The Science of Reading Movement: The Never-Ending Debate and the Need for a Different Approach to Reading Instruction

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September 2022

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Suggested Citation: Thomas, P.L. (2022). *The Science of Reading movement: The never-ending debate and the need for a different approach to reading instruction*. Boulder, CO: National Education Policy Center. Retrieved [date] from http://nepc.colorado.edu/publication/science-of-reading

Funding: This policy brief was made possible in part by funding from the Great Lakes Center for Educational Research and Practice.

Peer Review: *The Science of Reading Movement: The Never-Ending Debate and the Need for a Different Approach to Reading Instruction* was double-blind peer-reviewed.

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Executive Summary

How students learn to read and how reading is best taught are often the focus of media, public, and political criticism. For example, within 10 days in May 2022, two articles about reading ran prominently in *The New York Times*. Both mentioned the so-called science of reading movement that since 2018 has been politically effective but also intensely polarizing.

The contemporary reading reform movement is the latest chapter of a long history of similar controversies, dating from at least the early 20th century. Throughout the decades, attention has focused on how teachers teach reading (typically including specific concern for phonics instruction), standardized test scores (including international comparisons), and a changing list of hypothetical causes for disappointing test scores (including progressivism, whole language, and balanced literacy). Low reading achievement has been sometimes attributed to how reading is taught, sometimes to social influences on students (such as technology and media), and sometimes to both. Widespread and ongoing criticism over the last 80 years has targeted state and federal reading policy; the quality of teacher education and teacher professional development; theories of learning to read and reading instruction; the role of phonics and other reading skills in teaching reading; and the persistent gaps among classroom practices, reading policy, and the nature or application of science and research.

Scholars and literacy educators have over this time conducted extensive research into these and other issues. In contrast to much of the public debate and policymaking, these researchers have found reading instruction and learning to be complex, complicating the design of effective policy and classroom practice. Overall, this robust research base supports policies and approaches that acknowledge a range of individual student needs and that argue against "one-size-fits-all" prescriptions. It also points to the apparently perennial gap between re-

search and classroom instruction, a gap common in other areas of education as well.

Among literacy educators and scholars, then, important reading debates continue but do so without any identified silver-bullet solutions. The public debate is different. Since 2018, the phrase "science of reading" has been popularized as loosely defined shorthand for the broad and complex research base characterizing how children learn to read and how best to teach reading. Simplifying the issue for the public and for political readers, and failing to acknowledge the full complement of research findings, prominent members of the education media have used the term when framing the contemporary debate—often as pro-phonics versus no phonics. Various types of vendors have also found the shorthand term "science of reading" highly useful in branding and marketing specific phonics-oriented reading and literacy programs.

As a result of this selective characterization of the research base, advocates in the current movement have been extremely effective in lobbying for revised and new phonics-heavy reading legislation across most states in the U.S. As the movement has grown, scholars have been concurrently cautioning that advocacy and political responses based on this partial characterization of research have produced rigid and ultimately harmful policy and practices. In particular, the current science of reading reform movement has not served reading policy decisions well because advocates and commercial vendors often exaggerate and oversimplify both the problems and solutions around reading achievement and instruction.

Still, in pursuing reform to address identified challenges, the movement does provide an opportunity for policymakers to investigate different approaches to reading instruction and to develop more nuanced policy. Accordingly, when policymakers explore new guidelines, they would be wise to do the following:

- Be wary of overstatements and oversimplifications within media and public advocacy, acknowledging concerns raised but remaining skeptical of simplistic claims about causes and solutions.
- Attend to known influences on measurable student reading achievement, including the socioeconomics of communities, schools, and homes; teacher expertise and autonomy; and teaching and learning conditions.
- Recognize *student-centered* as an important research-supported guiding principle but also acknowledge the reality that translating such research-based principles into classroom practice is always challenging.
- Shift new reading policies away from prescription and mandates ("one-size-fits-all" approaches) and toward support for individual student needs and ongoing teacher-informed reform.

In rethinking past efforts and undertaking new reforms, policymakers should additionally move beyond the ineffective cycles demonstrated during earlier debates and reforms, avoiding specific mandates and instead providing teachers the flexibility and support necessary to adapt their teaching strategies to specific students' needs. Therefore, state policymakers should do the following:

- End narrowly prescriptive non-research-based policies and programs such as:
    - Grade retention based on reading performance.
    - High-stakes reading testing at Grade 3.
    - Mandates and bans that require or prohibit specific instructional practices, such as systematic phonics and the three-cueing approach.
    - A "one-size-fits-all" approach to dyslexia and struggling readers.
- Form state reading panels, consisting of classroom teachers, researchers, and other literacy experts. Panels would support teachers by serving in an advisory role for teacher education, teacher professional development, and classroom practice. They would develop and maintain resources in best practice and up-to-date reading and literacy research.

