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Legislating Reading Instruction in the United States: A Critical Analysis

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Legislating Reading Instruction in the United States: A Critical Analysis

Politics is the art of looking for trouble, finding it whether it exists or not, diagnosing it incorrectly, and applying the wrong remedy."

— Ernest Benn, British Political Writer

Currently, in the United States (US), legislated policies exert unprecedented influence on how children are taught to read. During the previous decade, the number of laws and policies affecting how reading is taught in schools has increased exponentially (Newman, et al., 2023). That accelerating pace has been accompanied by a shift toward laws and policies that are more specific, prescriptive, and comprehensive when compared to previous legislation pertaining to education (Katz & Gendill, 2024; Schwartz, 2022, updated in 2026). The overarching motivation and frame for this shift is captured by the contested phrase "the science of reading" (e.g., Shanahan, 2020), its frequent companion "evidence-based instruction," and related terms such as "structured literacy," "explicit or systematic phonics," and occasionally their nemeses labeled "balanced literacy" and "three-cuing." Although these terms may not all appear in the formal language of every state's legislation, they are often used in less formal descriptions explaining or justifying the purpose of or need for such legislation. As Relyea et al. (2025) have observed about the Science of Reading (SoR), it "functions less as a unified scientific paradigm than as a policy construct [that] often privileges experimental and cognitive research" (para. 1). Thus, the connections between specific "scientific" findings and the prescriptions and initiatives can be more implicit than explicit.

To fully understand the unprecedented scope, scale, and depth of this legislative exuberance in the US, it is necessary to realize that education has historically been primarily a state and local responsibility, with the US Constitution granting no explicit authority over education to the federal government (Hoover Koret Task Force on K–12 Education, 2012). Unlike many other countries, there is no national curriculum, nor federal laws that can mandate the "what" or "how" of teaching in all schools across the country. The federal government's influence on education is not trivial, but it is limited mainly to making recommendations, for example, by convening congressionally authorized panels and agencies, using funding to push research and initiatives in particular directions, and insuring that democratic rights are protected. Thus, the legislation related to reading we discuss here has been passed independently by states, creating a patchwork of legislation and policy using different words, but with the same tune.

Remarkably, in the previous decade more than 40 states have passed new legislation or created policy guidelines affecting the teaching of reading, all of which are consistent with SoR and the aforementioned companion phrases. Today, new laws and policy documents may establish criteria for determining acceptable and unacceptable instructional practice, endorse specific instructional approaches, specify what topics must be included in pre-service teacher education, mandate professional development for teachers promoting specific approaches to teaching reading while devaluing or excoriating others, enact mandatory screening for dyslexia for children in kindergarten, and initiate classroom interventions aimed at increasing scores on national tests.

In brief, taken as a whole, current legislation at the state level regarding reading instruction restricts what is taught and how it is taught, all within a common narrative about learning to read captured by the phrase the "science of reading." As such, it supersedes local

control within states, professional judgment, and the range of options available to teachers to meet individual needs. Further, as we argue subsequently here (and elsewhere, Authors, et al. 2023), the rationale and evidence for current legislated policy about teaching reading is shaky, at best, and imbues the teaching of reading with influences such as political expediency, partisan ideologies, polemical distortions of research, and acquiescence to special and partisan interests.

In this essay, we briefly overview the historical antecedents to the current politization of reading instruction in the US, question its evidential base and claims of incontrovertible scientific proof, provide examples of politicization of reading instruction and its negative consequences, identify conflicts of interest that serve special and commercial interests, and speculate about how theory, research, and the practice of reading instruction might be more genuinely and usefully aligned in the future.

How Did We Get Here?

To answer that question and to offer perspective, we start with what has remained unchanged until approximately a dozen years ago. Historically, in the US, dominant approaches to teaching reading have come in and out of favor in repetitive cycles, often amid contention and controversy (see Chall, 1967; Pearson, 2002; Ravitch, 2001; Robinson, 1977; Smith, 1986 for historical accounts). It is fascinating, and perhaps cautionary, to realize that relatively recent and hotly contested views about how reading is best taught to children began in the early 19th century (see Smith, 1986). Noah Webster's "blue-back speller" used an alphabetic approach (phonics), but was challenged by Horace Mann who called that approach "soul deadening," endorsing instead a more natural, logical, child-friendly and motivating approach focused on learning words in engaging texts, a perspective akin to the Whole Language movement of the late 20th century.

Similarly, early in the 20th century, there was a "science of reading" used to promote ways of teaching reading. For example, psychologists such as Edmund Huey and William S. Gray synthesized pedagogical implications from their own and others' studies (e.g., using eye-movements and reaction times). Interestingly, given the much different interpretations of neuro-cognitive research today, their conclusions were that teaching children to read should focus on meaning from the onset of instruction using texts that appealed to children's interests, with phonics playing only a supportive role (Gray,1948; Huey, 1908/1968). Research, then, was crude by today's standards and little could these early researchers have envisioned the expansion of tools and methods of a distant future. But, neither are today's scientists likely to imagine what will be revealed about the brain's role in reading many decades into the future. Yet, some (although not all; e.g., see Seidenberg), neurocognitive scientists today, and those who appropriate their findings, still make unqualified pronouncements about what those findings mean for how reading is taught.

Another historical precedent can be traced to the 1955 publication of Rudolph Flesch's book *Why Johnny Can't Read and What to Do About It* (Flesch, 1955, see also Flesch, 1981). He argued vehemently that a lack of phonics instruction explained why too many children had difficulty learning to read. It was a best-seller, widely read not just by educators, but by the general public. For the first time, a major controversy about how reading was taught came under scrutiny and entered the public consciousness, including in national media. The introduction of the Whole Language approach in the late 1970s fanned the flames of debate. Because Whole Language was the antithesis of intense phonics instruction, what became known as the "Reading Wars" began and still simmer today, again amplified by media attention (e.g., Kantrowitz & Hammill, 1990 in *Newsweek* magazine). The role of phonics provocateur in the tradition of

Flesch's early acerbic attacks also entered the national stage in 2018. The journalist Emily Hanford (Hanford, 2022-present), rising above the many journalist reporting about the state of reading and its instruction in the US, attained a high profile for aggressively attacking the educational establishment for its failure to teach phonics, while suggesting a conspiracy by educators and teacher-educators to oppose it.

Elevating such controversies into the public consciousness was a major step towards moving reading instruction into the political realm and inspiring legislation. However, what moves it across the end line is a conjoined narrative, first that there is a crisis in reading achievement and, second, that there is a "settled Science of Reading" offering a solution to the crisis. That narrative is reinforced by journalists attracted to such stories (e.g., the aforementioned Hanford); philanthropists who think their success in the world of commerce can be applied to solving education problems, sometimes in ways that increase their wealth; public-relations campaigns and political lobbying by evangelical phonics advocates and aligned organizations; and a subset of educators and scholars who are uninhibited in extrapolating culled quantitative data aimed at raising phonics to the pinnacle of learning to read. Further, a narrative of crisis resolved by SoR crosses political lines and is thus bi-partisan. Who can oppose legislation aimed at improving how reading is taught, particularly when it is supposedly grounded in science?

