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The Science of Reading

EDITOR'S NOTE

The science of reading is an evidence-based approach to reading programs and interventions that ensures students develop strong reading skills from an early age and throughout their K-12 education. This Spotlight will help you examine evidence-based reading methods for English-Language Learners; inspect the elements of encoding and how writing may help students connect speech to print; gain insight into science of reading implementation; and more.

OPINION

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The 'Science of Reading' and English-Language Learners: What the Research Says

By Sarah Schwartz

—Roger Nomer/The Joplin Globe via AP

As more states and districts are embracing the "science of reading," some educators and advocates have raised the question: Will these methods work for English-language learners?

The "science of reading" has become shorthand in some literacy circles for approaches to early reading instruction that emphasize explicit, systematic teaching.

Its proponents favor structured, sequential instruction in foundational reading skills for beginning readers, such as learning letter sounds and sounding out words. Most also oppose the use of leveled reading systems, which aim to match students with a "just-right" text—an approach that many researchers say can trap struggling readers in simplistic books, preventing them from developing the vocabulary and content knowledge that would support them in tackling grade-level work.

Over the past five years, at least 17 states have passed legislation enshrining the "science of reading" into law, in hopes that policy changes will move instructional practice in the classroom. These laws have and will continue to shape instruction for millions of students—including English-language learners, who represent one in 10 students in the United States.

Some researchers and ELL experts say that's a problem. The National Committee for Effective Literacy, a new advocacy organization formed this year, has argued that states that have taken up these initiatives have narrowed literacy instruction to "a few foundational reading skills" that fail to meet the needs of English learners.

The group's aim, said Martha Hernandez, an NCEL member and the executive director of Californians Together, is to "ensure that the research and policies and practices that address English learner and emergent bilinguals were spotlighted, and are part of the national literacy conversation."

Other early literacy researchers, though, have said that NCEL is misrepresenting some of the changes that states and districts are making to their reading teaching methods—and that a lot of the strategies that work for native English speakers can be effective for English learners, too.

So what are these areas of overlap, and where do English learners need something different?

Education Week spoke with researchers who study early literacy development in ELLs to compile this short overview of the research.

What do school systems mean when they say the "science of reading"?

Written English is a code. For students to be able to understand words on the page, they need to crack that code: They need to know which letters make which sounds. Decades of research has shown that explicitly teaching students to recognize the sounds in words and to match those sounds to letters—teaching phonemic awareness and phonics—is the most effective way to ensure that kids are able to read words.

But as Education Week and other outlets have reported, many schools underemphasize these skills in reading lessons, and some teach other, disproven methods for identifying words.

States that have recently passed laws aiming to improve reading instruction have mandated that teachers be trained in delivering this kind of foundational skills instruction, or that schools use materials and assessments that support it.

Some ban other methods for word identification, like cueing, an approach that encourages students to rely on multiple sources of information, like pictures and sentence structure, to predict what words say, rather than just relying on the letters. Some research has shown that this strategy can take students' focus away from the letters on the page, lowering the chances that they apply their phonics knowledge.

Systematic, explicit instruction in letters and sounds is crucial for beginning readers, especially those with dyslexia or phonological processing problems, said Elsa Cárdenas-Hagan, a bilingual speech-language pathologist and an associate research professor at the University of Houston.

Still, she said, "phonology and phonics are one piece of the puzzle. It's not everything that literacy is about."

Teachers need to help students develop a host of early literacy skills, like their ability to express themselves through spoken language, their ability to understand what others are saying to them, and their vocabulary, Cárdenas-Hagan said. Students should have opportunities for practice that integrates listening, speaking, reading, and writing, she added.

While these new state laws mandate certain approaches to foundational skills instruction, they direct schools to prioritize other reading skills, too. Many cite the five components of reading studied in the National Reading Panel in 2000—instruction in phonemic awareness, phonics, fluency, vocabulary, and text comprehension.

Even so, critics of these laws worry that a more comprehensive focus will be lost in their implementation, and that school systems will be incentivized to double down on foundational skills instruction at the expense of all else.

"When it hits the classroom, when it hits district administration, that's what they look for, that's what they assess," said Laurie Olsen, an NCEL member and the board president of Californians Together.

This is a reasonable concern, said Claude Goldenberg, a professor emeritus at Stanford University who studies early literacy development in English-language learners. Goldenberg and several co-contributors, including Cárdenas-Hagan, wrote a response to a recent paper and webinar from NCEL, refuting their claim that "science of reading" advocates are pushing a phonics-only approach to reading instruction.

Still, he said, new state laws often don't specify how much time to spend on different reading skills or how to teach them—nor should they, Goldenberg said: "You can't expect legislation to be curriculum guides." That means, though, that these laws' success or failure lies in implementation, he said.

Does this research apply to English-language learners, too?

In 2002, the U.S. Department of Education convened the National Literacy Panel on Language-Minority Children and Youth, tasking it with reviewing the research on best practices for literacy development among ELLs.

The panel's report, published in 2006, found that a lot of what works for kids whose first language is English is also effective for kids who speak a different language at home. Instruction in phonemic awareness, phonics, fluency, vocabulary, and text comprehension—the five components of reading studied in the National Reading Panel a few years earlier—all had "clear benefits" for ELLs.

