Assessment

- The use of a reading screener to identify reading challenges prior to completing grade 3.

GEORGIA

Georgia Early Literacy Act, 2023

Teacher Preparation and Licensure

- Teacher certification assessments should be aligned with evidence-based literacy instruction.

Classroom Practice

- Georgia Department of Education to develop or purchase literacy training for K-3 teachers; teachers to complete the training.
- Georgia Board of Education to establish standards to measure literacy, approve a list of curricula for K-3 reading, and create a list of screening tools to identify struggling readers.
- Districts to adopt high-quality materials, as designated by the state.

Accountability and Assessment

- The use of a reading screener for students in grades K-3 and development of individual reading plans for struggling students.

More recently, other states have passed packages of policies that address reading instruction (2/2).

INDIANA

Science of Reading, 2023

Teacher Preparation and Licensure

- Teacher preparation programs are required to use curricula that instruct teachers on the Science of Reading.
- For teachers seeking licenses to teach reading, a portion of their credit hours must be in teaching scientifically-based reading.
- Indiana Department of Education to conduct a review of teacher preparation programs to ensure alignment with the Science of Reading.

Classroom Practice

- School districts and public charter schools are to adopt curricula aligned with the Science of Reading and students' reading proficiency and may not adopt curricula based on the three-cueing model.

Accountability and Assessment

- N/A

CONNECTICUT

Right to Read, 2021

Teacher Preparation and Licensure

- The Connecticut State Department of Education is to develop a Center for Literacy Research and Reading Success that will focus on ensuring alignment between reading standards and teacher preparation courses.

Classroom Practice

- All districts are required to implement early literacy reading curricula that are evidenced based and focused on oral language, phonemic awareness, phonics, fluency, vocabulary, and reading comprehension.
- Districts are required to create interventions for students who are not progressing in their reading development.

Accountability and Assessment

- State established approved reading assessments to track progress.

Communities leading the charge on the Science of Reading cut across the political spectrum.

Although phonics-centered reading instruction has been historically associated with more conservative educational movements, the reality is (and has always been) more complex.

State-level policies that encourage use of the Science of Reading may be more common in "red" states like Florida, Georgia, Mississippi, and Tennessee. But advocates at the local level cut across the political spectrum — even if they may not share views on the best way to implement change.

- In **New York City**, Balanced Literacy came to prominence under a Republican mayoral administration, was revived under a Democrat, and was most recently done away with by a different Democratic administration.
- The **NAACP chapters** of several communities, including Fairfax County and Arlington, Virginia, and Oakland, California, have publicly advocated for their local school districts to adopt Science of Reading-based approaches.
- Right to Read, a documentary produced by actor LeVar Burton, calls America's reading crisis **"the greatest civil rights issue of our time"** and shares stories of NAACP activists, including Kareem Weaver of Oakland, California, teachers, and families fighting to get Science of Reading-aligned curricula into their public schools.
- **Decoding Dyslexia**, a network of state-based parent-led groups, and other advocates for students with learning disabilities are influential supporters of state policy changes to identify, remediate, and support students with dyslexia.

Spotlight: Oakland, California Parents Organizing for the Science of Reading

In recent years, parent and community activists in Oakland, California, led by local advocacy group Oakland REACH and the NAACP, formed the Literacy for All campaign. In addition to pushing for better literacy curricula across Oakland Unified School District, REACH directly offered intensive reading courses in and out of schools.

In response to that pressure, the district dropped the Units of Study curriculum in 2021.