The federal government has been instrumental in solidifying and extending a crisis narrative paving the way for states to respond with legislation (see Berliner & Biddle, 1996). Beginning in 1971, and routinely every two years thereafter, the National Assessment of Educational Progress (NAEP), often called by its proponents "the nation's report card," has reported national scores of reading achievement. Across the years, scores have fluctuated

somewhat, but not clearly enough to fully satisfy the political agendas needing a crisis, which inspired a national test in the first place (National Research Council, 1999). A first solution was to use the minimal level of statistical significance ($p<.05$) for a change in scores, despite a large national sample that makes it much easier to attain that level of significance (Sullivan & Feinn, 2012). The second was more creative. In 1992, the politically appointed National Assessment Governing Board, against the counsel of testing experts (Bracey, 2012), decided to create subjective proficiency levels for group scores. The names chosen for the categories are misleading, but politically useful: "below basic, basic, proficient, and advanced." Specifically, the "proficient" category is aspirational (Ravitch, 2012), yet often inappropriately equated with grade level (Loveless, 2016). A frequent claim employing this distortion is that approximately two-thirds of American students are not proficient and/or are reading below grade level. What is not explained is that proficient is above an average score and there is no connection to grade level.

Federal activity has also burnished the SoR narrative, prominently when in 1997 the US Congress charged the National Institutes of Child and Human Development (n.d.), in consultation with the Secretary of Education, to convene an expert panel charged to evaluate the existing scientific research on teaching children to read. Thus, the panel was comprised of political appointees, which has invited critique that its overall composition was biased toward experimental research and phonological methods (Bowers, 2020; Thomas, 2024; Yatvin, 2000). Its charge was essentially to review the scientific research on how children learn to read, identify the most effective evidence-based instructional methods, determine which findings were ready for classroom use, and recommend priorities for further research and dissemination.

For more than 25 years, the NRP report has been a cornerstone for those who advocate that teaching children to read should be, first and foremost, if not exclusively, centered in structured, systematic phonics instruction. They have frequently cited the report's findings as irrevocable evidence to support their views and to position those findings as definitive within SoR. The report itself makes no such claims, acknowledging the limitations of its findings and calling for more research.

Across the years, the report has been cited to make other claims that go far beyond its reported findings and recommendations. One example, is that the five main areas the panel investigated (phonemic awareness, phonics, fluency, vocabulary, and comprehension) were determined mainly by the availability of experimental research that had been done in these areas and a majority consensus of the panel, although there were open responses from the public (see Yatvin, 2000 for a minority opinion). Yet, subsequently, they were often referred to as "the five pillars of reading instruction," elevating their status far beyond the Panel's intent. Quintero et al. (2025) coded and analyzed more than 400 literacy laws within states enacted between 2019 and 2024 and found that 41 states referenced all five National Reading Panel components in at least one law, suggesting that those categories comprised the essence of teaching reading. They found that 21 states added "oral language and writing," illustrating that the panel's categories were not the full essence of teaching reading, at least in some states. For example, there was no recognition of effects related to cultural and socioeconomic differences and individualizing instruction (Susskin, 2020).

Further, for zealous phonics advocates, there are other inconvenient conclusions and recommendations expressed in the NRP report. For example, the report clearly states that the effects favoring systematic phonics vs. no systematic phonics were "moderate" limited mostly to

first grade; that phonics should be incorporated with reading and writing activities; that consistency of phonics instruction should be balanced with teacher discretion and that flexibility is necessary to meet individual needs (National Reading Panel, 2000, pp. 96–97). Most interesting, and damning, given that the NRP report is often used to attack a balanced approach to teach reading is that the report concluded that "It is important to emphasize that systematic phonics instruction should be integrated with other reading instruction to create a balanced reading program. Phonics instruction is never a total reading program" (National Reading Panel, 2000, p. 91).

This example illustrates a frequently exploited rhetorical sequence within legislation and policy: (a) inconvenient evidence (or lack thereof) and conclusions are ignored (b) a bogyman is created (e.g., "balanced literacy is Whole Language in disguise" with the implication that the NRP report discredited Whole Language see Moats, 2000, 2007), (c) the popular media reports the distortion (e.g., see Rotherham, 2009), (d) a public narrative is created, and (e) legislators respond (e.g., in Tennessee, Authors, et al., 2023).

Yet, that rhetorical approach is embedded in a larger set of overlapping influences. For example, advocacy organizations such as the International Dyslexia Association, which admittedly introduced the term "structured literacy" for rhetorical purposes (Malchow, n.d.), and parental groups (Gaab & Duggan, 2024; Zagata & Coyne, 2025) lobby for legislation aligned with their agendas. Similarly, foundations and non-profits can act as intermediaries, for example providing model language for legislation (ExcelinEd, n.d.). There are also commercial interests at play providing curricula and assessments advertised to be aligned with SoR, which can create conflicts of interests (c.f., Hruby, 2023; Stockard, 2022). For example, Hiebert (2024) reported that 37 states legislate that curricular materials must align with the "Science of Reading," and 12

specify that Districts must choose from an approved list of commercial publishers (see also, Hoffman, et al., 2002). As mentioned previously here, popular media and journalists also drive the national narrative of a crisis and conspiracy that creates a demand for action. Together, these influences generate a potential for gaining political capital, motivating political action such as state appointed panels, and eventually enacting legislation (see Authors, et al. 2023). These influences merit more analysis than can be addressed here. For a more detailed analysis, see Aydarova (2023, 2024) who has conducted extensive research addressing these overlapping influences and provided concrete examples.

What Questions, Issues, and Critiques Are Pertinent?

In the US, the adoption of SoR as a dominant frame for state laws and policy in the mid-2010s moved legislation about reading instruction into a new era. Legislation moved away from a standards orientation to one that seeks orthodoxy based on experimental evidence deemed "scientific." What had been a specification of desired outcomes and broad competencies became, for example, prescribed instructional approaches, prohibition of others, approved lists of materials, and mandatory topics and perspectives within in-service training and pre-service preparation. Funding and setting broad standards of the past became mandates, requirements, and prohibitions. General licensing of teachers, in some cases, became required coursework with specified topics, training, and certification tests. A deferment to professional judgment became constrained by specific methods and scripted materials. State legislation assumed a body of inarguable scientific evidence clearly demarcating a line between appropriate and inappropriate instruction and effectively sanctioned only instruction deemed uniformly effective for all students learning to read.

Questions

New questions and issues arise in the wake of that shift. Is the new legislative frame inappropriately encroaching on professional judgement thus de-professionalizing teaching, stifling reasonable debate, and restricting flexible options needed to meet the needs of diverse learners (see Fitz & Nikolaidis, 2020Wixson, et al. 2019,)? Are legislators knowledgeable enough to make judgments about scientific evidence, to arbitrate different findings and interpretations of data, and to manage the complexity of the issues regarding how reading is taught (e.g., Hanover Research, 2022; Petcher, et al, 2020)? Are conflicts of interests a risk when legislators develop lists of approved commercial programs (e.g., Aydarova, 2023; also see Johnston & Scanlon, 2020 for how this is particularly a concern for dyslexia legislation)? Are legislators violating academic freedom when legislating the content of teacher education courses at universities and sometimes demanding review of the programs themselves (see American Association of University Professors, 2024)?

Another relevant question is "What effect might these laws have on teacher morale, recruitment, and retention?" Although there is little evidence that legislation restricting teachers options for teaching reading negatively affects morale or recruitment, there is considerable evidence that lower autonomy among teachers is associated with lower job satisfaction, engagement, and retention (e.g., Skaalvik & Skaalvik, 2014). Owens (2025) traced how a narrative of teachers' incompetence and their lack of scientific knowledge arose in conjunction with the 2002 federal No Child Left Behind legislation and then merged with the SoR movement resulting in a justification for less teacher autonomy. However, in a recent small-scale study, Yang-Heim (2026) found that teachers responded diversely to SoR mandates. Some opposed the

legislation while others were compliant, and, overall there was a multifaceted consideration of policy expectations, professional judgment, and commitments to equity.