On a more local level, school- and district-level policymakers should do the following:

- Develop teacher-informed reading programs based on the population of students served and the expertise of faculty serving those students, avoiding lockstep implementation of commercial reading programs and ensuring that instructional materials support—rather than dictate—teacher practice.
- Provide students struggling to read and other at-risk students with certified, experienced teachers and low student-teacher ratios to support individualized and differentiated instruction.

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Introduction

How students learn to read and how reading is best taught are often the focus of media, public, and political criticism. For example, within 10 days in May 2022, two articles about reading ran prominently in *The New York Times*. In one, Lola Fadulu[1] introduced a new dyslexia program for New York City, promoted by Mayor Eric Adams. In the other, Dana Goldstein[2] offered a front-page critique of Lucy Calkins' popular but controversial[3] reading program, Units of Study. Both articles fit within a prominent message in the mainstream and social media movement begun in 2018. Grounded in the journalism of Emily Hanford, the movement calls for teachers to learn and implement research-based reading instruction, popularly characterized as the "science of reading" movement.[4]

Promoted by various advocacy groups embracing the term, that movement has been politically effective but also intensely polarizing.[5] The phrase "science of reading" is currently shorthand for several complex debates and issues related to learning and teaching reading. For the general public and for political leaders, media coverage has oversimplified debates as pro-phonics versus no phonics. However, among literacy educators and scholars, the phonics/reading debate is much more complex and remains unsettled.[6] Within this brief, the term "science of reading movement" refers to advocacy based on the overly simplistic phonics-oriented characterization of current reading debates. The discussion here, however, details the diverse range of evidence available in the full and much more complex research base to inform both reading instruction and reading policy. Next, an overview of historical debates provides context for the current controversy.

Historical Overview of Reading Debates

The contemporary debate fits into a long history of public controversies about reading, reaching back at least into the first half of the twentieth century. At various times, low reading achievement has been attributed to ineffective reading instruction, social influences on students (such as technology and media), or both.[7] Concurrent with public and political concerns about reading achievement among children, in every decade over the last century many literacy educators and scholars have noted the "considerable gap"[8] between research and classroom instruction.

Here, a representative, but not comprehensive, overview of reading debates since the 1940s highlights recurring reading debates,[9] providing context for policymakers as well as the public to better understand the current science of reading movement and the resulting state-level legislation.

1940s

High Expense of Army Illiteracy, by Eleanor Roosevelt[10], addressed worrisome illiteracy rates in military recruits during World War II. Media and political coverage of the issue prompted concerns about reading achievement and instruction in U.S. public schools. The media blamed progressive teaching methods, but literacy scholars and educators demonstrated that the draftees had received traditional, not progressive, instruction. Scholars also identified poverty as the more significant influence on reading achievement.[11]

This wartime debate about reading illustrates the important roles of media, political leaders, and educators in creating reading policy for schools. As is common in later debates, much of the criticism of reading instruction in the 1940s focused on the role of phonics and phonics instruction in teaching reading. The two broad approaches in such phonics debates are skills-based instruction, which teaches isolated reading skills before students read, and holistic instruction, which engages beginning readers in reading experiences to develop reading skills.[12]

1950s, 1960s

The 1950s and 1960s reading debate was prompted by *Why Johnny Can't Read* by Rudolf Flesch.[13] Flesch's book included international comparisons and blamed the reading crisis on whole word instruction[14] during the era of Dick and Jane whole-word readers. Flesch endorsed a systematic, skills-based approach to reading that emphasized direct instruction of phonics as essential for all students to acquire reading proficiency.[15]

In contrast, advocates for whole-word instruction maintained that systematic phonics instruction included far more rules and exceptions for children to memorize than the number of whole words students could learn to begin reading independently.[16]

1960s, 1970s

After the public debate about reading prompted by Flesch, an important bridge to the reading debate in the 1990s was the rise of whole language in the 1960s and 1970s. The work of psycholinguists and sociolinguists[17] established whole language as a philosophy of literacy that emphasized holistic experiences and reading skill instruction—including phonics—in the context of those whole experiences. Kenneth Goodman, Yetta Goodman, and Frank Smith helped found and develop the whole language approach to teaching reading.[18]

Whole language proposes teaching phonics and other reading skills within the context of students reading text. That is, students learn phonics primarily by reading, instead of being taught phonics systematically before reading.[19] But whole language also encourages teaching students to use a variety of social and cultural cues beyond print to support pronunciation and understanding when reading.[20] While whole language is often portrayed as anti-phonics, whole language instruction includes teaching basic phonics patterns readers need and expanding those basics and other skills through ongoing reading experiences.[21]