> "If the only English-language development that kids are getting in K, 1, 2 are the words they're learning to read, that is an impoverished ELD curriculum."
>
> **CLAUDE GOLDENBERG**
> Professor,
> Stanford University

But the literature also showed that instruction was most effective when it was tailored to ELLs' specific needs and unique founts of knowledge. And crucially, kids learning English needed more instruction in oral English proficiency than their peers: things like vocabulary knowledge, listening comprehension, and syntax.

The panel found that schools weren't supporting students enough in these areas, and more recent research finds that schools still aren't doing enough to help ELLs develop academic language in English.

With these students, teachers need to discuss the meaning of words constantly—even shorter, simpler words that teachers might not treat as vocabulary words with native English speakers, said Cárdenas-Hagan. In working with students who are learning how to speak a new language, teachers need to be purposeful about developing vocabulary and oral language skills in every lesson.

In part, this is so that students can understand that the words they're sounding out have meaning, said Kathy Escamilla, a professor at the University of Colorado at Boulder and an NCEL member. She gave the example of a 1st grade class, where a teacher might ask students to clap out how many sounds are in the word "sofa."

Native English speakers would know that word, but other students might not. If the teacher doesn't help English learners understand the meaning, then it's harder for students to make the connection that these sounds represent word parts, Escamilla said.

And there are other reasons why English learners might need teachers to pay more attention to vocabulary instruction. A word like "run," for example, has multiple meanings in English: You can run a race, but you can also run your finger down a list, or run a computer program. Discussing those multiple meanings as students encounter these words in phonics lessons is a key part of vocabulary instruction for English learners, Cárdenas-Hagan said.

Teachers need to build students' oral vocabulary beyond these words, too, so that they're prepared for the more challenging texts they'll encounter after the earliest grades, said Goldenberg. This is important for all students, but especially so for English learners.

"If the only English-language development that kids are getting in K, 1, 2 are the words they're learning to read, that is an impoverished ELD curriculum," he said.

Research on interventions for Spanish-speaking students who are at risk of reading difficulties has found that successful approaches combine both instruction in the five components of reading identified in the National Reading Panel report, and additional support in developing spoken language skills in English from trained bilingual intervention teachers.

What if students are in bilingual programs and learning to read in two languages?

English learners aren't blank slates. They come into schools with language—and often literacy—skills from the language they speak at home. These skills can support them in developing proficiency in English.

Many research reviews have found that teaching students to read in their first language helped kids become better readers in English, too. It can also be beneficial for students' social and cultural development.

Bilingual education is evidence-based. But it's also politically controversial in many places. Until recently, 40 percent of the nation's ELLs lived in states under English-only laws, which prohibited English learners from being taught in their home language as well

as English; only one state, Arizona, still has this type of law on the books.

The number of dual-language programs in the United States is growing, but there's still a shortage of certified bilingual teachers—and, as Education Week has reported, English learners often face competition for spots in these programs from affluent, native English-speaking parents who are increasingly seeking out bilingual education for their children.

In its position paper, NCEL outlined best practices for English learners in dual-language programs. Good teaching in a bilingual setting isn't just "repeating the same thing in two languages," they write.

It requires "coordinated and aligned" literacy teaching, with a scope and sequence that makes sense in each language. Students should have access to high-quality materials and assessments in both languages, as well as opportunities to write, have conversations, and deliver presentations in both.

And importantly, they write, dual language programs should celebrate diversity, "including learning about the benefits of bilingualism and explicit efforts to equalize the status of 'minoritized' languages."

Despite this evidence base, the majority of English learners are not served in bilingual settings, said Cárdenas-Hagan. She said it's important for educators to get training in instructional strategies that can support ELLs in English as a second language programs.

But Escamilla says the two goals aren't mutually exclusive. "While it is true that most of the kids who are labeled as English learners are in English programs, that does not mean that we shouldn't advocate or push for the development of bilingual programs." ■

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'Encoding' Explained: What It Is And Why It's Essential to Literacy

Often overlooked, it deserves equal attention to its counterpart, decoding

By Elizabeth Heubeck

Ask an early-elementary teacher what the recently popularized term "science-based reading instruction" means, and the response is likely to include something about decoding—the process of translating words from print to speech by matching letters and their combinations to the sounds they make.

This makes sense, as decoding is an undisputed hallmark of early literacy. So, too, is encoding, decoding's opposite, whereby a spoken word is broken down into its individual sounds in the act of spelling and writing.

But encoding doesn't get nearly the attention that decoding does, despite evidence that, from the earliest grades on, writing practice is a powerful aid and complement to reading instruction. As a result, say some literacy experts, students suffer.

"Encoding and decoding go hand in hand; they're like two sides of a coin," said Crystal Whitman, an instructional coach at Rosman Elementary School in North Carolina's Transylvania County. "Our hands have been heavier on the decoding side, so we have some weak spellers, weak writers."

As literacy experts strongly suggest, encoding is often underrepresented in early literacy instruction, even in programs that claim to be steeped in evidence-based practices.

Education Week spoke to literacy experts, researchers, and educators to find out why and what students miss when their exposure to encoding is irregular or minimal. We also culled strategies from structured-literacy advocates on how to embed encoding into daily classroom instruction.

How did encoding get overlooked?

Literacy consultant Steve Graham has spent more than four decades studying the "hows" of writing: how it develops, how to teach it effectively, and how writing can be used to support reading and learning. The lack of emphasis on teaching writing, he points out, is nothing new.