It is likely, too, that many teachers may be influenced and sometimes fully convinced that the SoR narrative is accurate, that what they have been doing is wrong, and that they should conform to legislated mandates. On one hand, they are likely to be influenced by the relentless barrage of media coverage that promotes a reading crisis and SoR as a solution. More specifically, they may be required or incentivized to participate in "retraining" in conjunction with legislation. In some cases, that retraining is developed to promote a phonics ideology offering what in one state included flagrant distortions, misinformation, and disinformation (see Authors, et al., 2023). Teachers may also be led to question their preparation to teach reading acquired in teacher education programs when exposed to biased information framed as research from advocacy groups such as the National Council on Teacher Quality (Ellis, et al., 2026), whose claims about a lack of scientific research on reading in teacher education courses have been judged to be based on methodologically unsound data (Aydarova, 2026).

There are also questions about how legislated mandates will be managed. For example, who will monitor the effects of this stricter legislation? Will there be a process for revising legislation should new data and information become available? Who will decide if there is compliance with legislation and how? What will be the consequence of non-compliance, especially given multiple levels of implementation such as materials used, classroom practice, teacher preparation, and student outcomes? Reports by the Council of Chief State School Officers (2019, 2024) document that these are good questions, because they are often ignored or poorly specified and can be inadequately funded. Such lack of detail about implementation and

monitoring suggests that existing legislation may be little more than expedient political posturing.

Definitions?

Compliance with state legislation also raises a more fundamental question about its predominant framing: What exactly comprises SoR and what research establishes practice that is "evidence-based"? These terms are fairly common in the wording of state laws, but rarely defined explicitly, and then only vaguely. In some cases, interpretation is passed to state Departments of Education or other administrative agencies (Council of Chief State School Officers, 2024; Katz, Sayag & Gendill, 2024; Quintero, et al., 2023, 2025; Schwartz, 2022). In a few instances the categories that the NRP used for its analysis and subsequently promoted as the "five pillars of reading instruction" (see previous section) are offered as definitions of SoR and "evidenced-based learning."

Such definitions are ironic, given that, as we explained in the previous section, the NRP did not select these categories based on research specifically conducted to determine the most important areas of reading instruction. Even more ironic is the strong evidence that implementing instruction consistent with the NRP categories and its recommendations were, at best, disappointing. The Reading First Impact Studies designed to test NRP findings and recommendations were conducted in 248 schools in 13 states for 3 years with $1 billion in federal funding each year (Gamse et al., 2008). Teachers were extensively trained in systematic phonics instruction, which they taught for 1.5-3 hours each day. Yet, despite this intensive, well-funded implementation, by third grade, students who participated in these studies scored no higher on tests measuring comprehension than similar students who did not participate and who received much less attention to phonics.

Definitions that are vague, ambiguous, or even that contradict available evidence create a large loophole in state legislation. That loophole has been exploited in legal challenges, some of which have been successful. A prime example is when the Reading Recovery Council of North America (RRCN) sued the state of Ohio for reading legislation promoted by the state's governor and passed by the legislature (see Schwartz, 2023). The suit argued that the definition of "three cuing" was unconstitutionally vague, but also touched on other relevant questions and issues such as whether state laws restricting options for teaching reading violate the first amendment and whether a single law of such scope is unconstitutional in Ohio (Reading Recovery Council of North America, Inc. v. State, 2026). A lower court dismissed the suit, but, on appeal, a higher court ruled in favor of RRCN. Law suits pertaining to state reading laws have also been prosecuted in other states such as Connecticut (Connecticut General Assembly, 2025) and Massachusetts (*S.C. v. Calkins*, 2025).

Laws that are vague and ambiguous about precisely what SoR and "evidence-based" mean raise other issues and problems. For example, what is the scope of SoR and what constitutes evidence? Some of the relevant questions and issues are illustrated and amplified when the phrase "science of reading" is preceded by the definite article. What body of research and evidence comprises "*the* science of reading"? And, again, who decides? Educators are certainly legitimately informed by research focused on classroom instruction. But, should SoR be limited to quantitative experimental methods, essentially conceptualizing classrooms as laboratories (see Biesta, 2007; Dekker & Meeter, 2022). What fields provide relevant data and insights that inform reading instruction? Are there "*sciences* of reading"?

There is a larger issue, not acknowledged in legislation and policy, but that could be problematic for those trying to put SoR-driven legislation into practice or to interpret its meaning

for practice. What evidence holds sway when different domains of research provide contradictory implications or guidance? Shanahan (2000) has addressed this issue suggesting that there should be a distinction between SoR and the "science of reading instruction." For example, he pointed out that Reading Recovery (Pinnell, et al., 1994) has been shown to be effective instruction even though its components have been criticized as opposing more basic research. He describes such cases as similar to aeronautical theory concluding that hummingbirds can't fly thus distinguishing between the "science of reading" and the "science of reading instruction."

Debatable Findings and Claims

There is a more pervasive issue. Many of the prominent unequivocal claims made under the SoR banner are debatable, illogical, distorted, or contradicted by research. Taking an international view, Tierney and Pearson, (2024) critically examined 10 of SoR's prominent claims. They assume a graciously neutral stance in their analysis, ending a critique of each claim with a summary of how they would "revise" (not reject) the claim, perhaps, as we will elaborate subsequently, a more politically palatable approach than taking a confrontational and accusatory stance. Nonetheless, there is little doubt about the many shortcomings of the SoR movement's claims. For example, Tierney and Pearson concluded that, "The mistake, we think, of the SoR reform initiatives is that in their zeal to ensure a secure hold on the science of word reading and understanding, they have lost their grip on the other equally-scientific endeavors" (p. 111).

The central issue around which other issues revolve is the chronic, cyclical debates about the role of phonics in teaching children to read that began in the early 19th century. Within legislation today, foregrounding phonics is synonymous with SoR, implicitly or explicitly. SoR is essentially the imprint of a movement whose advocates promote a phonics ideology, using "science" polemically to leverage political power (Authors, et al., 2023). On the other hand,

today, “debate” may be too strong a word. There is no debate about phonics as a vital component in teaching children to read. Instead, there are arguments about how and how much phonics should be taught, how children should be oriented towards using phonics (exclusively vs. supplemented with semantics and syntax, i.e., “three cuing”), and the status, position, and emphasis of phonics within an instructional curriculum.

Yet, hardcore phonics advocates in the US are invested in sustaining the reading wars by keeping a sharp edge of controversy (the aforementioned claim that “balanced literacy” is Whole Language in disguise), which is useful in arguing that without legislation, not enough phonics will be taught in schools. However, moderate voices can be found, acknowledging a central role for phonics within broader curricular frames (e.g., Castles, et al., 2018; Duke, et al., 2021, Graham, 2020). Nonetheless, these views seem rarely heard and are unrepresented in the development of legislative mandates.

It is not difficult to find research raising questions about the claims and recommendations of zealous phonics advocates who press for legislation supporting their views. Such research exists within the narrow methodological bounds they consider valid and used to advance their cause (i.e., experimental studies). It can even be found within their frequently cited sources, such as the NRP Report, and, notoriously, the disappointing results of the subsequent Reading First Impact Studies based on that report, as cited previously here. Comprehensive syntheses of experimental research on phonics instruction raise further doubts about their more extreme position. Bowers (2020) examined the effects across 12 meta-analyses and hundreds of experimental studies, concluding that systematic phonics instruction was no more effective than other common approaches including Whole Language. A qualitative analyses of Bowers data and similar syntheses of experimental data raises also raises questions about claims that putting

phonics at the center of teaching reading has flimsy experimental support (Wyse & Bradbury, 2022).