Jeanne Chall, a critic of whole language, emphasized the need for scientific research during this era, notably in her *Learning to Read: The Great Debate*, published in 1967[22] and in two more editions in 1983 and 1996. Voicing concerns raised in the contemporary reading debate, Chall called for research to guide instruction for dyslexia, identified the gap between research and classroom practice, and challenged the lack of systemic approaches to phonics and other reading skills in the whole language movement.[23]

To be clear, the phonics debate during this time was not *if* students need to learn phonics, but rather *how* and *when* students should learn them. Proponents of whole language as well as its critics agreed on the goals of reading instruction, but not on the methods.

1980s, 1990s

California introduced whole language as the state's official reading philosophy in 1987. When reading achievement later floundered in the state, media and political leaders blamed the shift to whole language and a lack of systematic phonics instruction as the cause of declining test scores. However, literacy scholars pointed to evidence-based research indicating that the causes of low reading achievement were a decade of underfunding education, the influx of high-poverty student populations, and an increase of students learning English as a second language.[24] Further countering popular criticisms of whole language, National Assessment of Educational Progress (NAEP) data for 1992 showed a correlation between students receiving whole language instruction and higher standardized test scores.[25]

2000s

Prompted by the reading debate over whole language in the 1990s, the National Reading Panel (NRP) was formed under Bill Clinton and charged with determining the then-current state of research on how children learn to read. The NRP report and the reports from its subgroups[26] became a central part of George W. Bush's No Child Left Behind (NCLB) legislation,

mandating scientifically based instruction.[27] However, instead of ending the reading debate cycle, the NRP report became the focus of the next reading controversy.

Panel member Joanne Yatvin[28] issued a minority view[29] charging that the panel had not met its primary duty. She criticized the panel because it lacked teacher representation and focused on a narrow body of research (experimental and quasi-experimental research[30]) and ignored decades of classroom-based and other forms of qualitative research.[31] While Yatvin acknowledged value in the findings of the NRP, she predicted the report would be misrepresented and ultimately "irrelevant" for classroom practice.[32]

Along with Yatvin, several literacy scholars challenged the findings of the NRP, specifically the subgroup report on phonics.[33] Nonetheless, the NRP findings became the basis for the federal reading program Reading First, which was eventually derailed by scandal related to the federal funding application process and state-/district-level reading program adoptions.[34]

Another panel member and current advocate in the science of reading movement, Tim Shanahan, acknowledged some criticisms of the panel as warranted, but supported the validity of both the narrow use of research and the findings based on the panel's review. Shanahan also acknowledged the need to translate the research into practical classroom application.[35] Instead of solving the reading debate of the 1990s, the NRP findings represent the political challenges of identifying a settled body of research as well as translating reading science into daily instruction with diverse populations of students.

Enduring Issues Around Reading

Throughout the 20th and into the 21st century, media, public, and political criticism of students' reading achievement has focused on phonics instruction, standardized test scores (including international comparisons), and instructional approaches (progressivism, whole language, and balanced literacy).[36]

Over the last 80 years, debates about reading reform like those outlined above have addressed state and federal reading policy; the quality of teacher education/teacher professional development; theories of how reading is learned and should be taught; the role of phonics and other reading skills in learning to read and reading instruction; and the persistent gap between science/research and classroom practices and reading policy (notably including the National Reading Panel Report since 2000). To understand the current debate and to design more effective policy than previous reform cycles have yielded, policymakers must understand the contested research base around those controversies.

Review of the Literature on Reading

Reading Policy

Over the past two decades of education reform, research on state, national, and internation-

al reading policy suggests reading policy has tended to change classroom reading instruction and influenced state and district adoption of commercial reading materials and programs.[37] State-level reading policy in the U.S. has focused on third-grade proficiency, and some policy changes have resulted in short-term gains in standardized reading test scores.[38] Research is less clear about the long-term impact of reading policy and which policies specifically impact achievement. For example, states have adopted several different versions of standards and high-stakes testing since the 1990s, and yet continue to lament low reading achievement, prompting another round of new standards and testing. Therefore, researchers caution against "copycat" approaches to reading legislation.[39]

In the UK, national reading legislation implemented in 2006 significantly changed classroom practice when England mandated synthetic phonics[40] instruction for all beginning readers. However, a recent analysis of those policies and changes in classroom practice found that systematic phonics instruction was no more effective than previous policies and thus had not fulfilled the goals of that reform.[41]