"In pre-revolutionary days, you could teach someone how to read. But without additional instruction, they didn't necessarily learn how to write," said Graham, a professor at Arizona State University's teachers college.

In many of today's early-literacy programs, the weight of the pendulum remains firmly rooted on the side of teaching reading over writing. Inadvertently, the recent rise of evidence-based literacy programs based on the 2000 results of the congressional National Reading Panel may be partly to blame.

Heavily publicized nationwide, the panel recommends combining the following techniques for teaching children to read: phonemic awareness, phonics, fluency, guided oral reading, teaching vocabulary words, and reading-comprehension strategy.

The report does reference writing, particularly in the context of phonemic awareness and phonics, as students are learning how to manipulate sounds and letters. But it does not specifically mention encoding—or other granular aspects of writing. And even today, there is much less published research on the elements of effective writing instruction.

"I've done a number of national surveys," Graham said. "Writing and encoding see much less emphasis in the curriculum than reading does."

Other literacy experts share similar experiences. "Most phonics instruction is heavily focused on decoding. They want kids to learn how to read words. They might do some encoding, but it's often an afterthought," said Margie Gillis, a nationally recognized literacy expert and the president of Connecticut-based Literacy How, Inc., a company that creates professional-development curricula for pre-K through middle school.

Reading professor Amy Murdoch says she's seen schools "plop in" phonological-awareness programs that are disconnected to the other important elements of early literacy like spelling and writing.

Why encoding matters, and what it looks like in the classroom

"You can't separate the different strategies of language," said Murdoch, an assistant dean and associate professor in the School of Education at Mount St. Joseph University in Cincinnati.

That's particularly true for encoding and decoding. "We really drive home the point that [decoding and encoding] are reciprocal, and they bootstrap each other," Gillis said.

The brush strokes that, ideally, children begin practicing even before kindergarten form the essential building blocks of encod-

ing: letters and, subsequently, words and sentences. Teaching proper letter formation through repetition breeds automaticity, which is critical for the writing process, say literacy experts.

"I'm a stickler for letter formations. If our kids are not forming letters correctly to automaticity, that impedes them in spelling and writing, because they're having to then think of how to form those letters," said literacy expert Casey Harrison.

When students develop letter automaticity, they can shift their focus to whatever it is they're writing, points out Harrison, an Austin, Texas-based licensed dyslexia therapist and founder of The Dyslexia Classroom, which provides resources for dyslexic learners as well as online courses for educators, parents, and therapists.

Carrie Norris, the director of K-8 curriculum and instruction for the Transylvania County schools in North Carolina, has witnessed firsthand the advantages that come with a focus on early letter formation among her district's kindergartners. "They learn how to do strokes first—students doing horizontal, vertical, diagonal, and circle strokes," said Norris, who added that she's seen a significant improvement in students' ability to form letters correctly when given consistent and step-by-step practice opportunities in kindergarten.

But even the earliest stages of encoding should not be happening in a vacuum, the experts explain. "We are tying muscle movement and tactile kinetic letter formation with hearing the sound and associating it with its name," said Gillis.

Spelling assignments often miss the mark

Very young students just beginning to connect their understanding of phonetic awareness to writing letters and words may struggle with the fine motor skills these tasks require. Making it fun can help.

Gillis suggests having students write on a plate of shaving cream. Colored sand is another favorite, as are grooved surfaces that feel good on students' fingertips. "It doesn't have to be 'drill and kill'," shes said.

Despite ample evidence of the reciprocal and necessary relationship between decoding and encoding, some traditional assignments continue to miss the mark. Take spelling lists, for instance.

"I still see spelling instruction whereby lists of [spelling] words are sent home that may or may not have some spelling patterns in there," Harrison said. "It makes me realize the deep connection between sound-spelling for reading and sound-spelling for writing is not fully understood."

She doesn't suggest getting rid of the age-old spelling list, rather, revising how it's used. "Spelling instruction should be part of daily literacy lessons," Harrison said. "But we want students drawing on their sound-symbol knowledge and connections to reading instruction."

Harrison explains her version of the spelling test. As a former classroom teacher, and now as a licensed dyslexia therapist, she'll make a video of the spelling concept of the week (for example, spelling with the final /k/ sound or vowel-consonant-e pattern) and use it all week in class as the students focus on decoding and encoding words containing the rule. On Friday, students have their spelling test. Harrison picks 10 to 20 words containing the rule and has the students write the words using the concept they'd learned that week.

When students spell the words correctly, Harrison knows they haven't simply memorized a list of words they were apt to forget later. Rather, they've mastered a phonetic rule of the English language that they could apply to other words they attempt to read or spell.

"I tell them: I can't teach you every word in the English language. But I can give you the tools to apply to new, unknown words for reading and spelling," Harrison said.

The science of reading movement has been largely led by advocates of students with language disabilities. And as with decoding, teaching encoding in a systematic, explicit manner can benefit all kids but is particularly critical to those with processing disorders.

"These are our students who are struggling in accessing the phonological code," Harrison said, referring to students with dyslexia. "They really need it broken down into a very systematic approach, where things are explicitly taught."

Students who are unable to spell words experience cascading effects like lower scores on assignments and a disconnect between oral and written language, which can lead to poor self-esteem and a negative outlook on schoolwork, Harrison observes. When students become proficient readers and spellers, the opposite can occur.