Taking a different approach, Exley et al. (2026) conducted a systematic quantitative literature review to determine the contribution of phonics to overall reading performance. They concluded "that explicit phonics instruction is effective when implemented as part of a broader, balanced literacy approach and supported by sustained teacher professional learning" and that "Program rigidity and limited opportunities for pedagogical adaptation appear to constrain impact for subgroups of students in mainstream classrooms" (p. 20). Notably, they also found that effects were variable and contingent on instructional and contextual conditions. That conclusion is reminiscent of a major conclusion from the nation-wide federally funded Cooperative First Grade Studies conducted in the 1960s (Bond & Dykstra, 1967). Comparing a variety of approaches to teaching reading including phonics, they found that all approaches worked well in some locations and not well in others. Differences were explained more by factors such as teachers, available materials, implementation, and the larger instructional context.

Consistent with those findings, a study conducted by Pressley et al. (2001)and published in the journal *Scientific Studies of Reading* investigated the practices of exemplary first-grade reading teachers nominated by their supervisors in 30 classrooms in five regions of the US. The study partially replicated two previously published studies with similar results. They found the following common characteristics in their practice: "excellent classroom management based on positive reinforcement and cooperation; balanced teaching of skills, literature, and writing; scaffolding and matching of task demands to student competence; encouragement of student self-regulation; and strong cross-curricular connections" (p. 36). Such findings suggest a much

broader consideration of what constitutes effective reading instruction than acknowledged, and certainly not targeted, in legislation.

There are also examples of states passing statutes or otherwise approving administrative policy and creating approved curricular materials that contradict their own commitments to SoR and evidence-based instruction. One example is the use of "decodable texts," that is, texts written purposely to limit words to decodable spelling patterns that students have been taught. The use of decodable text is statutory in Florida (Fla. Stat., 2024), part of Ohio's administrative code (Ohio Admin., 2022), a topic in a required course for teachers in Georgia (Ga. Comp., 2023), and a criterion for selecting approved curricular materials in Texas (Hoffman et al., 2002).

Yet, there is considerable evidence that decodable texts are no more effective than often more engaging authentic texts (e.g., Mesmer, 2009; Pearson 2004) that include new words and spelling patterns, thus providing readers opportunities to enhance their decoding abilities and vocabularies, and improve their comprehension (Price-Mohr & Price, 2020). Thus, legislating the use of decodable texts can have consequences. At the very least, it unnecessarily limits teachers options and implicitly suggests that not using such texts is inappropriate instruction, while perpetuating a false assumption that their use is evidence-based.

A more general example, is when legislation promotes or requires that "evidence-based instruction" be grounded in the "science of reading," especially when that phrase foregrounds neuro-cognitive or "brain" research. Newman, et al. (2023) reported that 18 states had used "the science of reading" in statutes, although that phrase was not often defined precisely. When it was defined, it often mentioned "cognitive science." The authors surmise that this language served rhetorically to add a veneer of scientific legitimacy for the legislation or the need for it (see also Hruby, 2023). Further, debate is obviated when the definite article "the" precedes "science of

reading" and even further when the word "settled" is added for emphasis. If not always in the language of the laws, connecting SoR and neuro-cognitive research occurs in explanations of that legislation and is required in professional development and teacher education curricula. For example, in South Carolina, the Education Superintendent introduced a revision of the state's Read to Succeed Act in 2024 stating "Brain science clearly tells us what works to improve literacy outcomes for kids" (South Carolina Department of Education, 2024, March 1).

Suggesting that SoR firmly establishes the one way to teach reading successfully is tantamount to saying that there is no need or room for any further research. Ironically, to suggest that any science has reached an endpoint of understanding and that there remain no unanswered questions is to reject the essence of science. "Settled science" is an oxymoron when it suggests that no further knowledge or understanding is possible. That perspective calls into question any legislation suggesting that there is no room for debate about effective practice, for generating deeper understandings through new research and theory, or for better aligning instruction to individual needs (See Wixson, et al., 2019).

Another issue is that brain research can be misinterpreted or distorted when applied to instructional issues. For example, there is cognitive research indicating that mature readers' brains are unconsciously accessing the sounds of words while reading. This finding is extrapolated to suggest that children learning to read should first and foremost learn the connections between letters and sounds (e.g., Posner, et al., 2023). That interpretation is a logical fallacy. First there is no scientifically established casual proof of that relationship and there is no evidence of how the brain *learns* to read. Second, mature readers are automatic fluent readers; beginning readers are not. It is possible that novice readers need other strategies and supports beyond associating sounds and symbols to enable them to eventually become fluent readers.

Third, there is evidence that readers of non-alphabetic languages also access speech sounds while reading. For example, Chinese written symbols do not represent sounds, yet Chinese readers like mature English readers have also been found to be subconsciously accessing speech sounds while reading silently (Perfetti, et al., 1992). This fallacy occasionally sneaks into legislation. For example, the Ohio Department of Education and Workforce (2025) argues that brain research shows that proficient readers connect letters, sounds, and meaning thus claiming that "The pathway connecting the spelling to sounds to meaning of words must be built through explicit, code-based instruction."

Outcomes?

States are naturally invested in finding positive outcomes that might be claimed in light of legislation deemed necessary and useful to improve overall reading achievement. The most obvious indicator is average scores on state reading tests or on the reading portion of NAEP. It is also potentially the most misleading data. A myriad of factors influence test scores making it highly speculative to propose a causal relation between rising or falling scores and a specific factor, especially when legislated reform is multi-pronged and other factors are not controlled. That difficulty has not stopped those invested in legislative interventions from doing so, at least when the news is good. At the same time, there can be multiple ways to argue away bad news (e.g., Haag, 2026; Miller, et al., 2026; Redelmeier; 2025; Schwartz, 2025). Nor, has it inhibited journalists from reporting and suggesting interpretations of changing test scores often aligned with the dominant narrative of a crisis addressed by the SoR movement.

The most prominent example in the US is what has been called the "Mississippi Miracle." It makes for an interesting case study (see Spencer, 2024). In the 1990s the state of Mississippi scores on NAEP were near the bottom of all US states. Then, in the late 1990s, a

$100 million philanthropic donation formed the statewide Barksdale Reading Institute (BRI). It collaborated with schools, universities, and the Mississippi Department of Education, providing professional development for teachers, support for supplemental instructional coaching/tutoring, expanded materials, early-literacy interventions, and family-literacy programs. Reading scores on the NAEP subsequently rose steadily. Building on that foundation, in 2013, the state passed Literacy-Based Promotion Act (2013; LBPA), when the state was ranked 49th of 50 states on the NAEP fourth-grade reading scores. The LBPA provided state funding for programs of support similar to the BRI. However, it also added a controversial third-grade retention policy based on reading achievement, holding back students who did not meet a reading achievement threshold for an additional year of instruction. The so-called miracle was that by 2019 Mississippi's ranking had risen from 49th to 29th. Another prominent component of the BRI initiative and the LBPA is that both instigated structured systematic phonics instruction, mentioned last and more incidentally here to emphasize the point that it was only one of many changes.