Reading and Teacher Education/Professional Development

A 2021 overview of 27 studies on teacher preparation in phonics and code-related (pronunciation) instruction concluded that the current research base offers little clarity about what beginning teachers know and are prepared to practice in terms of reading instruction. The researchers found a need to better understand how teacher candidates are taught reading instruction. Based on their review, they recommended that preparation programs provide pre-service teachers: (1) more phonemic and morphological knowledge, (2) practice translating code-related knowledge into classroom practice, (3) greater practice in code-related instruction, and (4) more information on diverse learner needs. A fifth recommendation called for increased qualitative research on code-related instruction for pre-service teachers.[42]

Among scholarly concerns about teacher preparation is the quality of research pre-service teachers may encounter in their certification programs. Current evidence shows that criticism of teacher preparation tends to be driven by non-peer reviewed reports from think tanks, specifically the National Council on Teacher Quality (NCTQ),[43] as well as anecdotal evidence in the media. However, more reliable guidelines to improving preparation are available. Researchers have concluded that a robust body of research exists for understanding and improving teacher education and pre-service teachers' knowledge and practice in teaching reading.[44]

While preparation programs may have room for improvement, some research findings are relevant but not yet practical for guiding practice. For example, since the 2000 NRP report's review of reading research (see below), cognitive psychology and brain research have produced new evidence related to reading. Researchers acknowledge, however, that this expanded evidence does not easily translate into classroom practice, and so is less practical for teacher preparation or professional development.[45]

Notably, Mark Seidenberg, a key neuroscientist[46] in the science of reading movement, pub-

lishing with others, explains: "Our concern is that although reading science is highly relevant to learning in the classroom setting, it does not yet speak to what to teach, when, how, and for whom at a level that is useful for teachers."[47] While cognitive scientists are making important contributions to reading research, they also acknowledge that brain research does not easily translate into mandates for instruction.

Criticism of reading content knowledge among practicing teachers has also prompted research on professional development, specifically addressing teacher knowledge of phonics and direct, systematic instruction of reading skills. Evidence has shown that improving practice of in-service teachers involves addressing curriculum and reading programs, the quality of professional development, and local leadership. More specifically, although commercial reading programs provide the foundation for teachers' knowledge and practice, they vary widely in type and quality.[48] Such programs are not all created equal and must be selected and implemented with care and caution. The professional development provided to teachers varies significantly in "format, focus, and coherence,"[49] while it should instead be consistent and based on high-quality, research-based strategies. Finally, district- and school-level leadership strongly influence teacher knowledge and practice.[50]

Theories of Reading and Reading Instruction

Policymakers confront the challenge of making sense of the complex field of reading research.[51] Reading scholarship includes several camps, each of which proposes theories of how children learn to read based on different definitions of "reading" and different approaches to what counts as evidence, or "science."[52] Currently, several different reading theories are used to support policy, programs, and classroom practice: whole language, balanced literacy, simple view of reading (SVR), active view of reading, and structured literacy, which integrates theories drawn from cognitive psychology and brain research.

Whole Language

Grounded in the research of Ken Goodman, Yetta Goodman, Frank Smith, and others, whole language is a holistic theory that promotes learning to read through whole experiences with texts, such as reading or being read to. Reading skills are acquired and developed primarily through such experiences, instead of being taught systematically before students read independently. Whole language theory acknowledges the importance of reading skills such as phonics, but it replaces direct, systematic, and uniform instruction with individualized instruction that focuses on individual student needs and strengths.[53] Whole language also introduced a cueing system for students (often referred to as "three-cueing"[54]) to help determine meaning in a text. Such cues allow them to move beyond text, letters, and words themselves, for example, by considering pictures in a text or by employing guessing strategies.

Balanced Literacy

Balanced literacy emphasizes the autonomy and expertise of teachers and recommends instruction based on individual student needs and strengths. One distinction between whole

language and balanced literacy is that balanced literacy as a theory of reading does not endorse or reject any instructional practice if students show need.[55] However, like whole language, a balanced literacy approach prioritizes individualized, student-centered instruction over whole-class direct and systematic instruction.

