

Whole-Language High Jinks

**How to Tell When
“Scientifically-Based Reading Instruction” Isn’t**

By Louisa Moats

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Executive Summary

In this practitioners' guide, renowned reading expert Louisa Moats (author of the American Federation of Teachers' *Teaching Reading Is Rocket Science* and an earlier Thomas B. Fordham Foundation report, *Whole Language Lives On: The Illusion of "Balanced" Reading Instruction*) explains how educators, parents, and concerned citizens can spot ineffective reading programs that surreptitiously hide under the "scientifically-based" banner.

While the field of reading has made enormous strides in recent years—especially with the publication of the National Reading Panel's landmark report and enactment of the federal Reading First program—discredited and ineffectual practices continue in many schools. Although the term "whole language" is rarely used today, programs based on its premises, such as Reading Recovery, Four Blocks, Guided Reading, and especially "balanced literacy," are as popular as ever. These approaches may pay lip service to reading science, but they fail to incorporate the content and instructional methods proven to work best with students learning to read. Some districts, such as Denver, openly shun research-based practices, while others, such as Chicago, fail to provide clear, consistent leadership for principals and teachers, who are left to reinvent reading instruction, school by school.

Ironically, partial responsibility for this unfortunate situation can be laid at the door of the National Reading Panel and its "five essential components" of effective reading instruction (phonemic awareness, phonics, fluency, vocabulary, and comprehension). While the essential components named by the panel embody the fundamentals of effective instructional practices, they also oversimplify the complex language processes involved in learning to read. More worrisome, that list of components allows publishers, authors, and program developers wiggle-room to claim adherence to reading science merely by mentioning them in their marketing materials and asserting that the program incorporates them. The purpose of this guide is to help savvy educators and parents see through the deception to spot programs that truly are research based—and those that are not.

Moats exposes popular but scientifically untenable practices in reading instruction, including

- ★ use of memorization, picture cues, and contextual guessing for teaching word recognition, justified by the faulty "three cueing systems" theoretical model, instead of direct, systematic teaching of decoding and comprehension skills;
- ★ substitution of "teacher modeling" and reading aloud for explicit, organized instruction;
- ★ rejection of systematic and explicit phonics, spelling, or grammar instruction;
- ★ confusion of phonemic awareness with phonics;
- ★ reliance on "leveled" books and trade books to organize instruction; and
- ★ use of whole-language approaches for English language learners.

She suggests ways of separating the wheat from the chaff and explains that good reading programs

- ★ use valid screening measures to find children who are at risk and provide them with effective, early instruction in phonology and oral language; in word recognition and reading fluency; and in comprehension and writing skills;
- ★ interweave several components of language (such as speech sounds, word structure, word meaning, and sentence structure) into the same lessons;
- ★ build fluency in both underlying reading skills and text reading, using direct methods such as repeated readings of the same text;
- ★ incorporate phonemic awareness into all reading instruction, rather than treating it as an isolated element;
- ★ go beyond the notion of phonics as the simple relationship between letters and sounds to include lessons on word structure and origins;
- ★ build vocabulary from the earliest levels by exposing students to a broad, rich curriculum; and
- ★ support reading comprehension by focusing on a deep understanding of topic and theme rather than just a set of strategies and gimmicks.

Identified and taught properly using scientifically-based reading research (SBRR) programs, students at risk of reading failure actually have good prospects for success.

Foreword

Science builds consensus among people in a way that few other disciplines can, if only because the nature of its proofs makes dissent so difficult. The path to consensus via science is rarely straight; it can take years to achieve and the battles can be bloody. But eventually, the accumulation of evidence is hard, even impossible, to ignore.

Whereupon most people and organizations adapt to the new realities and move forward. When, for example, engineers figured out that silicon was more efficient than transistors for running computers, manufacturers didn’t try to improve the transistor. Instead, they adopted, then improved on, the computer chip.

Yet transitioning from what we believe to what science says is true is not always easy, and when beliefs are deeply rooted, resistance is strong. Such has proven to be the case with teaching reading in the early grades of school.