So, what caused the miracle that moved Mississippi's national ranking from 49th to 29th? If you think it could be the BRI and LBPA, there is a long menu of changes, individually or collectively that may have played a role in that improvement. A favorite of skeptics is the third-grade retention policy allowing the lowest readers an extra year of test preparation and removing them from the pool of test-takers. For those, who believe that phonics is the key to raising test scores, that is the preferred cause. One study suggests that collectively the components of the LBPA did contribute to a relatively small increase (.14-.23 standard deviation) on NAEP, but it could not identify a single factor that accounted for that increase (Spencer, 2024). Wainer et al. (2026) provided some statistical evidence that fourth-grade scores would raise NAEP scores approximately four points if the bottom 5.6% of the distribution was removed, although 2017

scores were only one point higher than 2015 scores. As a point of comparison, the state of Florida passed a third-grade retention policy more than a decade before Mississippi. There were short-term gains in reading achievement, but those gains disappeared within five years when students who were retained were compared with their same-age peers (Schwerdt, et al., 2017)

Statistically, regression to the mean is another factor when considering changes in scores for states at the very top or bottom of the distribution of NAEP scores. Changes in individual states' ranking are also affected by other states shifting up or down. Thus, statistical significance in gains or losses in state scores are a more reliable metric, although as we noted previously here, NAEP uses the most generous criterion for declaring statistical significance. Yet, despite the widespread legislation inspired by SoR, only Mississippi and Louisiana (ranked 50th before passing SoR legislation) have posted steadily significant gains since passing new laws regulating reading instruction, and there is no clear evidence of what aspect of the multi-faceted legislation in those states may have influenced scores. Third-grade retention remains a suspected influential factor in Mississippi, but it is still an open question.

Multiple societal and cultural factors can also nudge NAEP scores up or down. Disruptions during COVID certainly complicated interpretation related to other factors. Further, it is difficult to ignore the strong correlation, much stronger than anything that occurs in schools, between social and economic disadvantages and lower academic achievement (Berliner, 2013), which is also reflected in the pattern of NAEP scores. Nonetheless, NAEP was intended and designed only to document trends, not to explain them. Yet, that reality is an invitation for advancing a wide variety of favored arguments and agendas.

There are other issues related to SoR-inspired legislation that illustrate less direct, but not necessarily inconsequential, effects on reading instruction and test scores. Compared to the

attention given to reading achievement, there has been little research, and perhaps little concern, about the downstream effects of such legislation on teachers and students. However, some researchers have opened the door to such research. One example, is the effects of more restrictive legislation on teacher autonomy. Relyea, et al. (2026) surveyed and interviewed teachers implementing state SoR legislation. Teachers described various constraints on implementation and emphasized the need for differentiation, collaboration, professional learning, and institutional support. Similarly, Yang-Heim (2026) found that a recurring issue was whether state-mandated programs allowed teachers sufficient freedom to respond to children's and cultural and linguistic differences. These studies counter the simplistic assumptions implicit in much legislation that teaching reading is essentially a readily solved technical problem.

Where do we go from here?

In the US, we are now in uncharted territory regarding how children are taught to read. Historically, the pendulum has swung towards and then away from certain approaches in repetitive cycles. The current situation is unique, albeit the consequence of a gradual progression: the mostly philosophical and academic differences of the distant past came under early scientific scrutiny; then, disputations moved into the public sphere eventually putting a sharp edge on differences (the reading wars); then, a manufactured crisis established a narrative demanding attention that was enhanced by media fed theories of purposeful incompetence. Finally, "science" was melded into the narrative to endorse phonics and to silence dissent that opposed the interests of advocacy groups and commercial enterprises. We are living in the, perhaps inevitable, denouement: the politization of reading instruction resulting in laws governing how reading can or cannot be taught. The epigraph to this article is explanatory, if not completely fair.

What does it mean when teaching reading must exist within essentially one legally sanctioned frame and when, at least in some states, certain approaches become theoretically, and sometimes actually, illegal. Will parents file legal suits against teachers who deviate from state laws? There are precedents for legal action against those who violate SoR. Parents in Massachusetts filed a class action suit against the authors of a reading series claiming that the authors knowingly produced a curriculum contrary to SoR (see Blad, 2024). The fact that the judge dismissed the case offers small comfort to those on the frontlines of teaching. Teachers, too, face increased risks of disciplinary actions or dismissal when reading certain books to children (e.g., Amy, 2023), another indication of how teaching reading has become politicized.

In this new era of legislated reading instruction, what can be done to mitigate legislative overreach that limits professional judgement, narrows views of scientific evidence, validates instructional approaches previously left to professional associations and accrediting agencies, reduces options for addressing the needs of individual learners, and risks turning teaching and learning to read into essentially a technical exercise subject to legislative fiat driven by political interests. At least in the short term, the answer is not to focus on overturning the entrenched narrative that creates and sustains these limitations. Doing so is notoriously difficult in general (Walter & Tukachinsky, 2020) and especially so in the domain of policy (Stone, 1989). It is clear from research that new facts and cogent arguments are not particularly effective in undoing widely shared narratives (Shanahan, E.A. et al., 2018).

Yet, there may be meaningfully productive ways to challenge and potentially to shift the current policy narrative. A starting point is to understand the narrative expressed broadly here: a reading crisis->inappropriate instruction (cause)->instruction guided by SoR (solution)->teachers/teacher educators/local control (obstacle)->state legislation (removes obstacle). This

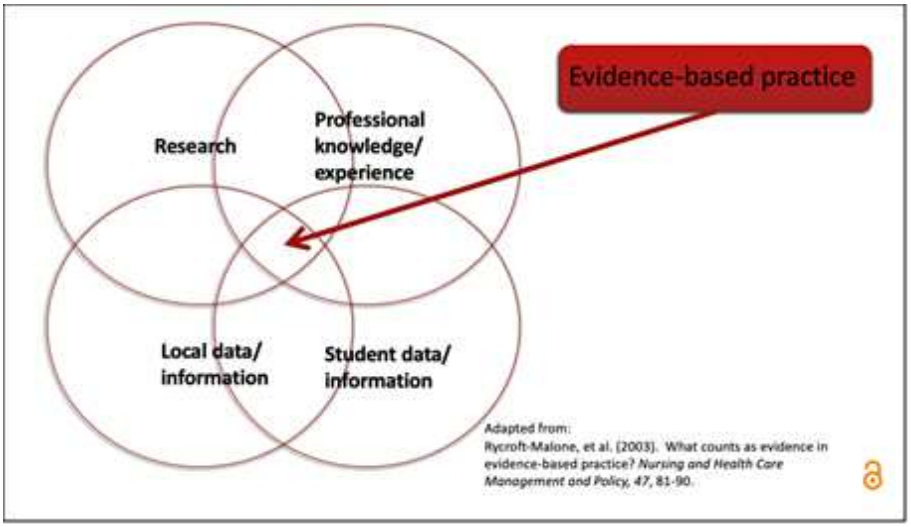
article aimed to flesh out the details and to identify weak points in the narrative. There is also research that offers strategic guidance (e.g., the three citations in the previous paragraph). A full consideration is beyond the scope of this article. However, one possibility would be to offer information and stories presented in a way that creates conceptual conflict (Potvin, 2023). Conceptual conflict prompts thoughts such as "I never thought of that." "That's interesting and surprising." "I need to rethink things and maybe modify my assumptions or beliefs."