Simple View of Reading

SVR is the most common theory of reading that educators learn. In this theory, reading consists of pronunciation and listening comprehension, and pronunciation is a precursor to comprehension. Although SVR is popular, literacy scholars note that ongoing research has illustrated a more complex view of reading (the active view discussed next),[56] making SVR an inadequate theory for classroom instruction.[57]

Active View of Reading

Grounded in SVR, a more recent understanding of reading is the active view of reading. In addition to SVR's core components of pronunciation and listening comprehension, subsequent research has advanced understanding of reading acquisition in three ways: (1) by identifying additional root causes of reading difficulties, (2) by demonstrating that rather than being sequential, pronunciation and comprehension overlap, and (3) by illuminating the importance of "active self-regulation" in learning to read.[58]

Structured Literacy

Structured literacy describes a scripted approach to teaching reading that requires uniform instruction. It may include the following: scripted lessons, systematic phonics (including programs such as Orton-Gillingham[59]), decodable texts,[60] prescribed reading instruction for all students based on the needs of struggling students, structured literacy reading programs, and strict requirements for program compliance.[61] Structured literacy draws from cognitive psychology, brain research, and neuroscience, although literacy researchers caution there is still much to learn about the brain and learning to read.[62]

While proponents of competing theories all claim research support, there is general agreement that the evidence-based literature presents at least three consistent and compelling conclusions: Reading is a complex process consisting of a wide range of skills and strategies; culture and experience impact learning to read; and student needs change as they develop reading proficiency.[63]

National Reading Panel

As noted above, while the influential 2000 NPR report sparked a reading debate, it also established a guiding framework for how reading is taught in the U.S. Specifically, it identified what is commonly referred to as the Five Pillars of Reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension.[64]

The panel concluded that phonemic awareness[65] is a "means rather than an end" in reading instruction in that it doesn't increase comprehension. Therefore, phonemic awareness is only one of many elements needed to read independently. Phonics instruction had minimal effectiveness in kindergarten. In Grade 1 it was effective in teaching students to pronounce real and nonsense words, but did not further their comprehension. The panel drew no conclusion about phonics instruction beyond Grade 1 for "normally developing readers," but found that for struggling readers in Grades 2-6, phonics instruction had a weak impact on reading text and spelling. The panel concluded at-risk students benefit from whole language, Reading Recovery, and direct instruction. Further, the panel defined fluency as the ability of students to make sense of text grammatically and with understanding of punctuation. Acknowledging that readers acquire vocabulary in many ways, the panel concluded that direct instruction does not equip readers with acquired vocabulary. Students in Grades 3-8 developed about one-third of their vocabulary growth through reading. The panel found less evidence on comprehension but identified the need for scientifically based reading research (SBRR) to guide teaching, and endorsed the importance of teacher expertise and autonomy.[66]

Subsequent research and criticism have raised concerns about the panel's subgroup report on phonics; placed the report findings in the context of additional research; recognized the impact of the report on teaching and policy; identified myths and misrepresentations in the report; and—an especially important point for policymakers—noted the challenges of translating the panel's findings into policy and classroom practice.[67]

Systematic Phonics and Comprehension

Although phonics is only one essential aspect of reading, many researchers emphasize the importance of systematic phonics instruction for beginning and struggling readers. Research on the direct impact of phonics on reading comprehension is complicated because many approaches to phonics exist—from synthetic or analytic phonics[68] and systematic phonics programs (such as Orton-Gillingham) to phonics instruction embedded in holistic instruction[69] (such as whole language and balanced literacy[70]).

In short, research on the importance of phonics instruction is clear, but there is much less clarity about what type of phonics to teach and how much direct instruction students need or when.[71] There is consensus that proficient readers have strong phonics knowledge, but how that occurs (through direct instruction, reading, or both) remains a point of debate.

One recent overview of 12 meta-analyses[72] of the effectiveness of systematic phonics concluded that systematic phonics instruction for all students was no more effective than whole language or balanced literacy approaches. This analysis raises concerns about conducting research comparing competing instructional reading practices and recommends that policymakers seek additional approaches to reading instruction.[73] As noted earlier, a 2022 analysis of England's shift to systematic phonics concluded that the new phonics-first approach was not as effective as a "balanced" approach to reading instruction.[74]

Recent research on systematic or direct phonics instruction continues to show effectiveness

in children pronouncing real and nonsense words (notably in Grade 1), but less effectiveness in promoting comprehension, especially in kindergarten or for readers in later grades.[75] Instead of systematic phonics, reading amount and comprehension instruction are more effective or at least as important as phonics for fostering comprehension and learning to read.[76]

Recent Developments

The release of the 2000 NRP report became a key part of NCLB and the federal mandate that instruction had to be scientifically based.[77] However, the Reading First scandal[78] and the replacement of NCLB with the Every Student Succeeds Act (ESSA)[79] stalled NRP momentum. Nevertheless, through the 2010s and into the 2020s, elements of the panel's findings remained in most state and federal reading policy and standards, notably the Five Pillars detailed above.[80]

The 2010s also included a rise in parental advocacy around dyslexia (discussed below), establishing the context for the current reading debate commonly termed the "science of reading" movement. Grounded in the journalism of Emily Hanford,[81] the movement has been reinforced by the 50-state organization Decoding Dyslexia,[82] the parent advocacy group already in place when Hanford called for new reforms.