"I want to empower students," Harrison said. "We do that by connecting the reading and the spelling." ■

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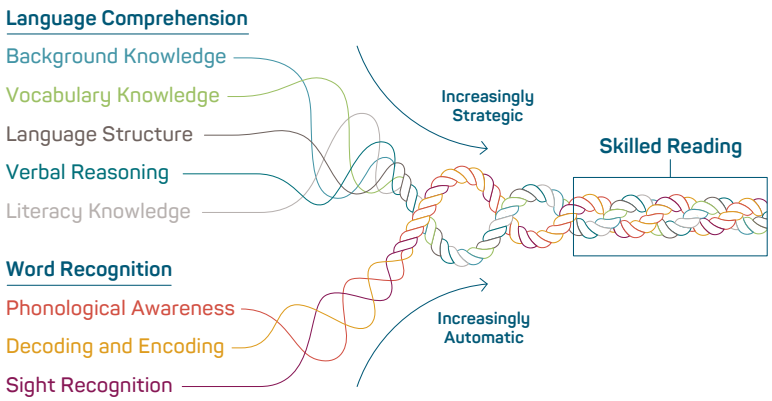

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5 Insights on Getting the 'Science of Reading' Into Classrooms

By Sarah Schwartz

More than half of the states are mandating changes to how early reading is taught. The process of phasing in new methods, materials, and philosophies will be challenging. And as one researcher said, "the dirt is in the details."

The legislative movement aims to bring teaching in line with what advocates are calling the "science of reading"—the body of research on how children learn to read text. Many of the practices that schools currently use, and that are promoted by popular reading programs, do not align with this evidence base.

Education Week's new series of stories looks deeply at how the attempt to change teaching practice at scale is unfolding on the ground. The collection examines the national landscape and dives deep into the experience of one state—North Carolina—as it implemented a new reading law this past school year.

— Kate Medley for Education Week

First grader Geniss Gibbs practices reading skills at Eastern Elementary School in Washington, N.C.

1. States' number one priority? Professional development

Most states that have passed legislation or implemented other policies related to evidence-based reading instruction are focused on training current teachers in new practices. Of the at least 29 states that have issued a mandate, 23 include some form of professional development or coaching.

This trend has grown out of the idea that the most important factor for strong instruction is teacher knowledge. "When you know better, you do better," goes a popular saying among science of reading proponents.

States vary in how they're rolling out this training. Some are creating their own programs; some are bringing in outside vendors; others are letting districts choose from a few options.

One course stands out as more popular than the rest: Language Essentials for Teachers of Reading and Spelling, more commonly known as LETRS. While its content is aligned to a science of reading framework, studies have shown that LETRS doesn't necessarily improve the achievement of students whose teachers take the course.

2. Teachers can't do it alone. Systems matter

Overhauling a school or district's approach to reading instruction requires a lot more than just teacher training—and the burden can't rest on teachers alone.

In Mississippi, a state that many others have regarded as a model for reading overhaul, the state created systems for assigning and training coaches, for maintaining professional learning quality, for identifying schools that needed extra support, and for providing principals with updates on school progress.

In Tennessee, another state that has worked over the past few years to revamp reading instruction, the department of education designed its own teacher training and foundational skills curriculum with input from educators. Doing so allowed the department to respond directly to districts' needs, and to align the training to a common set of materials, said Lisa Coons, the chief of standards and materials at the Tennessee Department of Education.

Creating a thoughtful, detailed plan for implementation takes time and effort, Coons said. "It's not something I can put on a one pager and go shop to different states and say, 'Do this, it's magic.'"

3. The 'science of reading' isn't just about phonics. (Really)

The "science of reading" is often described as an emphasis on foundational skills instruction—teaching students how to recognize the different sounds in words, how to link those sounds to letters, and how to blend those letters together to read words.

While systematic, explicit instruction in these foundational word-reading skills is a key component of an evidence-based approach to reading instruction, the "science of reading" involves more than just phonics.

Experts say that students also need to have rich conversations to develop oral language, vocabulary, and critical thinking—even before they can read text. They need opportunities to build knowledge about different subjects and learn how to use comprehension strategies. They need to write about what they're reading.

Once students have some decoding ability, all of these parts of reading instruction are integrated, said Gina Cervetti, an associate professor of education at the University of Michigan who studies the intersection of literacy and content-area learning. Students are practicing their decoding skills in text, talking about that text, learning vocabulary

from that text, and writing about that text.

If states don't put as much effort into getting all of these aspects of reading right as they do with foundational skills, they're not going to get the results they want, Cervetti said.

4. Educators must fundamentally reimagine their practice. And old habits can be hard to shake

Researchers say that many techniques that are commonly taught in teacher preparation and promoted in popular reading programs can undermine evidence-based practices. Take, for example, a technique known as three-cueing.

A teacher will observe a child reading a book, coaching them when they come to a word that stumps them. The teacher might suggest that the student look at the letters to try to sound the word out, but she could also tell the child to look at the picture for clues, or think about what word would make sense.

But studies have shown that encouraging students to rely on other "cues" can take students' focus away from the words and lower the chances that they'll apply their phonics skills in context. And if teachers are teaching students a systematic, explicit phonics sequence in the morning but then using cueing in the afternoon, experts say, it could undermine the effectiveness of their instruction.