For example, few mature readers of English have a full appreciation of the complexity of sound-symbol correspondences in English. Mature reading is so automatic and fluent that there is no conscious awareness of the extraordinary complexity that is being managed subconsciously and much of which was learned without explicit instruction. To most adults, phonics seems deceptively simple and straightforward. Yet, there are ways to make that complexity more visible and thus might create conceptual conflict with an awareness that phonics may be more difficult than assumed. For example, at the outset of an article that introduced an extensive compendium of sound/symbol correspondences in English (Author, 2026), we asked readers to stop reading and skim the 20 pages the compendium consumed at the end of the article. Then, we suggested comparing the compendium to a half-page Table that followed with the totality of phonics needed to be taught, learned, and applied in Italian, a phonetically transparent written language. We imagine that the visual comparison might create a moment of conceptual conflict.

Shifting the terms we use may also be effective (Luntz, 2007). For example, we can promote the term "evidence-informed," rather, than "evidence-based" (see Nelson & Campbell, 2017), the former suggesting more space for professional judgement and individual cases. We can refer to "the sciences of reading." Similarly, we can avoid the risk of reinforcing the SoR/evidence-based frame by directly criticizing it (see Lakoff, 2014) and, instead offering new

frames such as the one represented in Figure 1, adapted from one used to guide medical practice. We can ask: “Don’t we want teachers to be guided by the same expectations we have of doctors and medical personnel?” “Do you want your doctor to prescribe a treatment based on general findings of what works for most people instead of treating you as an individual case?” “How do we move from evidence that is best in general, to what is best for individual students in specific contexts?” “What kind of research would help us move from generalization to specification?”

Figure 1. ***A model of evidence-based practice adapted from medical practice***



Such strategies will be minimally effective if limited to the academic literature. Researchers, especially those who work closely with teachers in classrooms, need to encourage, and assist, them to tell their stories and provide examples of the realities of teaching reading that transcend the simplistic assumptions and the narrow confines of SoR and what is evidence-based using only data from experiments. Researchers can also publish compilations of “evidence” supporting a broader range of options and practices, making them available to teachers and school districts who may need to justify that they are conforming to evidence-based requirements, even if in unintended ways. They can also point out how some legislation (e.g., the use of decodable texts) is contrary to evidence and SoR. They can write op-eds for media outlets

asking questions that create conceptual conflict; they can suggest new terms; they can stop pointing out the faults of SoR and instead propose better frameworks; they can collaborate with more moderate researchers and commentators who are respected by strong phonics advocates (e.g., Seidenberg, 2020), and so forth. Given the influence of online sources such as You Tube and social media, neither can those outlets be ignored or devalued.

Neither can any contemplated future for policy, legislation, and practice related to teaching children how to read ignore the increasing integration of AI into every aspect of society, including education. For example, it is already being used to generate engaging stories customized to a child's interests and ability (DeJulio et al., 2024). It is doubtful that such extreme individualization, readily enabled by AI, will limit options to only experimental evidence aimed at making generalizations from statistical comparisons of groups. Neither is it likely to focus exclusively on a tightly structured single path of phonics instruction as appropriate or necessary for every child. Given AI, it is likely that generalization will give way to specification. Although there are as many concerns about the use of AI in education as there are potential benefits, it is not difficult to imagine that it will undo the stability and relevance of current legislation moving us into a new era. It may also dethrone a dictatorial conception of SoR and may reorient evidence to accommodate individual differences. Should that occur, it will be interesting to see what new narrative might emerge to frame instruction and whether it will justify and sustain legislative action or make it moot.

References

American Association of University Professors. (2024, January 12). *Statement on political interference in higher education*. https://www.aaup.org/reports-publications/aaup-policies-reports/policy-statements/statement-political-interference

Amy, J. (2023, August 18). Georgia school board fires teacher for reading a book to students about gender identity. *Associated Press*.

Authors, et al., 2023

Author, 2026

Aydarova, E. (2023). “Whatever you want to call it”: Science of reading mythologies in the education reform movement. *Harvard Educational Review, 93*(4), 556–581. https://doi.org/10.17763/1943-5045-93.4.556

Aydarova, E. (2024). What you see is not what you get: Science of reading reforms as a guise for standardization, centralization, and privatization. *American Journal of Education, 130*(4), 653–685. https://doi.org/10.1086/730991

Aydarova, E. (2026). NEPC Review: Decoding Progress in Reading Preparation (National Education Policy Center

Berliner, D. C. (2013). Effects of inequality and poverty vs. teachers and schooling on America’s youth. *Teachers College Record, 115*(12).

Berliner, D. C., & Biddle, B. J. (1996). The manufactured crisis: Myths, fraud, and the attack on America's public schools. *Nassp Bulletin*, *80*(576), 119-121.

Biesta, G. (2007). Why “what works” won’t work: Evidence-based practice and the democratic deficit in educational research. *Educational Theory, 57*(1), 1–22. https://doi.org/10.1111/j.1741-5446.2006.00241.x

Blad, E. (2024, December 5). Parents sue Lucy Calkins, Fountas and Pinnell, and others over reading curricula. *Education Week*.

Bond, G. L., & Dykstra, R. (1997; reprint of 1967 original). The cooperative research program in first-grade reading instruction. *Reading research quarterly*, *32*(4), 348-427.

Bowers, J. S. (2020). Reconsidering the evidence that systematic phonics is more effective than alternative methods of reading instruction. *Educational Psychology Review, 32,* 681–705.

Bowers, J. S. (2021). Yes children need to learn their GPCs but there really is little or no evidence that systematic or explicit phonics is effective: A response to Fletcher, Savage, and Sharon (2020). *Educational Psychology Review, 33*, 1965–1979. https://doi.org/10.1007/s10648-021-09602-z

Bracey, G. W. (2008). *Cut scores,* NAEP achievement levels and their discontents. *School Administrator, 65(6),* 20–23. https://eric.ed.gov/?id=EJ797406

Castles, A., Rastle, K., & Nation, K. (2018). Ending the reading wars: Reading acquisition from novice to expert. *Psychological Science in the Public Interest, 19*(1), 5–51. https://doi.org/10.1177/1529100618772271

Chall, J. S. (1967). ***Learning to read: The great debate***. McGraw-Hill.

Connecticut General Assembly. (2025). *Proposed S.B. No. 37: An act repealing the requirement that school districts implement certain reading curriculum models or programs*.

Council of Chief State School Officers. (2019). *Third grade reading laws: Implementation and impact*. https://eric.ed.gov/?id=ED603144

Council of Chief State School Officers. (2024). *Science of reading legislation and implementation state scan*. https://learning.ccsso.org/science-of-reading-legislation-and-implementation-state-scan

DeJulio, S., Lammert, C., Hiebert, E. H., Avalos, A., Cagle, B., Dean, J., Good, S., & Tice, R. (2024). "CATERing" to readers' needs with AI: Innovation in text design and instruction. *The Reading Teacher, 78*(1), 65–73. https://doi.org/10.1002/trtr.2345

Dekker, I., & Meeter, M. (2022). Evidence-based education: Objections and future directions. *Frontiers in Education, 7*, Article 941410. https://doi.org/10.3389/feduc.2022.941410

Duke, N. K., Ward, A. E., & Pearson, P. D. (2021). The science of reading comprehension instruction. *The Reading Teacher, 74*(6), 663–672. https://doi.org/10.1002/trtr.1993Ellis, C., Noble, R., Drake, G., & Peske, H. (2026). Teacher Prep Review: Decoding Progress in Reading Preparation. National Council on Teacher Quality.