The Science of Reading Movement

Educators and scholars have used the term "science of reading" as shorthand for the broad and nuanced body of research on how children learn to read and how best to teach reading. Since 2018, however, the phrase has been used in the media-based movement emphasizing phonics and in marketing phonics-oriented reading and literacy programs and services. Such media attention and associated advocacy have been extremely effective in lobbying for phonics-oriented legislation across most states in the U.S,[83] with commercial vendors also contributing momentum.[84]

Policymakers thus face the confounding reality that the term "science of reading" is used in different ways by many advocacy groups, including the media, parents, education and literacy stakeholders, and literacy educators, researchers, and scholars.[85] Additionally, the movement has unfolded in the context of parents, education advocates, and political leaders often raising valid concerns about students learning to read, especially students at-risk and in marginalized groups including students in poverty, Black students, multilingual learners, and special needs students. Everyone agrees on the need to do better—but the question of *how* to do better remains.

Literacy educators, researchers, and scholars continue to define the science of reading as a rich, decades-long body of research reflecting a variety of methodological and ideological perspectives. Studies have been ongoing and findings consistently complex.[86] While that body of work provides context for determining "compelling evidence" for classroom instruction,[87] closing the gap between research and practice remains challenging.[88]

According to NRP panel member Shanahan, the science of reading movement based on the comprehensive research base raises several important questions for policy and classroom practice:

> Which research questions are worthwhile from a 'science of reading instruction' perspective? Should we promote basic or applied science? Should pedagogy be governed by standards of instruction or professional autonomy? What are the nature and qualities of research most likely to contribute to a science of reading (e.g., types of studies, methodological rigor, criteria for amounts and types of evidence)?[89]

Much remains to be better understood.

Media Portrayals of Reading Science

An article titled *Hard Words*[90] by Hanford is ground zero of the current science of reading movement.[91] Based on the example of a Pennsylvania school that implemented reading science and raised test scores, the article offered an extended analysis and criticism of reading instruction across the U.S.[92] The analysis established several points of debate about the teaching of reading.

Reading science, Hanford claimed, is limited to the simple view of reading[93] (detailed above) and is characterized as settled science. Other claims in her coverage are that "science" is restricted to the field of cognitive psychology and experimental/quasi-experimental research[94] (like the scope of the NRP). The sources of low student reading achievement are that teachers do not know or fail to implement reading science and that teacher educators either do not understand or "dismiss"[95] reading science. The movement's advocacy also blames low reading achievement on popular commercial reading programs, notably those by Lucy Calkins (Units of Study) and Fountas and Pinnell.[96]

Advocates in this science of reading movement include journalists (including Hanford, Goldstein, and Natalie Wexler[97]), cognitive scientists (including Seidenberg and Daniel Willingham[98]), and literacy scholars (including Louisa Moates[99]). However, many literacy scholars and researchers have challenged the media-based movement for exaggerating and oversimplifying claims about reading, science, and research; for depending on anecdotes and misleading think-tank claims about successful implementation of reading research; and for fostering a hostile social media climate around reading debates.[100]

New and Revised Reading Policy

Throughout the late 2010s, the science of reading movement as presented in the media directly and indirectly influenced state-level reading policies and practices[101] such as:

- States revised or passed new legislation focusing on reading proficiency by 3rd grade, often including grade retention policies linked to high-stakes testing.[102] While research on the effectiveness of grade retention (detailed below) shows short-term test score

gains, they fade over time and have long-term negative consequences for students.[103]

- Specific commercial reading programs have been banned at the state level and been re-evaluated at the district and school levels.
- Reading policy and practices addressing dyslexia among students now include universal screening and prescribed systematic phonics instruction (often Orton-Gillingham[104]).
- Policies have mandated systematic phonics instruction for all students.
- A renewed emphasis on phonics has been added to teacher professional development (such as requiring training in LETRS) and teacher education.[105]

Discussion and Analysis

As noted, the current debate about reading achievement and best instructional practice fits into a century of similar debates. This movement has advanced several popular and political claims that policymakers find compelling and that have consequently influenced current policy and classroom practices. However, recent events may illustrate less about how policymakers should shape reading instruction and more about the political and practical challenges of designing policy and practice in the face of pervasive advocacy.[106]

The concerns about reading that the media and parents raise are in fact valid. Reading achievement can and should be improved. In addition, any students struggling to read, whether diagnosed with dyslexia or not, should be served fully by K-12 public education. Yet, like previous reading debates, current criticism of reading achievement and instruction as well as the policy and practice reforms being proposed rarely acknowledge that reading achievement is often a strong indicator of home and community inequity and poverty rather than a reflection of failed instruction or policy.[107] Instead, policymakers are being primarily confronted with the realities that too many students struggle with learning to read and that policy patterns from a century of reform have been ineffective.