For more than three decades, advocates of “whole-language” instruction have argued—to the delight of many teachers and public school administrators—that learning to read is a “natural” process for children. Create reading centers in classrooms; put good, fun books in children’s hands and allow them to explore; then encourage them to “read,” even if they can’t make heads or tails of the words on the page. Eventually, they’ll get it. So say the believers.

But students aren’t “getting it.” By almost any measure, U.S. reading scores have been too low for too long. Consider the National Assessment of Educational Progress (NAEP). Since 1992, its results for reading by fourth and eighth graders have been almost uniformly bleak. Among fourth graders, just 31 percent of students in 2005 rated proficient or better. That’s just two points higher than in 1992. The exact same scores were recorded by eighth graders over the same time span.

For at least a decade and a half, in other words, despite standards-based reform, despite No Child Left Behind (NCLB), America has failed to significantly improve the percentage of its children who can read at levels that will enable them to compete in higher education and in the global economy.

This comes as no surprise to scientists who have spent decades studying how children learn to read. They’ve established that most students will learn to read adequately (though not necessarily well) regardless of the instructional methods they’re subjected to in school. But they’ve also found that fully 40 percent of children are less fortunate. For them, explicit instruction (including phonics) is necessary if they are to ever become capable readers. These findings are true across race, socioeconomic status, and family background.

The debate about how children best learn to read has lasted far longer than necessary. It should have been laid to rest in 1967, when the late Jeanne S. Chall published *Learning to Read: The Great Debate*. Instead, the friction between whole-language supporters and scientists intensified, until the dispute grew white-hot in the 1980s and 1990s. Into that inferno came the National Reading Panel, charged with deciding once and for all which approach works. Its findings, issued seven years ago, were devastating to whole-language proponents. The panel identified five essential elements that every child must master in order to be a good reader: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Early-reading programs that fully incorporate these five elements into their materials and methods are accurately, if infelicitously, termed “scientifically-based reading research” (SBRR) programs.

**Despite the scientific evidence,
despite the flat-line reading scores on NAEP, many teachers
and school systems continue to embrace whole-language approaches.**

In 2001, the No Child Left Behind Act threw its considerable weight behind the scientific approach when it mandated that all schools taking federal Reading First dollars use SBRR materials. That decision was well founded. One goal set by NCLB is that all children achieve proficiency in reading by 2014. SBRR programs and materials gave schools their best shot at reaching this ambitious target.

Whole language, it again seemed, was destined for the same scrap heap as transistors. But that is not where it ended up.

Despite the scientific evidence, despite the flat-line reading scores on NAEP (and the SAT verbal section), many teachers and school systems continue to embrace whole-language approaches. In this report, one of America’s foremost reading experts, Louisa Moats, shows how whole-language reading programs have survived, even thrived, mostly by claiming to be aligned with SBRR strategies even when they are not.

Few people are better qualified to make this judgment than Moats. She earned her Ed.D. in Reading and Human Development from Harvard University in 1982 after teaching in public and private elementary school settings. For 15 years, she was a licensed psychologist with extensive experience working directly with children with reading problems. In 1996-97, she served as advisor to the California Reading Initiative, and later co-directed a large, federally funded research project on reading instruction in high poverty schools. Currently she writes professional development courses for teachers and directs research projects with Sopris West Educational Services. Her list of publications is extensive, including several

books. Her articles have been published in journals as diverse as *Annals of Dyslexia*, *American Educator*, the *Journal of Child Neurology*, *Nature Neuroscience*, and *Reading and Writing*. She has taught courses at Harvard University, Dartmouth College, Dartmouth Medical School, and Saint Michael’s College.

She is amply familiar with the games that whole-language advocates play to keep their materials in the marketplace. In October 2000, she wrote the Fordham report titled *Whole Language Lives On: The Illusion of “Balanced” Reading Instruction*, which showed how whole-language programs had adopted the misleading phrase “balanced literacy” as a fig leaf to conceal their true nature.

“The concept of balance,” she wrote, “implies ... that worthy ideas and practices from both whole-language and code-emphasis approaches to reading have been successfully integrated into an eclectic mix that should go down easily with teachers and kids.” But, she explained, “it is too easy for practitioners, while endorsing ‘balance,’ to continue teaching whole language.” That 2000 report is available on our web site (<http://www.edexcellence.net/doc/moats.pdf>) and remains one of our most frequently downloaded publications.