ExcelinEd. (n.d.). *K–12 literacy*. Retrieved September 18, 2026, from https://excelined.org/policy-playbook/early-literacy/

Exley, B., Bradfield, K. Z., Heinrichs, D. H., & Clancy, S. (2026). A Systematic Quantitative Literature Review of the Contribution of Phonics to Overall Reading Performance for Primary Students. *Encyclopedia*, *6*(3), 61.

Fitz, J. A., & Nikolaidis, A. C. (2020). A democratic critique of scripted curriculum. *Journal of Curriculum Studies, 52*(2), 195–213. https://doi.org/10.1080/00220272.2019.1661524

Fla. Stat. § 1001.215(7) (2024).

Flesch, R. (1955). *Why Johnny can't read—and what you can do about it*. Harper & Brothers.

Flesch, R. (1981). *Why Johnny still can't read: A new look at the scandal of our schools*. Harper & Row.

Gamse, B. C., Jacob, R. T., Horst, M., Boulay, B., & Unlu, F. (2008). *Reading First impact study final report (NCEE 2009-4038).* National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Ga. Comp. R. & Regs. r. 505-3-.03 (2023). https://rules.sos.ga.gov/gac/505-3?utm_source=chatgpt.com

Gaab, N., & Duggan, N. (2024). Leveraging brain science for impactful advocacy and policymaking: The synergistic partnership between developmental cognitive neuroscientists and a parent-led grassroots movement to drive dyslexia prevention policy and legislation. *Developmental Cognitive Neuroscience*, *66*, 101376.

Graham, S. (2020). The sciences of reading and writing must become more fully integrated. *Reading Research Quarterly, 55*(S1), S35–S44. https://doi.org/10.1002/rrq.332

Gray, W. S. (1919). Principles of method in teaching reading, as derived from scientific investigation. In G. M. Whipple (Ed.), *The eighteenth yearbook of the National Society for the Study of Education, Part II: Fourth report of the Committee on Economy of Time in Education* (pp. 26–51). Public School Publishing Company.

Haag, M. (2026, August 7). Reading scores drop for N.Y.C. students amid revamp of literacy program. *The New York Times*.

Hanford, E. (2022–present). *Sold a story* [Audio podcast]. American Public Media. https://www.apmreports.org/sold-a-story

Hanover Research. (2022). *K–12 policy brief: The science of reading*. https://wvde.us/media/1628/policy-brief-science-reading-1-accpdf

Hiebert, E. H. (2024). Enhancing opportunities for decoding and knowledge building through beginning texts. *The Reading Teacher, 78*(1), 15–25. https://doi.org/10.1002/trtr.2303

Hoffman, J. V., Sailors, M., & Patterson, E. U. (2002). Decodable texts for beginning reading instruction: The year 2000 basals. *Journal of Literacy Research, 34*(3), 269–298. https://doi.org/10.1207/S15548430JLR3403_2

Hoover Institution Koret Task Force on K–12 Education. (2012). *Choice and federalism: Defining the federal role in education*. Hoover Institution, Stanford University.

Hruby, G. G. (2023). The science of *readingpolitik*: A commentary. *Journal of Reading Recovery, 3*(1), 17-28.

Huey, E. B. (1968). *The psychology and pedagogy of reading*. MIT Press. (Original work published 1908)

Johnston, P., & Scanlon, D. (2021). An examination of dyslexia research and instruction, with policy implications. *Literacy Research: Theory, Method, and Practice, 70*(1), 107–128. https://doi.org/10.1177/23813377211024625

Katz Sayag, E., & Gendill, L. (2024, August 2). *Legislatures lead the way with "science of reading" approach*. National Conference of State Legislatures. https://www.ncsl.org/state-legislatures-news/details/legislatures-lead-the-way-with-science-of-reading-approach

Kantrowitz, B., & Hammill, R. (1990). The reading wars. *Newsweek, 116*(10), 8–11.

Lakoff, G. (2014). *The all new don't think of an elephant!: Know your values and frame the debate*. Chelsea Green Publishing.

Literacy-Based Promotion Act, Miss. Code Ann. §§ 37-177-1–37-177-21 (2013).

Loveless, T. (2016, June 13). *The NAEP proficiency myth*. Brookings Institution. https://www.brookings.edu/articles/the-naep-proficiency-myth/

Luntz, F. I. (2007). *Words that work: It's not what you say, it's what people hear*. Hyperion.

Malchow, H. (n.d.). *Structured literacy: A new term to unify us and to sell what we do.* International Dyslexia Association. https://dyslexiaida.org/structured-literacy/

Mesmer, H. A. E. (2009). Textual scaffolds for developing fluency in beginning readers: Accuracy and reading rate in qualitatively leveled and decodable text. *Literacy Research and Instruction, 49(1),* 20–39.

Miller, C. C., Paris, F., & Mervosh, S. (2026, May 13). Why U.S. test scores are in a "generation-long decline." *The New York Times*.

Moats, L. C. (2000). *Whole language lives on: The illusion of "balanced" reading instruction. DIANE Publishing.*

Moats, L. C. (2007). *Whole-language high jinks: How to tell when "scientifically-based reading instruction" isn't*. Thomas B. Fordham Institute.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel: Teaching children to read*. U.S. Department of Health and Human Services.

National Reading Panel, National Institute of Child Health, Human Development, National Reading Excellence Initiative, National Institute for Literacy, United States. Public Health Service, & United States Department of Health. *(2000). Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research*

literature on reading and its implications for reading instruction: Reports of the subgroups. National Institute of Child Health and Human Development, National Institutes of Health.

National Research Council. (1999). *Grading the nation's report card: Evaluating NAEP and transforming the assessment of educational progress*. National Academy Press. https://doi.org/10.17226/6296

Nelson, J., & Campbell, C. (2017). Evidence-informed practice in education: Meanings and applications. *Educational Research, 59*(2), 127–135. https://doi.org/10.1080/00131881.2017.1314115

Neuman, S. B., Quintero, E., & Reist, K. (2023). Reading reform across America: A survey of state legislation. Albert Shanker Institute.

Ohio Admin. Code 3301-33-01 (2022). https://codes.ohio.gov/ohio-administrative-code/rule-3301-33-01?utm_source=chatgpt.com

Ohio Department of Education and Workforce. (2025, June 16). *Science of reading FAQ*. Ohio Department of Education and Workforce page

Owens, D. D. (2025). The science of reading movement: Implications for teacher autonomy and the future of literacy education. *Journal of Equity & Social Justice in Education*

Pearson, P. D. (2002). American reading instruction since 1967. In N. B. Smith, *American reading instruction* (4th ed., pp. 419–486). International Reading Association

Pearson, P. D. (2004). The reading wars. *Educational Policy, 18*(1), 216–252.

Perfetti, C.A., Zhang, S., & Berent, I.(1992).Reading in English and Chinese: Evidence for a "universal" phonological principle. In *Advances in psychology* (volume 94, pp.227–248).North-Holland.

Pinnell, G. S., Lyons, C. A., Deford, D. E., Bryk, A. S., & Seltzer, M. (1994). Comparing instructional models for the literacy education of high-risk first graders. *Reading Research Quarterly*, 9-39.