Just as debates about reading are enduring, efforts to create and implement reading instruction based on research is an ongoing challenge for policymakers, teacher educators, school and district administrators, and classroom teachers. The issue of what to do about dyslexia is another example of comprehensive research failing to translate readily to effective policy and instruction in an area with passionate advocates demanding attention and reform.

Dyslexia

Scholars note that no single definition for diagnosing dyslexia exists, and many disagree about estimates of how many people are dyslexic. Some stakeholders reject the diagnosis entirely,[108] many believe that dyslexia is relatively rare and complex, and others, notably parent advocates such as members of Decoding Dyslexia, maintain that one in five students has dyslexia.[109] Here, policymakers must be cautious in the face of advocacy because effec-

tive reform should be informed by a detailed definition of dyslexia and considered in the context of how to serve all students struggling to read.

Although research in these areas is ongoing, the current research base suggests the following:

- No single effective instructional approach exists for students with dyslexia or other struggling readers.
- Mandating Orton-Gillingham-based approaches for all students with dyslexia is not justified.
- Narrow instructional approaches are ineffective for students with dyslexia.
- Teacher expertise and autonomy are necessary to address the complex issue of how best to help students with dyslexia and other struggling readers.[110]

A 2021 overview of research on dyslexia and policy concluded that the science on dyslexia is not settled, although it does offer research-informed policy implications. Policymakers face challenges posed by the lack of a unifying definition to classify students as dyslexic as well as by the fact that the existing research offers little to help design instruction. What is known is that early screening for reading difficulties is effective, but screening for dyslexia does not produce further benefits. Because phonemic awareness and phonics instruction are only one component of a complex reading instruction process, research does not support mandating systematic phonics programs as a single solution to the various problems of students with dyslexia and other reading difficulties. And finally, overambitious dyslexia policy may have negative consequences, including underserving students with non-dyslexia reading challenges[111]

Neuroscience and Brain Research

Although cognitive science, neuroscience, and brain scan researchers have contributed to the knowledge base on how children learn to read, it has remained difficult to translate evolving evidence into classroom instruction. Moreover, many literacy scholars have challenged conclusions drawn from brain research. Some scholars also highlight the negative consequences of using a narrow definition of "science"[112] to guide practical day-to-day instruction for student populations having individual strengths and needs.[113]

The current reading debate, researchers contend, suffers from the same mistake the NRP made—using only partial research evidence to guide classroom instruction. Since student populations are rarely homogeneous,[114] reading instruction in classrooms reading is messy. Expanding the types of evidence used to guide policy and practice may be more effective than advocacy for narrow definitions of "science."[115]

Criticism of Balanced Literacy and Reading Programs

As noted earlier, reading debates have historically blamed theories of reading, reading pro-

grams and ineffective teacher instruction for low reading achievement. Not surprisingly, the current reading movement also includes criticism of both balanced literacy and popular reading programs.[116]

These criticisms are complicated, especially for policymakers and district/school-level administrators and teachers. Research over several decades has shown that the fact that a district or state has adopted reading theories or reading programs does not ensure they are being implemented as intended. In other words, even when a reading program is identified as "balanced literacy," there is no guarantee that balanced literacy is being practiced.[117]

Yet, the current movement, for example, recommends that districts and states avoid adopting reading programs using the three-cueing system[118] or programs not identified as structured literacy, and replace those with phonics-intensive programs. This aspect of advocacy fails to recognize that the problem with reading achievement is not necessarily related to specific commercial programs but instead likely results from implementing any commercial program too rigidly.[119] A wide and deep body of research identifies teacher expertise and autonomy, instead of scripted programs, as key to reading achievement.[120] In contrast, rigid implementation of reading programs often restricts or even replaces teacher decision making that could better serve individual student needs.

In arguing against balanced literacy programs, current reading movement advocates endorse SVR. However, literacy scholars have noted that SVR is not settled science, and current research better supports the active view of reading. Studies have also shown that SVR is inadequate for guiding robust and effective reading instruction.[121]

Overall, the literature recommends that policymakers resist advocacy for "one-size-fits-all" solutions offered by different or new commercial reading programs.[122] Instead, policy should support the development of reading programs based on identified student needs at the state, district, and school levels.