Seven years later, the whole-language threat is, if anything, even more insidious, in no small part because of the sizable sums in federal dollars that may reward successful game playing. Now we find, as Moats shows in this report, that programs such as Four Blocks and guided reading claim not simply balance, but actual fealty to the five elements identified by the National Reading Panel. It’s difficult to track precisely how many school systems are currently using these pseudo-SBRR programs, but we know that some large districts have been duped, including Denver, Salt Lake City, and New York City.

How is it possible that so many professional educators have been fooled? In some cases, no doubt, because they want to be—because their habits, their own training, or their ideology predisposes them to favor whole-language instruction, and the faux-SBRR programs provide a screen behind which they can continue doing what they want. In part, though, the problem arises from the five elements themselves. As set forth by the National Reading Panel, they oversimplify the complex scientific findings on how children learn to read, an oversimplification that can mislead unsophisticated purchasers. In many schools and districts, educators responsible for the selection of reading programs and methods use the five elements as a checklist. So long as all five appear in the product’s marketing materials or packaging, they assume that the product is faithful to SBRR.

Unfortunately, reality is more complicated. The most effective SBRR programs weave the key elements together, instead of teaching each in isolation, so students learn phonics and explicit speech sounds, for example, as they’re mastering word meaning and grammar. The pupil testing associated with such programs reinforces the linkages. While no program is perfect, some do a reasonably good job, including SRAs Open Court and Scott Foresman’s Reading Street.

If the buyer isn't attuned to these complexities, it's easy to slip a faux-SBRR program by him and his checklist. Consider the popular Four Blocks program, which was developed in 1989-90 by a first-grade teacher. ("Four Blocks" refers to the four program components—guided reading, self-selected reading, writing, and working with words). Its materials, many published by Carlos Dellosa, claim to adhere to SBRR guidelines. Those thinking about buying the program may be easily fooled by Four Blocks' packaging claims unless they have a better understanding of what a curriculum genuinely derived from SBRR would look like.

Moats aims to give practitioners the information needed to avoid such errors. She identifies tell-tale signs of whole-language programs masquerading as SBRR programs. Among the most common: a stress on "cueing systems," teacher "modeling" rather than direct instruction, and an overemphasis on "authentic" literature and "process writing."

**For all its virtues,
the National Reading Panel oversimplified the complex
scientific findings on how children learn to read.**

Programs that rely on tutoring as the cure to reading ills are also flawed. The best known of these is Reading Recovery, widely used for first graders in the U.S. Individual tutoring, Moats shows, is less effective than regular classroom instruction supplemented with small-group intervention, and it is far more expensive. Yet the media and members of Congress cried foul when federal Reading First officials reportedly discouraged states and districts from using this ineffective and costly program. No good deed goes unpunished.

The results of selecting the wrong program are profound. Moats makes clear that most children identified before second grade as having trouble learning to read can learn to read well with a bona fide SBRR program. If children are caught later, the odds of bringing them to an acceptable level fall sharply.

Native English speakers struggling with reading aren't the only ones who pay for these bogus programs, Moats shows. English language learners are still being taught largely by whole-language programs, despite many studies that demonstrate such programs' failure in teaching these children to read.

The good news is that good SBRR programs actually yield strong results. Moats describes how the Birmingham, Alabama, school district adopted an SBRR program, trained its teachers thoroughly in how to best instruct students, and has seen significant improvement not only in reading, but in other subjects (such as history) as well. Fortunately, other districts are beginning to take notice.

Still, whole language remains firmly rooted in American K-12 education. Teacher-training programs largely refuse to teach SBRR. A study published by the National Center for Teacher Quality and authored by Kate Walsh, among others, found that just 15 percent of education schools trained their students in the basics of SBRR reading strategies, so it isn’t surprising that many future teachers leave campus blissfully ignorant. Licensure tests, for the most part, don’t examine ed school graduates on SBRR, either. And too many districts trust people with no formal training in reading instruction to decide upon the programs to be used.