Petscher, Y., Cabell, S. Q., Catts, H. W., Compton, D. L., Foorman, B. R., Hart, S. A., Lonigan, C. J., Phillips, B. M., Schatschneider, C., Steacy, L. M., Terry, N. P., & Wagner, R. K. (2020). How the science of reading informs 21st-century education. *Reading Research Quarterly, 55*(S1), S267–S282. https://doi.org/10.1002/rrq.352

Posner, M. I., Rothbart, M. K., & Voelker, P. (2023). How understanding and strengthening brain networks can contribute to elementary education. *Frontiers in Public Health, 11*, 1199571. https://doi.org/10.3389/fpubh.2023.1199571

Potvin, P. (2023). Response of science learners to contradicting information: A review of research. *Studies in Science Education, 59*(1), 67–108. https://doi.org/10.1080/03057267.2021.1963770Pressley, M., Wharton-McDonald, R., Allington, R., Block, C. C., Morrow, L., Tracey, D., ... & Woo, D. (2001). A study of effective first-grade literacy instruction. *Scientific studies of reading*, *5*(1), 35-58

Price-Mohr, R., & Price, C. (2020). A comparison of children aged 4–5 years learning to read through instructional texts containing either a high or a low proportion of phonically-decodable words. *Early Childhood Education Journal*, *48*(1), 39-47.

Quintero, E., Reist, K., & Neuman, S. B. (2023). *State of the states: A review of state policies to support evidence-based literacy instruction*. Albert Shanker Institute. https://www.shankerinstitute.org/resource/state-states-review-state-policies-support-evidence-based-literacy-instruction

Quintero, E., Reist, K., & Neuman, S. B. (2025, June 5). *Science of Reading laws: Let's begin with the facts*. Albert Shanker Institute. https://www.shankerinstitute.org/blog/science-reading-laws-lets-begin-facts

Ravitch, D. (2001). *Left back: A century of battles over school reform*. Simon & Schuster.

Ravitch, D. (2012, May 14). *What do NAEP scores mean?* Diane Ravitch's Blog. https://dianeravitch.net/2012/05/14/what-do-naep-scores-mean/

Reading Recovery Council of North America, Inc. v. State, 2026-Ohio-1000 (Ohio Ct. App. 2026).

Redelmeier, R. (2025, October 22). After a $25 million curriculum overhaul, Philly's reading scores have fallen. *Chalkbeat Philadelphia*.

Relyea, J. E., Himes, M., Grifenhagen, J., Davis, D. S., Fu, X., & Jones, J. S. (2026). Toward an equitable implementation of the science of reading: K-5 teachers' sensemaking and support needs. *Teaching and Teacher Education*, *169*, 105288.

Robinson, H. A. (1977). Reading instruction and research: In historical perspective. In H. A. Robinson (Ed.), *Reading and writing instruction in the United States: Historical trends* (pp. 44–58). ERIC Clearinghouse on Reading and Communication Skills; International Reading Association.

Rotherham, A. J. (2009, October 14). Successful schools avoid false choices. *Education Week, 29*(7), 28–29.

S.C. v. Calkins, No. 1:25-cv-10007 (D. Mass. 2025)

Schwartz, S. (2022, July 20). *Which states have passed "science of reading" laws? What's in them?* Education Week. https://www.edweek.org/teaching-learning/which-states-have-passed-science-of-reading-laws-whats-in-them/2022/07

Schwartz, S. (2023, October 18). *Reading Recovery sues Ohio over ban on "cueing" in literacy instruction*. Education Week. https://www.edweek.org/teaching-learning/reading-recovery-sues-ohio-over-ban-on-cueing-in-literacy-instruction/2023/10 Education Week

Schwartz, S. (2025, January 29). Reading scores fall to new low on NAEP, fueled by declines for struggling students. *Education Week*.

Schwerdt, G., West, M. R., & Winters, M. A. (2017). The effects of test-based retention on student outcomes over time: Regression discontinuity evidence from Florida. *Journal of Public Economics, 152*, 154–169. https://doi.org/10.1016/j.jpubeco.2017.06.004

Seidenberg, M. S. (2020). Lost in translation? Challenges in connecting reading science and educational practice. *Reading Research Quarterly, 55*(S1), S119–S130. https://doi.org/10.1002/rrq.341

Shanahan, E. A., Jones, M. D., & McBeth, M. K. (2018). How to conduct a Narrative Policy Framework study. *The Social Science Journal, 55*(3), 332–345. https://doi.org/10.1016/j.soscij.2017.12.002

Shanahan, T. (2020). What constitutes a science of reading instruction?. *Reading Research Quarterly*, *55*, S235-S247.

Skaalvik, E. M., & Skaalvik, S. (2014). Teacher self-efficacy and perceived autonomy: Relations with teacher engagement, job satisfaction, and emotional exhaustion. *Psychological Reports, 114*(1), 68–77. https://doi.org/10.2466/14.02.PR0.114k14w0

Smith, N. B. (1986). *American reading instruction*. International Reading Association.

South Carolina Department of Education. (2024, March 1). *State Superintendent of Education Ellen Weaver applauds passage of S.418*.

Spencer, N. (2024). Comprehensive early literacy policy and the "Mississippi Miracle." *Economics of Education Review, 103*, 102598. https://doi.org/10.1016/j.econedurev.2024.102598

Stockard, S. (2021, March 22). Education commissioner runs into possible conflict with $8M contract. *Tennessee Lookout*.

Stone, D. A. (1989). Causal stories and the formation of policy agendas. *Political Science Quarterly, 104*(2), 281–300. https://doi.org/10.2307/2151585

Sullivan, G. M., & Feinn, R. (2012). Using effect size—or why the [Equation]value is not enough. *Journal of Graduate Medical Education, 4*(3), 279–282. https://doi.org/10.4300/JGME-D-12-00156.

Susskind, D. (November 24, 2020). The critical story of the "science of reading" and why its narrow plotline is putting children and schools at risk. NCTE, Champaign, ILL.

Tierney, R. J., & Pearson, P. D. (2024). Fact-checking the science of reading. *Literacy Research Commons*.

Thomas, P. L. (2024, April 12). *Radical eyes for equity: Big lies of education: National Reading Panel (NRP).* National Education Policy Center. https://nepc.colorado.edu/blog/big-lies

Wainer, H., Grabovsky, I., & Robinson, D. H. (2026). On education miracles in general (and those in Mississippi in particular). *Significance, 23*(1), 32–36. https://doi.org/10.1093/jrssig/qmaf098

Walter, N., & Tukachinsky, R. (2020). A meta-analytic examination of the continued influence of misinformation in the face of correction: How powerful is it, why does it happen, and how to stop it? *Communication Research, 47*(2), 155–177. https://doi.org/10.1177/0093650219854600

Wixson, K. K., Valencia, S. W., Lipson, M. Y, Risko, V. J., Paratore, J. R., Reinking, D., & Hruby, G. G. (2019). *Children experiencing reading difficulties: What we know and what we*

can do [Position statement of the International Literacy Association]. https://literacyworldwide.org/get-resources/position-statements

Wyse, D., & Bradbury, A. (2022). Reading wars or reading reconciliation? A critical examination of robust research evidence, curriculum policy and teachers' practices for teaching phonics and reading. *Review of Education, 10*(1), e3314.

Yang-Heim, G.Y.A. (2026). Elementary teachers' perspectives on science of reading mandates: a Q methodology study of autonomy and cultural responsiveness. *Quality and Quantity*, https://link.springer.com/article/10.1007/s11135-026-02689-y

Yatvin, J. (2000). *Minority view*. In National Reading Panel (U.S.) & National Institute of Child Health and Human Development (U.S.), *Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. https://www.nichd.nih.gov/sites/default/files/publications/pubs/nrp/Documents/minorityView.pdf

Zagata, E., & Coyne, M. D. (2025). State-level dyslexia laws: A systematic review. *Annals of Dyslexia, 75*(3), 423–450. https://doi.org/10.1007/s11881-025-00339-w