There's some evidence that this mismatch of practices is occurring now. Despite the many states that have passed "science of reading" legislation, 61 percent of teachers say that they still use cueing.

5. Follow-up support and coaching could make a big difference

In interviews with Education Week, teachers said that they wanted more support in putting all of the new learning they're doing into practice.

"I felt like a lot of it was giving me background knowledge, background knowledge. But I wasn't getting—how do you apply it?" said Raul Olivares Jr., a kindergarten teacher at Eastern Elementary in Washington, N.C., who is currently taking LETRS as part of the state's reading initiative.

Research on providing coaching in addition to LETRS has shown that it raises the chances that teachers will make changes to their practice. And the evidence base on coaching as a lever to change practice in general is strong. Good coaching systems, in which coaches are trained themselves and are strategically placed in schools, can improve teacher practice and student achievement. ■

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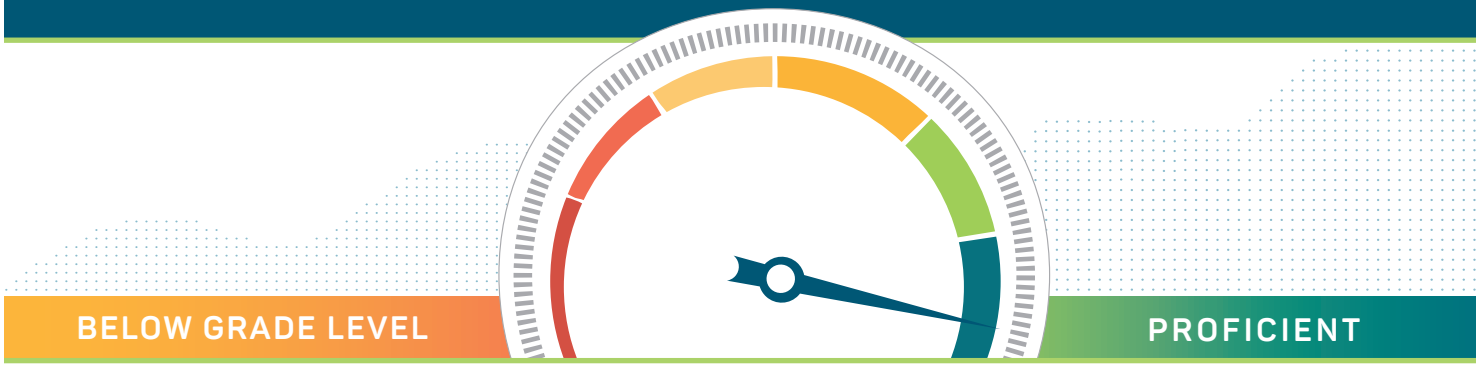

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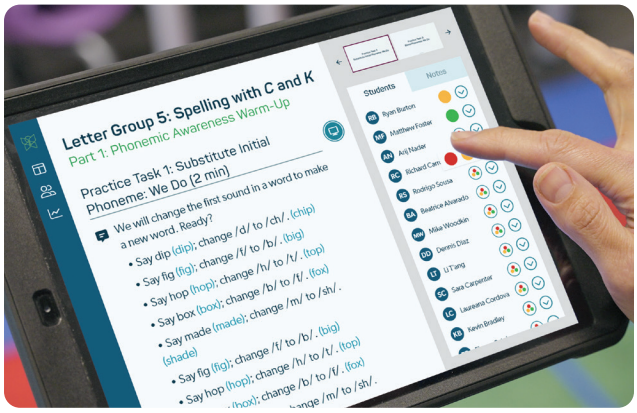

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What 'Science of Reading' Laws Emphasize—And What They Omit

By Sarah Schwartz

State legislation aimed at improving how reading is taught has been changing the instructional landscape in the country's elementary schools over the past few years. A new report examines what these laws emphasize—and what they leave out.

The analysis, conducted by the Albert Shanker Institute, a think tank affiliated with the American Federation of Teachers, surveyed state reading legislation passed between 2019 and 2022.

The researchers found that while most measures mandate an evidence-based approach to reading instruction, few define exactly what that means. And though the majority require teacher professional learning and preservice training, most don't offer the implementation support needed to change school systems on a broad scale.

"It's really important to us that this report be used as a learning agenda for anyone who cares to strengthen reading instruction," said Mary Cathryn Ricker, the executive director of the institute. "The evidence we collected ... can be a bit of a road map for what's next."

In many states, lawmakers have introduced these bills in response to the "science of reading" movement—a call from researchers, parents, and education advocates to bring instruction in line with the evidence base on how children learn to read. Education Week has followed these legislative developments in our tracker.

The laws have been praised by advocates who see them as key tools for getting students the support they need to become readers and criticized by some who are wary that they restrict teacher autonomy in the classroom or mandate wholesale changes to instruction without the necessary support.

The AFT, which established the Shanker Institute, has walked a careful line in the current debates over reading instruction, emphasizing the importance of evidence-based practice while opposing scripted curricula, which President Randi Weingarten has called "disrespectful."

The union, though, has long endorsed evidence-based approaches to reading. In 1999, the AFT published a seminal resource in translating research into practice, reading researcher Louisa Moats' article "Teaching Reading Is Rocket Science." It issued an updated version in 2020.