This report provides anyone looking for legitimate SBRR programs with the necessary tools to distinguish those that truly are scientifically based—offering, for example, sequential, explicit phonics instruction—from those that merely pay lip service to science. It also describes assessments and teacher training regimens that get the most out of good SBRR programs.

Our children deserve such high-quality instruction. Federal law demands it. And Moats has provided us a roadmap to ensure that anyone bent on finding programs that truly work can do so with confidence.

The Thomas B. Fordham Institute is a nonprofit organization that conducts research, issues publications, and directs action projects in elementary/secondary education reform at the national level and in Ohio, with special emphasis on our hometown of Dayton. It is affiliate with the Thomas B. Fordham Foundation. Further information can be found at www.edexcellence.net/institute, or by writing to the Institute at 1701 K Street, NW, Suite 1000, Washington, D.C., 20006. The report is available in full on the Institute’s web site; additional copies can be ordered at www.edexcellence.net/institute/publication/order.cfm. The Institute is neither connected with nor sponsored by Fordham University

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January 2007

Introduction

For more than two decades, most intensely from the early 1980s through the 1990s, a war was waged in this country over how best to teach students to read. The struggle pitted advocates of skills-based, phonics-based approaches against partisans of naturalistic, “whole-language” strategies.

The former, building their case on thirty-plus years of scientifically-based reading research (SBRR), argued that in order to read, students had to master a progression of skills, beginning with awareness of speech sounds and letters and continuing through comprehension. These skills were best taught by teachers well versed in SBRR who used published materials that explicitly and directly sought to develop them.

Whole-language proponents, in contrast, argued that children learned to read naturally, largely through “literacy experiences” and exposure to books. They rejected structured, explicit, published reading programs, preferring what they termed “real literature,” whether students actually could read what was on the pages or not.

For slightly more than half of all children, the battle between these two competing approaches mattered little. That’s because human reading ability is distributed on a continuum, like height and weight, and roughly 60 percent of children are “wired” from birth for reading. Regardless of who teaches them, what instructional methods are employed, or how well those methods are presented, these students are likely to learn to read at least at a modest level.¹

But the other two-fifths of children—those who score in the bottom two quintiles on screening and predictive measures²—are at risk of reading failure.³ Among poor and minority populations, only about 16 percent are proficient in reading by fourth grade, compared to 42 percent in the general population.⁴ How these students ultimately fare as readers is profoundly affected by the reading programs they are subjected to.

Identified early, and taught properly using SBRR-based reading programs, students at risk of reading failure actually have good prospects for success. Research shows that those who are “mildly at risk” (i.e., who are slow to learn basic reading skills but do not have serious reading disabilities) can usually reach grade-level reading ability with appropriate instruction. Those more seriously at risk (i.e., who score below the 20th percentile on a predictive screening test such as DIBELS or AIMSweb⁵) are harder to teach. Still, most can learn to read adequately. In fact, recent studies show that all but those children at the highest risk of reading failure (mainly those below the 5th percentile on reading screening tests) can be taught to read moderately well if they are identified early and taught appropriately.⁶

The same cannot be said for students who are at risk and are taught using a whole-language program. In fact, no studies show that whole-language programs are as successful as SBRR programs in teaching children in the at-risk groups to read.⁷

Evidence notwithstanding, whole-language advocates continued to push their case. Finally, in 1997, the National Reading Panel was convened by the National Institutes of Health to settle the debate. Its report,⁸ released in 2000, delivered a body blow to whole-language theory by delineating five “essential components” of effective reading programs. These components, now well known to many publishers, policymakers, and educators, are based squarely upon a consensus of SBRR studies. The essential components are these:

1. **Phonemic awareness:** The ability to distinguish, produce, remember, and manipulate the individual sounds (phonemes) in spoken words. Phonemic awareness is the understanding that phonemes are blended in spoken words and can be broken apart (segmented). It constitutes a necessary underlying skill for mapping alphabetic symbols to spoken words and can be developed through instruction.⁹
2. **Phonics:** Knowledge of the predictable correspondences between phonemes and graphemes (the letters and letter combinations that represent phonemes). Readers use phonics as they learn to decode unfamiliar words, to recognize familiar words accurately and automatically, and to spell. Explicit, systematic instruction in phonics helps average children learn to read and spell more accurately and fluently than those who don't receive phonics instruction. More important, phonics is critical for preventing reading failure in children at risk.¹⁰
3. **Reading fluency:** Reading text with sufficient speed and accuracy to support comprehension. Fluency can be enhanced with various instructional techniques and with reading practice. To comprehend well, students must achieve adequate oral reading fluency rates. Thresholds for adequate oral reading fluency from first to fifth grade are well established by research.¹¹
4. **Vocabulary development:** Best achieved by reading itself, oral language practice, and instruction in a wide range of topics.¹² Reading comprehension depends heavily on knowledge of the individual word meanings in a text, and those meanings are learned by repeated exposure to a word's use in context and by explicit, direct instruction in word meanings.
5. **Reading comprehension:** Requires comprehension skills and strategies, background knowledge, and verbal reasoning. All are employed by good readers—who read with purpose and flexibility—to understand, remember, and communicate what has been read. Teachers can be instrumental in imparting to children the skills and strategies necessary to navigate narrative and expository texts.¹³

That five-part checklist approach is appealing and easy to remember. It seems to offer teachers and administrators a basis for determining which reading programs have merit and which don’t. But if “five essential components” appears anywhere on the menu of instructional activities, does that mean we have a scientifically-based reading program?

Alas, no. Whole language and its offspring have not been so easily deposed. Rather than fight the five components, trendy reading gurus have placed them under the banner of “balanced instruction” while continuing to promote the same misconceived and disproved practices of yore.¹⁴ Today, therefore, reading curricula such as Four Blocks¹⁵ and Guided Reading,¹⁶ as well as programs that adopt the whole-language fig leaf known as “balanced literacy,” thrive still. Each claim that its approaches and materials square with SBRR, but this is a ruse. And no small numbers of schools and districts are being fooled.

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Sometimes, as in Denver, the problem is identified and consequences ensue. The Mile High City adopted a balanced-literacy approach to reading instruction that did not teach phonological skills, phonics, or reading fluency, among other things. In 2005, after two years in which Denver’s students failed to show any improvement in reading scores, federal Reading First funds were withdrawn. Despite students’ abominable record in reading achievement, however, Denver administrators continue to support a balanced-literacy model.

New York City adopted a balanced-literacy approach to reading instruction in 2002 at the command of education chancellor Joel I. Klein, who has overseen its implementation in nearly all of the district’s near-eight-hundred elementary schools. There the battle still rages, as Robert Kolker details in *New York* magazine (May 1, 2006). Klein credits balanced literacy with raising the city’s fourth-grade reading scores. But Diane Ravitch rebuts that claim by noting that the rise in reading scores occurred in 2002—*before* Klein became chancellor and implemented balanced literacy.

Sorting Wheat from Chaff

So how is one to distinguish good reading programs that draw on SBRR from whole-language programs in disguise? Fortunately, it's not impossible—but it does require close attention.

No program is perfect, and some are stronger than others,¹⁷ but several are reasonably faithful to SBRR and far more apt to succeed with children than non-SBRR programs, especially when teachers are appropriately trained to use these programs. Most large publishers' core, comprehensive reading programs (for example, SRA/McGraw-Hill's *Open Court*, Harcourt's *Trophies*, and Scott Foresman's *Reading Street*) have all five components and good instructional designs. In addition, quite a few smaller-scale, supplementary programs are validated for specific grade levels and specific components, such as Lindamood-Bell materials for building phonological skills; Responsive Reading Instruction and Proactive Reading for first-grade intervention; ReadWell and Reading Mastery for English Language Learner (ELL) instruction in kindergarten through second grade; and Read Naturally for addressing reading fluency issues in grades three and up. Teachers are likely to do best with materials that provide for the direct teaching of a target skill within a logical sequence; that give sufficient guided practice with corrective feedback for the student; and that monitor independent practice. In most programs, built-in assessments are also provided, which tell the teacher when reteaching or small-group intervention is needed to ensure students' progress.¹⁸

To gauge how well an individual program applies SBRR, we need to look for evidence that a program grasps why each of the SBRR components is deemed essential, as well as evidence that it is implementing these components effectively.