Contents

Implementation Challenges and Lessons

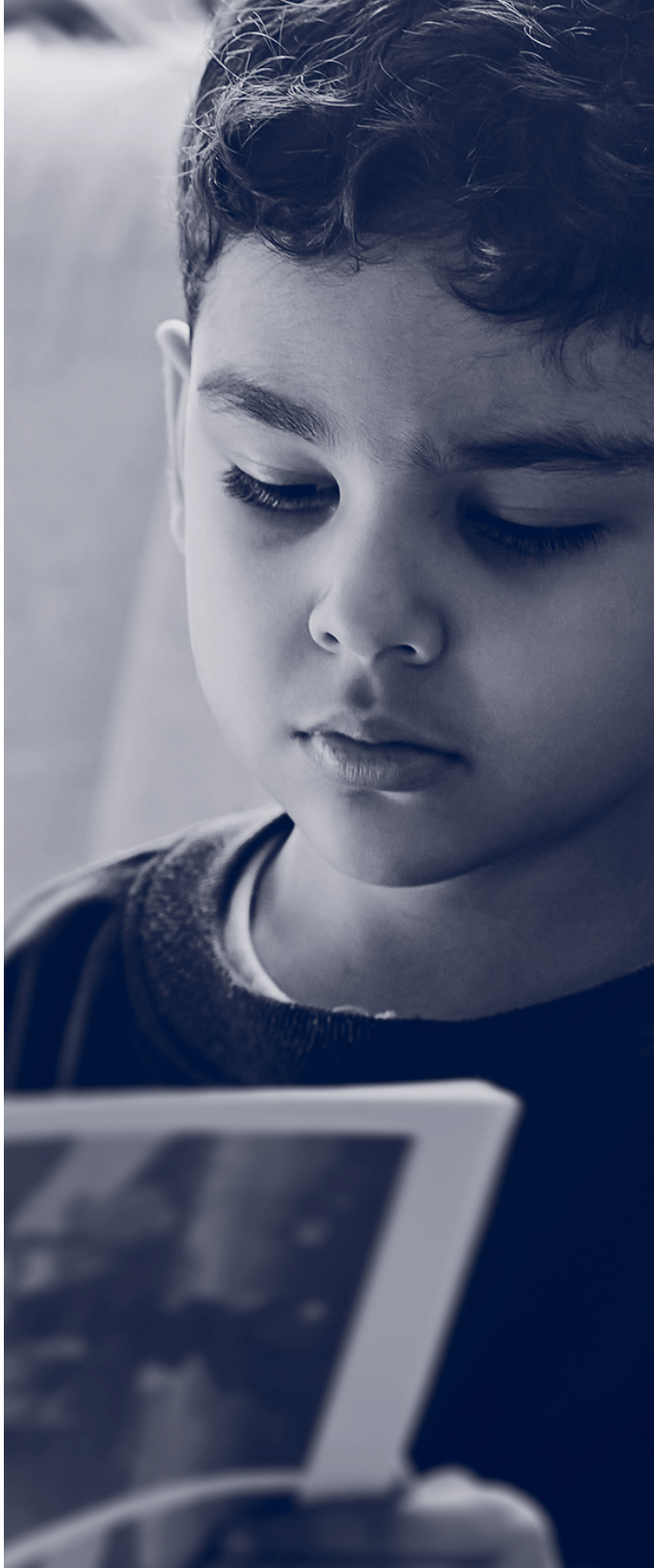
- Adopting Science of Reading-aligned policies — as challenging as that can be on its own — is just **the first step toward long-term change** at the classroom level.
- Science of Reading-aligned policies **face implementation challenges** that mirror those of other recent large-scale reform efforts, including the inherent decentralization of the U.S. education system, capacity limitations, unclear or unrealistic expectations for success, and politicization.
- Leaders and advocates should start planning for these challenges now, **by creating clear implementation plans from the outset**, working to bring teachers along with changes, setting ambitious but realistic expectations, and continuing to monitor and shape political debates about the Science of Reading.

Recent history shows that simply adopting new education policies does not guarantee long-term change.

Over the past several decades, the U.S. has seen several large-scale education reform efforts come and go. No Child Left Behind, Common Core educational standards, and teacher evaluation reform at one point had seemingly unstoppable momentum, to name a few.

But less than a decade after these reform efforts were adopted, the public had turned on them, policymakers had diluted them, and the full potential of intended impact was never fully realized.

While none of these past reform efforts are exactly analogous to the push toward greater implementation of the Science of Reading (particularly since the federal government has not yet gotten involved), an analysis of "what went wrong" emphasizes the importance of strong, continued attention to policy implementation at all levels of federal, state, and local policymaking.



Past reforms failed to realize their full promise due to four key implementation barriers.

The U.S.'s decentralized education system creates multiple bottlenecks where implementation can stall. At any point in the chain, from states to districts to schools and from teachers to students, policy intentions can go awry. The federal government has an influential but not determinative role, as the responsibility for education lies largely with the states. And a broad ecosystem of researchers, advocates, vendors, institutions of higher education, and support organizations also plays an influential role in implementation.

Quality implementation relies on the availability of appropriate human, technical, and financial resources. Policy implementation requires substantial time, money, human capital (most importantly teachers), and technical support. Poorly planned and under-resourced implementation efforts lead to a gap between policy goals and what happens on the ground, which ultimately limits success.