Some local affiliates have spoken out against proposed legislation in their states. A sticking point has developed around bans on cueing—an instructional practice that isn't aligned with the reading-research evidence base. In March, the president of the Ohio Federation of Teachers said that while she supports following the science, "to ban any type of teaching is a slap in the face to educators."

How these laws define reading

The wave of action is far from the first big legislative effort to improve reading instruction. But this report finds that laws passed over the last few years differ from previous attempts in a few significant ways.

The report compares the current moment to Reading First, the George W. Bush-era grant program that incentivized schools to adopt practices aligned with scientifically based reading research. Reading First had mixed results: Analyses of the program showed that it improved students' foundational reading skills but not their overall comprehension abilities.

The report's authors highlight several key differences between that program and these laws. While Reading First targeted low-performing Title I schools, new laws are more expansive, requiring changes to instruction to all schools. They also generally have a broader scope than Reading First's focus on K-3, with many extending down into preschool and up beyond 3rd grade through elementary school.

Still, some in the field have raised concerns that new laws might follow a similar trajectory, resulting in schools emphasizing foundational skills at the expense of all else, particularly key avenues for building students' comprehension.

"A lot of the anecdotal rhetoric that I was hearing and reading often used 'phonics' as shorthand," said Ricker.

The analysis shows that the text of the laws goes far beyond phonics. Legislation in a majority of states—34—outlines the five components of reading identified by the 2000 National Reading Panel Report: phonemic awareness, phonics, fluency, vocabulary, and comprehension.

But though the laws aren't phonics-only, most don't highlight findings from research that's occurred over the two decades since the panel's report was published.

"We're sort of stuck with those five pillars that were identified 20 years ago, and there's been additional research showing that other pieces are just as important," said Esther Quintero, a senior fellow at the Shanker Institute and an author on the report. "It's not completely missing from the conversation, but it's not emphasized."

Oral language—a key component of reading development—gets short shrift, she said. And the idea that students' background knowledge contributes to their reading comprehension is almost entirely absent, she added.

Dyslexia is prominent in most of these laws: 40 states have incorporated language related to teacher preparation for supporting students with dyslexia, dyslexia screening for students, or other supports. But other student groups aren't discussed as extensively. English learners, for example, are mentioned in most states—32—but only about a third of those states' laws discuss ELs' needs at length.

The goal in noting these disparities isn't to pit the needs of students with dyslexia against those of English learners or other groups, said Ricker, but to pose the question: "How can we apply that thinking, that activism, that dedication to [other] student groups who also deserve that sort of expert attention and dedicated practice?"

Support for implementation

These laws set a destination: Schools should be using evidence-based strategies to teach reading. But the researchers also want to know whether the legislation provides the support to help teachers get there.

"It's not just about individual teachers learning or not learning about the science of reading but also having the infrastructure necessary to put in place that knowledge—the school leaders, the instructional materials," said Quintero. "We wanted to shine a light on this infrastructure systems piece."

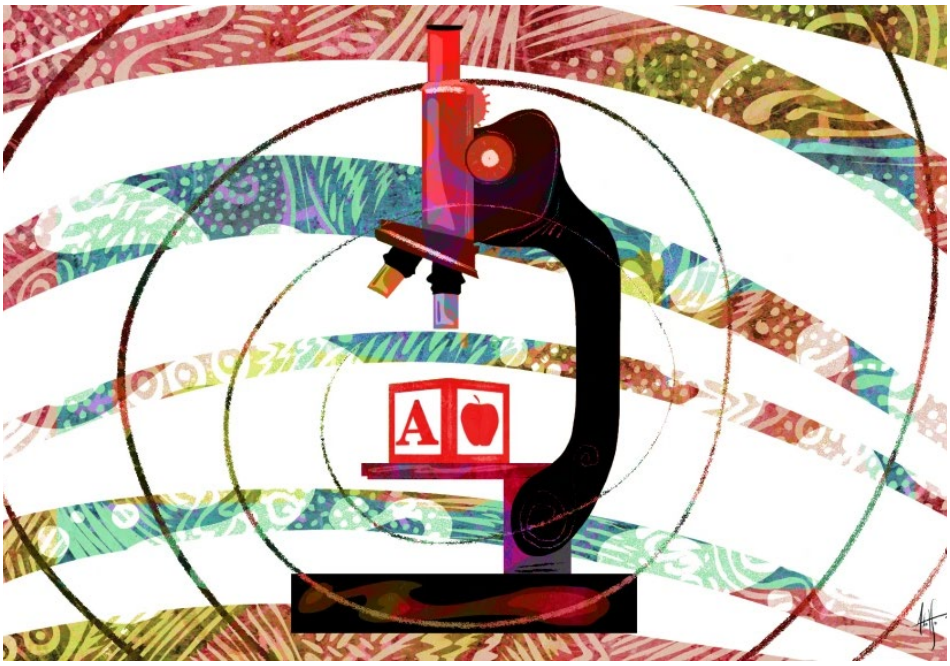
For many schools, these laws mandate a wholesale change in how reading is taught, requiring new methods, new curriculum materials, new tests, and new ways of using time during the school day. Putting all these changes into practice, and making sure they work together, requires leadership, planning, and continuous support, implementation science experts have said.

Other research has shown that literacy laws that account for all these moving pieces tend to be more successful in raising student achievement. A study this year from researchers at Michigan State University found that, over the past decade, states with "comprehensive" literacy policies—those that included training, funding, and lots of supports for struggling students—were correlated with better student outcomes.