SBRR and phonemic awareness

The best reading programs place sufficient weight on phonemic awareness, which is the phonological skill most closely associated with the ability to sound out new words and to spell accurately. Phonemic awareness benefits students not only in the short run, but also over the long haul. How well we understand phonemes enables our other language proficiencies.¹⁹

Our ability to process phonemes affects our ability to remember speech and to recall and produce the spoken form of a word. Students lacking good phonological processing skills have difficulty remembering lists and factual information, confuse similar-sounding words, and frequently leave endings off words when spelling. They also are slow to learn phonics, and they don't listen well when background noise exists.

It is important to remember that phonological processing is not the same as phonics. Confusion between them is pervasive in balanced-literacy programs and even in the publishers' core programs. Phonemic awareness focuses on features of speech sounds and spoken words; it precedes tying those

sounds to letters, as phonics does. Students may need auditory-verbal instruction, without letters in the mix, if they cannot differentiate sounds or if they inaccurately perceive and recall spoken words.

Programs that teach only rhyming and matching initial consonant sounds in words are not teaching phonemic awareness at the level necessary to ameliorate reading problems. Programs that teach a letter each week, and only incidentally tell children that “letters make sounds,” may not give enough explicit instruction to help struggling students.

SBRR and Phonics

To recognize words, children need to learn not only the connections between phonemes and graphemes (the letters or letter combinations that represent phonemes), but also the spelling patterns for syllables from which longer words are constructed. Poor readers at the third-grade level and above, for example, often know simple letter-sound correspondences but do not know how to divide a multisyllable word into its essential sounds. To do this, students must recognize base words and endings, roots and affixes, compounds and contractions.

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Thus, phonics is more than most people (including many phonics advocates) realize, more than simple connections between letters and sounds. Good reading programs recognize this fact and build upon it. The weaker published programs and whole-language programs masquerading as SBRR don't. For example, the Making Words component of Four Blocks instructs children to make words from arrays of letters,²⁰ but it does not systematically teach phonic correspondences in a logical order with sufficient practice to support their application to reading and spelling. Teachers should be especially wary of programs that end phonics instruction before longer, more complex words are tackled (some argue, incorrectly, that phonics should end as early as second grade). Phonics and word analysis are a necessity for students of any age who do not read or spell accurately.

SBRR and Fluency

A recent report from the National Center for Education Statistics on the oral reading of fourth-grade students reported close relationships among oral reading rate, accuracy, fluency (also known as prosody), and silent-reading comprehension of longer passages.²¹ The implication is that students are likely to comprehend a longer passage only if they read words accurately, know what they mean, and read the text with sufficient speed to foster understanding. If children in fourth grade read a grade-

level passage at less than 80 words per minute or with less than 90 percent accuracy, they are likely to score below “basic” on the National Assessment of Educational Progress (NAEP) reading test.

It should come as no surprise, then, that fluency-building exercises are recommended in programs consistent with SBRR, especially for students who read too slowly. Exercises include repeated readings of the same text to build speed; timed readings; and partner-reading strategies in which children practice reading together. The best programs include brief speed drills on some of the component skills that enable fluent text reading, such as fast recognition of common words.

Some balanced-literacy programs place no emphasis on measurement of reading fluency. Others misuse fluency-building activities and substitute them for comprehensive reading instruction. Many slow readers need more than repeated readings to improve, and their teachers should aim to rebuild underlying skills and knowledge, including phonological awareness, phonics and decoding, grasp of syntax and/or vocabulary, and recognition of main ideas. Some researchers suggest that fluency building should be integrated into all components of reading, so that it is not an isolated feature of instruction.²²

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well implemented, teaches each of the five components thoroughly,
explicitly, and with planned connections to the others.**

SBRR and Vocabulary

Accurate, fluent decoding skills are necessary to make a good reader. But this alone won't get the job done. As children progress in reading, the variance between good readers and poor readers is increasingly explained by students' knowledge of vocabulary: the more vocabulary one commands, the more fluid and accurate one's reading knowledge. Preschoolers from poor families who come to school without a strong vocabulary are thus at a lasting disadvantage.²³ Not only do they know perhaps half as many words as their middle-class peers upon starting school, but they acquire new vocabulary at a slower rate. Vocabulary development is critical for all students whose language skills are weak, and it is wrong to assume, as many whole-language programs do, that children will learn vocabulary merely by being surrounded with books. The very best teachers continue vocabulary development through high school.