Policymakers must set clear expectations about what success looks like and a realistic timeline for when the public can expect to see that success. Results from big education policy changes can take many years to work their way through the system. Those results often are not apparent to the public in real time. This leaves reforms, even those being implemented well, vulnerable to criticism that they are not working and should be scrapped.

The politicization of reform efforts can exacerbate implementation challenges. When reform efforts are caught up in politics or synonymous with a particular political ideology, problem-solving around the nuts and bolts of implementation becomes increasingly difficult.

Some of these barriers are already evident as states begin to implement new reading policies.

In more than 30 states, Science of Reading policies are in the implementation stage — where they are most vulnerable to challenges that can undermine their long-term durability and ability to support meaningful changes in practice.

Decentralized Systems

- Strong norms for district, school, or classroom control over instructional materials.
- Educator pushback on instructional mandates.

Unclear or Unrealistic Expectations

- Parental and educator pushback on retention mandates.
- Unrealistic timelines for implementation.

Human, Technical, and Financial Capacity

- Continued popularity of misaligned curriculum products and misunderstanding of the full Science of Reading.
- Misalignment of entrenched practices in many educator prep programs with science-based reading instruction, with limited state visibility to force change.

Politicization of Reform

- Politicization that characterized earlier "reading wars" is emerging around the Science of Reading, particularly around text selection, despite bipartisan consensus on this approach.

Most states are reluctant to directly limit district control over curriculum and other instructional materials.

Some states have more authority than others over the approval, adoption, or procurement of instructional resources. "Adoption" states are those with the authority to review instructional materials and provide an "approved" list of resources from which districts can choose. However, the degree of authority states have to compel districts to choose from that list varies widely. Just 17 states are considered "adoption" states; among them, the degree of control the state has over district choices varies substantially.

Degree of Control Over State Curriculum Among Science of Reading Adoption States

Control	Description	States
High	State law mandates that districts choose specific materials with limited exemptions OR restricts spending allotments, requiring a specified percentage of state funds to be used for state-approved options.	*Nevada, New Mexico, Oklahoma, South Carolina, Tennessee, West Virginia*
Medium	State law allows districts to make curriculum choices as long as their adoption processes meet state-defined criteria.	*Alabama, California, Florida, Idaho, Louisiana, Oregon, Utah, Virginia*
Low	State law offers guidance but does not restrict or require materials.	*Mississippi, North Carolina, Texas*

Educators and educator organizations may oppose changes, especially statewide instructional mandates.

Many Educators Still Strongly Support Balanced Literacy

- Among K-2 teachers, 75% report using three-cueing, a strategy that has been discredited by research.
- Among K-2 teachers, 68% say their reading teaching philosophy is Balanced Literacy.
- Extensive investment in coaching, new materials, and professional development support is likely necessary to retrain these teachers.

Teachers Unions Resist State Mandates Over Instructional Autonomy

- Ohio's teachers unions opposed the governor's attempt to mandate the Science of Reading and ban teachers from using three-cueing.
- The president of the Indiana State Teachers Association voiced concerns about the state considering a ban on three-cueing.
- In a publication supportive of Science of Reading, AFT president Randi Weingarten noted that, "It doesn't advocate for what we have found so disrespectful: scripted curricula or 'teacher proof' programs."

Large groups in the educator workforce still say they support a Balanced Literacy approach. Other educators and teachers unions — most notably the AFT — support the instructional philosophy behind the Science of Reading and have found success with the approach. But both groups oppose top-down mandates from states, especially those perceived to infringe on teacher autonomy or increase administrative burden without sufficient resources.

The curriculum market is mixed in quality — perpetuating misunderstanding about the Science of Reading.

Science of Reading-aligned materials are increasingly available ...

- For example, the Knowledge Matters campaign highlights eight ELA curricula for grades K-8 that provide "coherent progressions of thought-provoking content knowledge" via shared texts, and include or pair with "systemic foundational skills instruction," (e.g., phonics and decoding).
- Nonprofit reviewers at EdReports screen early literacy curricula for alignment with standards and Science of Reading criteria.

... but not enough classrooms across the country use them.

- Nearly 60% of reading teachers in the U.S. use either the Fountas and Pinnell Leveled Literacy Intervention System (used by 43% of K-2 teachers) or Calkins' Units of Study (used by 16% of K-2 teachers), two programs that are strongly associated with Balanced Literacy.
- A report analyzing ELA curricula at California's 331 largest districts found that just five districts — less than 2% — had adopted and implemented programs following the Science of Reading.