Teacher Education/Professional Development, Phonics, and Grade Retention

The political challenges policymakers face is embedded in that research does not support the recommendations of advocates in the current reading reform movement. Advocates and media have misrepresented teacher education, endorsed systematic phonics for all students, and tolerated grade retention.[123] Media advocacy often relies on anecdotes, and supporters of the movement "do not employ the same standards for scientific research that they claimed as the basis for their critiques."[124]

While teacher education may need reform in preparing candidates, the movement's criticism tends to rely on non-peer-reviewed reports from NCTQ, an advocacy think tank that issues reports based on faulty methods and selective use of evidence.[125] Further, the movement has promoted a commercial teacher training program emphasizing systematic phonics, LETRS—a program that research does not support.[126]

While the research literature is clear that phonics and phonemic awareness are essential

for learning to read, the current reading reform movement has exaggerated both the lack of phonics instruction and the effectiveness of systematic phonics instruction for all students and students with dyslexia. Much of the advocacy for systematic phonics in the current reading movement is based on anecdotes from parents and promotional material from commercial phonics programs. Evidence, including the recent evaluation of England's move to systemic phonics discussed above,[127] suggests that how and when students should receive intensive phonics instruction varies among students and discounts a single approach for all students as a means of improving achievement.

One of the most harmful consequences of the current reading movement is that states have increased policies mandating grade retention based on high stakes testing, copycat versions of the post-NCLB "Florida model,"[128] despite evidence suggesting that retention remains harmful. Further distorting the picture, the media have presented increased standardized test scores in Mississippi as proof of the effectiveness of reading science reforms,[129] although no research exists to support that claim and it is possible that Mississippi's high retention rate[130] may well be a more influential factor than instruction. Research demonstrates grade retention may increase test scores short-term, but the long-term impact is negative, since grade retention is primarily linked to students dropping out of high school.[131]

Nevertheless, grade retention policy remains politically attractive for policymakers because there is evidence linking it to short-term increases in standardized reading scores[132] That said, policymakers should be skeptical, because research has not yet clarified if those increases are due to retention or other policies impacting retained students. And reviews of short-term gains continue to show that they fade over time and that negative consequences of grade retention (like eventually dropping out of school) remain.[133]

Recommendations

By 2022, the current reading debate has demonstrated significant momentum.[134] It has directly and indirectly affected state-level legislation, classroom reading instruction, teacher professional development, and teacher education.[135] Calls for science-informed policy and instruction are compelling, even when the agenda of advocacy is based more on ideology than on evidence. Media, parents, and policymakers remain drawn to simply defined problems and "one-size-fits-all" solutions.[136]

Advocacy, then, within any reading reform movement does not serve policy decisions well. Still, the current movement provides an opportunity for policymakers to rethink and redesign alternative approaches to reading/literacy policy and practice based on sound conclusions from rigorous research. In general, such conclusions indicate that policymakers should:

- Be wary of overstatements and oversimplifications within media and public advocacy, acknowledging concerns raised but remaining skeptical of simplistic claims about causes and solutions.
- Attend to known influences on student reading achievement, including: the socioeco-

nomics of communities, schools, and homes; teacher expertise and autonomy; and teaching and learning conditions.

- Recognize *student-centered* as an important research-supported guiding principle but also acknowledge the reality that translating such research-based principles into classroom practice is always challenging.
- Shift new reading policies away from prescription and mandates ("one-size-fits-all" approaches) and toward support for individual student needs and ongoing teacher-informed reform.

In rethinking past efforts and undertaking new reforms, policymakers should additionally move beyond the ineffective cycles demonstrated during earlier debates and reforms, avoiding specific mandates and instead providing teachers the flexibility and support necessary to adapt their teaching strategies to specific students' needs. Therefore, state policymakers should do the following:

- End narrowly prescriptive non-research-based policies and programs such as:
  - Grade retention based on reading performance.
  - High-stakes reading testing at Grade 3.
  - Mandates and bans that require or prohibit specific instructional practices, such as systematic phonics and the three-cueing approach.
  - A "one-size-fits-all" approach to dyslexia and struggling readers.
- Form state reading panels, consisting of classroom teachers, researchers, and other literacy experts. Panels would support teachers by serving in an advisory role for teacher education, teacher professional development, and classroom practice. They would develop and maintain resources in best practice and up-to-date reading and literacy research.

On a more local level, school- and district-level policymakers should do the following:

- Develop teacher-informed reading programs based on the population of students served and the expertise of faculty serving those students, avoiding lockstep implementation of commercial reading programs and ensuring that instructional materials support—rather than dictate—teacher practice.
- Provide students struggling to read and other at-risk students with certified, experienced teachers and low student-teacher ratios to support individualized and differentiated instruction.

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