Teachers must also offer continuing instruction in word meaning and word use, tied to content learning, in order to narrow the gap between strong readers and poor readers. Teachers can be taught, through coaching and feedback, to teach vocabulary more effectively. But ultimately their own verbal habits and the richness of the curriculum they use will strongly influence students' vocabulary growth.

SBRR and Reading Comprehension

Both of the dominant models for teaching comprehension have merit. The strategy approach includes explicit instruction in such processes as previewing and reading with a purpose; predicting outcomes; paraphrasing, retelling, and summarizing during and after reading; asking questions during reading; using graphic organizers or diagrams of the information; constructing visual images while reading; monitoring one’s own comprehension (i.e., by asking if a passage makes sense); and conceptualizing story structure.

The questioning approach also works, though the teacher’s questioning style is critical.²⁴ Questioning has three components. The first is to ensure that students understand the content words and their references, connecting words (but, although, moreover), and sentences. The second is to build comprehension of the relationships between individual sentences and the topic at hand. And the third is to ensure the deepest level of understanding, insight into what the author intended and its implications. These goals, with modeling and practice, become automatic habits of thought in a good reader.

While both approaches can work, there is the risk that teachers using them will reduce comprehension to a detached and self-conscious rehearsal of strategies rather than an exercise in understanding content at a deep level. The best programs balance these approaches with direct, systematic instruction in the component skills of comprehension, such as distinguishing main ideas from details. Where reading comprehension instruction is embedded in the pursuit of knowledge in a core curriculum, two worthy purposes are addressed simultaneously. This is one compelling reason to protect science, literature, the arts, and social studies within the primary curriculum, even when several hours a day must be devoted to reading instruction.

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A good reading program, well implemented, teaches each component thoroughly, explicitly, and with planned connections to the others. Such programs build in validated assessments of progress so that students who are accelerated and those who need small-group intervention and support are identified and taught accordingly. In other words, the best programs leave little to chance.

How the New Whole-Language Programs Fail Students

Now that we have a clearer sense of what characterizes a true SBRR program, we can better understand how non-SBRR programs and reconstituted whole-language programs fail teachers and students alike. Below we look at Four Blocks, Guided Reading, and balanced literacy in some detail. Table 1 summarizes how these approaches differ from those drawing on SBRR.

Four Blocks

Four Blocks is the best example of a whole-language program masquerading as an SBRR program, because its authors—a college professor and a first-grade teacher—claim that it *does* incorporate the essential components of science-based instruction. In reality, it does nothing of the sort. Four Blocks provides a loose