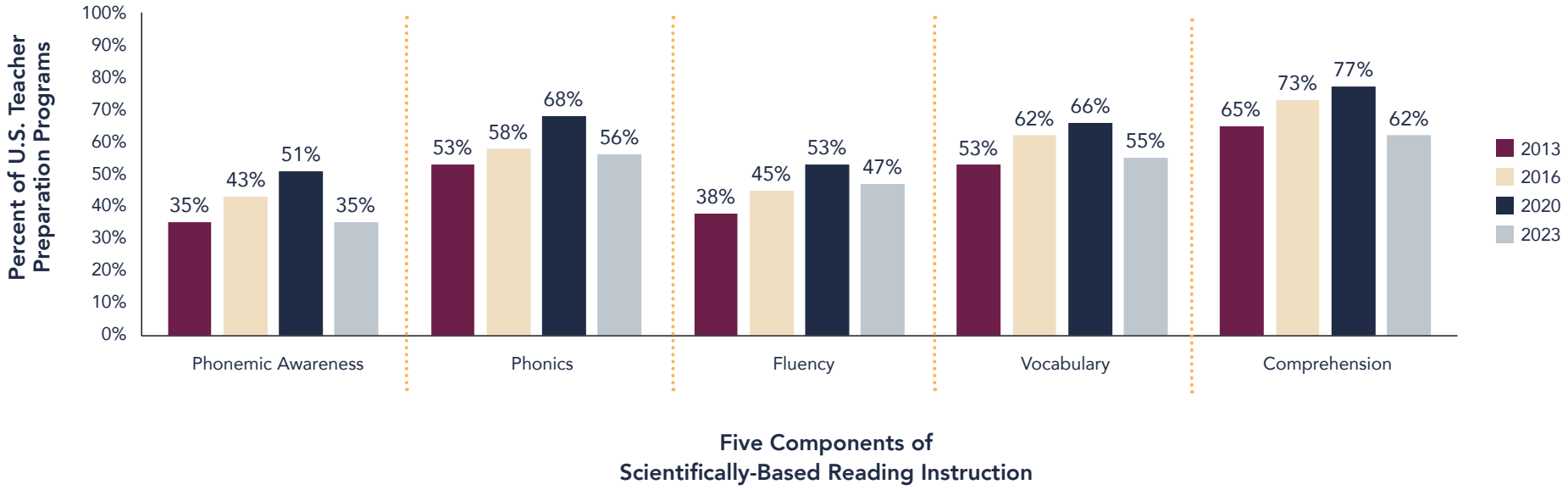
There is no standard dictating which curricula can claim to be aligned with the Science of Reading, perpetuating misunderstanding among policymakers and educators that phonics instruction is the only component.

More than 19 states are exerting pressure on teacher preparation programs to align with the Science of Reading.

But the path to change is steep. Many pre-service teachers are not receiving high-quality, research-aligned training in reading instruction. Not only is training on key components often missing, but many programs also promote ineffective instructional methods.

From 2013 to 2020, there was considerable growth in the percentage of education preparation programs covering the five core components of reading instruction. However, only 26% of programs adequately address these five components, and nearly 40% still teach practices that contradict the research.

Percentage of Teacher Preparation Programs Covering the Five Components of Scientifically-Based Reading Instruction
National Council on Teacher Quality (NCTQ) Reviews, 2013-2023



***Note**: In 2023, NCTQ increased the expected minimum amount of instructional time programs should devote to each of the five components of reading, resulting in fewer programs meeting the benchmarks.*

Mandates for grade retention based on third-grade reading tests are controversial among parents and educators.

Many third-grade reading and grade-retention laws slightly pre-date the current iteration of curricular focus on the Science of Reading, inspired in large part by the National Reading Panel and the Reading First program within No Child Left Behind (e.g., Florida passed its third-grade reading law in 2002).

Research on the impact of mandatory third-grade retention is mixed and is further muddled by various exceptions to the "mandates."

- There are examples suggesting retention improves reading performance. This depends on whether the additional year includes effective instruction and additional support.
- But there are also concerns about the long-term motivational impact on children and inconsistent implementation of the rules.
- Because retention policies are often introduced alongside other measures, like curriculum reform and professional development, it is difficult to say where the impact lies.

Regardless, parents react strongly to the threat of retention, especially if their child gets good classroom grades and they were not previously aware the child had reading difficulties. Tennessee recently modified its policy in response to parent pushback.

- No state passed a new retention-based policy from 2016 to 2023.