The Shanker Institute report finds that most states' laws do address preservice training and in-service professional development, with 25 and 32, respectively, discussing them in depth. But fewer states—only about a third—discuss curriculum or leadership responsibilities in depth. Even when states do mention curriculum, they don't make explicit that materials and training should connect and reinforce each other.

Exactly how this will work is going to vary depending on local context, and it's not the place of state legislation to spell out all the details, said Quintero. But laws can highlight the importance of implementation science and a coordinated approach to instructional change, she said.

"We wish [it was seen] as a systems issue—not an issue that we're going to solve teacher by teacher, by converting," Quintero said. ■



—Adolfo Valle for Education Week

OPINION

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What People Are Getting Wrong About The Science of Reading

It's time to look at the research and get real about the role of phonics

By Brooke Wilkins & Lauren McNamara

The reading wars have become a tool used to further polarize and divide an already fraught educational climate, and the victims of this war are our nation's students.

At the forefront of conversations about literacy instruction is the science of reading, a multidisciplinary body of research. Perspectives on the framework lean toward oversimplifying it as a way to champion the teaching of phonics alone. In a recent New York Times article, Susan Neuman, a professor at New York University, speaks of the most recent shift toward incorporating phonics instruction into classrooms: "'I worry,' she said, 'that it's déjà vu all over again.'" It does feel as if we have had this debate before: teach phonics or not? Teaching phonics is crucial, but it is not the only facet of reading development, despite frequently being portrayed as such. The reading wars have intensified as an unnecessary battle of semantics, a losing battle at that.

Natalie Wexler, an education journalist and author of *The Knowledge Gap*, recently suggested that science of reading advocates receive pushback because of messaging that promotes phonics as the most important factor in improving reading outcomes. She argues that these advocates need to look at "all the science, not just the part relating to decoding" in order to support a more comprehensive translation of science into practice for literacy education.

As two veteran educators and science of reading advocates on the front line of addressing the literacy crisis, we provide an answer to Wexler's call to action to reframe arguments supporting the science of reading. Serving as reading specialists and literacy coordinators, we have developed an integrated model of programs that addresses phonics as well as language comprehension for students at a K-6 Title I school in Pennsylvania. We have observed significant improvement in our students' early-literacy benchmark scores and, throughout this process, we have developed a perspective on the science of reading that we believe can help others in need of clarification.

We have rooted our work in the knowledge that phonics alone will not solve instructional issues. Students who are learning to crack the code need more intensive instruction in this area, but that instruction should not impede the learning of those who are already decoding. By differentiating phonics instruction through a data-driven model, we provide learning experiences specific to individual student needs. Additionally, cracking the code is not the only element of literacy instruction we provide. Our integrated model includes a comprehensive language arts program that builds students' knowledge and empowers them to comprehend increasingly complex texts.

The science of reading, while typically villainized for solely advocating phonics, is misrepresented as a phonics program, while really, it is a body of research that informs the most effective way to teach decoding *and* language comprehension. The definition of the science of reading, provided by The Reading League, is "the vast, interdisciplinary body of scientifically-based research about reading and issues related to reading and writing." The term "science of reading" does not equate to phonics. That term does not equate to comprehension.

The term also does not equate to a teaching approach. In another recent New York Times article, columnist Nicholas Kristof writes, "Many school systems, most recently New York City's, are adopting the science of reading, based partly on the success in Mississippi and elsewhere." The science of reading, however, is not something that can be adopted. It is research that informs the resources and approaches that are adopted so that instruction matches how the brain processes text and creates meaning from language. When the science of reading is branded as something that can be adopted, it is too easy to conflate it with phonics and, thus, problematize it as a single-minded approach toward literacy education. When we conflate the science of reading with phonics, we dismiss a critical aspect of learning how to read that is also informed by the science of reading: development of language comprehension. Hollis Scarborough's reading rope is a helpful visual metaphor from the science of

reading research that depicts the necessity of both aspects of reading development.

Balanced literacy sits on the other side of the reading wars. One definition is "an instructional approach that involves a balance between teacher-led reading and writing instruction and independent learning." It is difficult to find a consistent definition for balanced literacy because the ambiguity of the term allows for individual interpretation based on teaching preferences. As with the science of reading, balanced literacy is conflated with other terms, including workshop, three-cueing, and whole language. When we conflate balanced literacy with the damaging strategies that have become attached to the label, we contribute to the idea that an intentionally balanced approach to literacy is exclusive to those using erroneous strategies and ineffective instructional practices.

Herein lies why the reading wars will never be won. Both sides have a part of the answer. If we define reading as the action or skill of reading written or printed matter silently or aloud, and if we define the intended outcome of reading to be comprehension, the capability of understanding something, then we need to account for students' abilities to decode while also building their capabilities to make meaning from what they are reading. The science of reading informs a pedagogical approach toward teaching reading that suggests *balancing* the literacy block for students so they receive direct, explicit, and systematic instruction in the teaching of phonics (word recognition) and they receive instruction that will build their vocabulary, background knowledge, and understanding of grammatical structures (language comprehension). Instruction aligning with these principles includes a *balance* of explicit phonics instruction; shared reading experiences; close studies of fiction, nonfiction, and digital media; practice with vocabulary; and application of learning through written and spoken outcomes.