The Science of Reading is at risk of politicization, especially over the issue of text selection.

One hallmark of a Science of Reading-aligned curriculum is the use of specific shared texts to support knowledge building and comprehension alongside foundational skills. The emphasis on shared texts has drawn Science of Reading into politicized debates over the content covered in elementary school classrooms.

Several right-leaning state legislatures recently passed laws limiting content that can be discussed by teachers or shared in books, especially in elementary school. Many laws are vaguely worded but focus on sex, sexuality, gender, and race.

In response, some major curriculum publishers are amending curriculum content to protect marketability in those states. Science of Reading advocates are concerned that publishers and schools may focus only on foundational skills and neglect comprehension and knowledge building to avoid debates.

Other ELA- and knowledge-centered curricula have come under criticism from the political left for not incorporating sufficiently diverse perspectives in classroom texts, for reinforcing harmful stereotypes, or for capitulating to "book ban" pressures.

Spotlight: Moms for Liberty Supports Science of Reading for Phonics, but Fights Knowledge-Building Curricula

Moms for Liberty, a conservative political organization known for advocating for the removal of books covering topics related to LGBTQ+ rights and including content on racial discrimination from classrooms, has both:

- Endorsed in Oklahoma what it calls a Science of Reading approach focused on "back to basics" foundational skills and phonics.
- Advocated in Tennessee against Wit & Wisdom for its "woke ideology" and claims about race- and sexuality-related content. Wit & Wisdom is a Science of Reading-aligned knowledge-building curriculum that is highly rated by EdReports for comprehension and is highlighted by the Knowledge Matters Campaign.

Today's Science of Reading advocates, including state policymakers, can improve on past reform templates.

State advocates and policymakers must:

- **Have a clear implementation plan from the outset.** Policymakers must think through how things could go wrong when implementing new reading policies at each bottleneck and have the resources in place to address those challenges head-on. This includes providing teachers with the education, time, tools, training, resources, and compensation they need to learn, practice, and implement new strategies in their classrooms.

- **Bring teachers along.** Acknowledge that many teachers, regardless of when or where they were trained, learned to teach reading in ways that are not aligned with the current research. That is not their fault, and they are not to blame. Giving teachers this "permission structure" — the justification they need to change their beliefs and practices — along with sufficient professional development, instructional materials, and coaching, is essential to support the adoption of new reading instruction methods.

Expectations must be ambitious but realistic; policymakers must monitor the political and national debate.

State advocates and policymakers must:

- **Set ambitious but realistic expectations.** While improvement in reading is relatively easy to measure (compared with more abstract concepts like college readiness), it does not happen overnight. The levers of implementation are complex, and often indirect. It will be years before today's pre-K students take a state reading exam, and the true benefits of the knowledge building and reading comprehension embedded in early elementary school reading curricula may show up in other subject matter domains in later grade levels.

- **Tend to the politics of the reform.** Advocates for Science of Reading policy change often approach the initial policy idea as a campaign, sharing data about the importance of the issue and keeping stories of its importance at the forefront. This same level of care is needed once a policy is enacted: Advocates and policymakers must continue to engage stakeholders and tell the story about why the policy matters, how it is working, and what success looks like. Advocates should focus on driving progress, not scoring debate points.

- **Avoid inviting a backlash.** The implementation challenges highlighted in this analysis will provide plenty of fodder for Science of Reading opponents even in the best-case scenario. Leaders and policymakers should work hard to avoid giving those critics any additional rallying points and shifting the debate from substance to symbols. This means, for example, thinking carefully about the pros and cons of statewide bans or mandates around specific instructional techniques or curricula, and continuing to invite evidence-based conversation and debate about the best way to improve reading instruction in the years ahead.

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About Beta by Bellwether

Beta by Bellwether is an initiative to jump-start bold solutions to structural problems in the education sector. Beta moves beyond imagining a new sector by bringing together viewpoint- and experience-diverse teams from across education to create blueprints and tools for leaders around the United States. Our goal is to help build an education system that better serves all young people — particularly those from systemically marginalized communities — and models a new way forward for the sector. For more, visit **bellwether.org/beta**.

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Bellwether is a national nonprofit that exists to transform education to ensure systemically marginalized young people achieve outcomes that lead to fulfilling lives and flourishing communities. Founded in 2010, we work hand in hand with education leaders and organizations to accelerate their impact, inform and influence policy and program design, and share what we learn along the way. For more, visit **bellwether.org**.

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