Using information that exists on both sides of the war can empower teachers, administrators, and school leaders to develop a literacy program that is both balanced in its time allocation of the elements of reading instruction and supported by the body of research that is the science of reading. Isn't it time to call a truce? ■

Brooke Wilkins and Lauren McNamara are reading specialists and Multi-Tiered System of Supports (MTSS) coordinators at the Mid Valley Elementary Center in Pennsylvania.

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OPINION

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How to Make the Science of Reading Work for Teachers

One state took a different path with good initial results

By Lisa Coons

States are making important moves to improve the way reading is taught in their schools, but the choices leaders face aren't easy. Many are wrestling with new literacy legislation that responds to stagnant national reading scores and teachers' reports that they did not adequately learn to teach children to read in their teacher-preparation programs.

To date, 32 states have implemented mandatory training in science-based reading instruction; more are likely to. It wasn't long ago that as the chief academic officer for Tennessee's public schools, I was seeking a program that would ensure that every teacher is equipped with evidence-based knowledge that they could easily translate into classroom practice. My team and I wanted effective training that was also affordable, both in terms of financial outlay and teacher time. We chose to develop our own, homegrown training. Many states have selected packaged options like the popular Language Essentials for Teachers of Reading and Spelling (or LETRS) program, but several are now shopping for a more sustainable model—fewer teacher hours required and lower cost. I've talked recently with some leaders in the throes of deciding what program they will adopt and want to offer up Tennessee's experience as possible inspiration.

Our program, Reading 360, pairs research and theory with a strong emphasis on classroom application. We believe it offers a compelling—and streamlined—model for supporting all teachers as they make the transition to practice based on the science of reading.

Since 2021, over 30,000 Tennessee educators have participated in Reading 360 training, and the feedback has been striking: 97 percent of teachers said they felt equipped to apply what they learned in the training in their classrooms. Teachers report stronger outcomes and earlier reading success in early grades.

—Rudzhan Nagiev/iStock

> "Many states with a strong tradition of local decisionmaking around curriculum have seemed hesitant to push districts on curriculum change, yet our experience suggests that this hesitation is misplaced."
>
> **LISA COONS**

Our Reading 360 training has two components: a 30-hour, online course that focuses on theory of action, followed by a week of in-person, cohort-based training that focuses on instructional materials and teaching techniques. During the 30-hour, in-person component, teachers have their curriculum in hand; by the end of the training, they have practiced lessons and they are assessed on how they applied their knowledge to their materials. We know that teacher time is precious, so we designed focused, instructionally grounded training, 60 hours in total.

By comparison, many packaged training programs require 150 hours of independent study of theory and fundamentals, without any connection to teachers' adopted materials nor opportunity to practice the lesson approaches with their peers. We know that teachers need the opportunity to apply theory to their practice and we know that lesson materials make the expected shifts tangible. Studies have shown that this curriculum-based approach improves teacher practice, and we have seen this firsthand in Tennessee. The education department has made over 200 classroom visits, and we have seen teachers delivering science-of-reading-based instruction through their lessons. In addition, early student progress data show student improvement in developmental reading scores and in statewide reading assessments.

Our Reading 360 training launched following a statewide adoption of high-quality English/language arts/literacy curriculum, along with grants for implementation, so districts had already begun to use district-adopted materials in the classroom. This timing allowed us to connect the training directly to the instructional materials in each district. If districts did not have a current science-based curriculum for reading, they could use the free Tennessee Foundational Skills Curriculum we developed. Our teachers have told us over and over that they were able to apply this training to their classroom because the training showed them how the materials could be used to better teach their students. They felt confident not only in their

learning but how to apply that learning and saw swift results.

Finally, our training wasn't transported in. In early 2021, we hired teacher professional-development expert TNTP and, together, we designed the program. TNTP has deep experience with curriculum-aligned professional learning, so we shared a vision for a focused, curriculum- and instruction-centered learning experience that quickly moved from theory into classroom practice.

Designing time-efficient training left us with enough funding to compensate teachers for their time and to include building and district leaders in the training; stipends were paid to all teachers. Our teachers work tirelessly throughout the year, and it was important to us to acknowledge that we were asking them to go beyond their regular classroom responsibilities. These stipends surely helped to foster the widespread uptake of the training.

The widespread embrace of the new materials was evident in a 2022 survey: Only 4 percent of Tennessee teachers reported that they were using or developing supplements to their materials. This is striking given our history of expecting teachers to develop their own materials and all that we know about the field's reliance on resources like websites Pinterest and Teachers Pay Teachers.

Many states with a strong tradition of local decisionmaking around curriculum have seemed hesitant to push districts on curriculum change, yet our experience suggests that this hesitation is misplaced. With the right materials and the right support, high-quality curriculum work flourishes in classrooms, and teachers are happy for it.

Our Reading 360 approach is different from what many states have chosen, but its efficiency, popularity, and early signs of success in 2022 testing results make us hopeful that we can help every child in Tennessee learn to read.

In education, we tend to do what we have always done—only now we know to do better. Research pushes us to ensure that teacher training is closely tied to classroom practice, and we have seen the inclusion of instructional materials in the training is key. I hope the Tennessee model provides one option for states to consider as they work to improve their own reading instruction. ■

Lisa Coons is the chief academic officer of the Tennessee education department. She was formerly the chief of standards and materials for the department.

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