TABLE 1: Comparison of Two Major Approaches to Reading Instruction

Components of Instruction	SBRR *** (Scientifically Based Reading Research)	Whole Language Derivatives
Phonological and Phoneme Awareness	Explicit teaching of the speech sounds, distinct from the letters that represent them; attention called to sound and word pronunciation; emphasis on blending and separating sounds in spoken words.	Minimal or incidental instruction about speech sounds, their features or contrasts; insufficient instruction in separating and blending the sounds in a whole word; confusion of PA with phonics. Instructs teachers to avoid breaking words into their parts.
Phonics and Word Study	Explicit, systematic, cumulative teaching of phoneme-grapheme (sound-symbol) correspondences, syllable types, and meaningful word parts (prefixes, suffixes, roots and base words.) Word reading skills are then applied in text reading. "Sound it out" comes before "does it make sense?"	Children directed to pay attention to the sense of a sentence before guessing at a word from context and the first letter; "sounding out" the whole word is deemphasized. No systematic presentation of sound-symbol correspondences. Teacher-made "mini-lessons" to address student errors. Avoids phonic readers; uses leveled books without phonically controlled vocabulary.
Fluency	Explicit, measurable goals by grade level for oral passage reading fluency and related subskills; criteria established by research. Rereading, partner reading, reading with a model are validated techniques.	Reading practice in "leveled" books; focus on "miscue analysis" rather than words read correctly. No emphasis on fluency in building subskills. Avoids measurement of words correct per minute. Believes students learn to read by reading, not by instruction on specific skills.
Vocabulary	Teachers preteach words important to the meaning of a text, explain during reading, and practice after reading. Teachers give structured practice using new words verbally and in writing. Teacher-student dialogue "scripted" in the teacher's manual.	Lots of reading in leveled books and trade books; reading aloud by the teacher and nondirective discussion. Words important to the meaning of a text are pretaught, explained during reading, and practiced after reading.
Comprehension Skills and Strategies	The structure of both narrative and expository text is taught directly. Strategies are overtly modeled and practiced in a planned progression. Subskills such as main idea and theme are also taught and applied. Teachers' edition provides guidance.	Teachers instructed to use activities known as choral reading, shared reading, and guided reading. Leveled book reading, big books, and independent trade book reading all used; teacher modeling (thinking aloud) is the primary instructional strategy. Student book choice emphasized.
Writing	Grammar, handwriting, spelling, punctuation taught systematically, along with many structured opportunities to practice composition. Builds sentence writing skills, paragraph formation, and knowledge of narrative and expository text structures.	Writer's workshop approach. Emphasizes stages of the writing process and self-expression, rather than mastery of component skills through planned, cumulative practice. Correction given in individual conferences. "Journaling" is a favored activity, because students choose the topic they write about.

framework for dividing instructional time into guided reading, independent reading, writers’ workshop, and word work. But the program is a half-empty toolbox. “Wordwork”²⁵ is pseudophonics. It consists of some word games that merely entertain children who are already good at reading and that fail to instruct children explicitly, systematically, or cumulatively about the relationship between speech and print. Four Blocks is particularly insidious because it appears to be a “balanced” framework but does not require a teacher to know very much about language or reading. Incidental, nonsystematic teaching can prevail in each of its four components. Too little direction is provided for teachers who should have very specific guidance about what to do and when. Four Blocks, moreover, lacks any independent scientific validation for its methods or any credible demonstration of its effectiveness with students at risk.²⁶

Yet its authors, who have been successful in marketing their approach in states such as Ohio, Kansas, and New York, do not hesitate to claim that Four Blocks embodies the recommendations of the National Reading Panel.

Guided Reading and Balanced Literacy

Proponents of guided reading and balanced literacy sometimes talk the talk of SBRR, but they do not walk the walk. At other times they voice overt hostility to SBRR programs, as when they criticize “scripted programs,” “skill and drill,” “one size fits all,” “mechanistic methods,” and other straw men they lump together in opposition to SBRR. What they have in common is described below.

Teacher modeling, not direct instruction

Instead of teaching children how to read and comprehend, teachers using these approaches engage in “shared reading” of books. They read books aloud until students can repeat the language and “read” by osmosis, imitation, and/or memorization. These practices offer little or no direct teaching about reading words or making sense of language structure. That children who are so taught aren’t actually learning to read becomes clear when they attempt to read an unfamiliar text for the first time and are stymied.

Misguided strategies derived from “cueing systems” theory

Reading psychologists have proven that good readers can rapidly and accurately identify almost all the sound-symbol correspondences in a printed word. Struggling and novice readers benefit from direct teaching about this system of correspondences. Their capacity to recognize larger pieces of words such as syllables and suffixes is more likely to improve with knowledge of speech sounds and symbols.²⁷ The phonics component of the most effective programs teaches all speech sounds and their common spellings, as well as sound blending, while building fluency in whole word recognition. Furthermore, instruction addresses more complex decoding skills, including analysis of words by roots and suffixes.

In contrast, balanced-literacy approaches avoid direct and systematic teaching of the alphabetic code. Children are taught to rely on contextual guessing, picture clues, and patterned or repetitious language to recognize words. If children miss words, the teacher is to say, “Does that make sense?”

Contextual guessing strategies are supported by the “cueing systems” model of word recognition—which has no basis in reading science.²⁸ According to this “theory,” students are said to use “graphophonic cues,” semantic or meaning cues, and syntax or contextual cues to recognize words. In practice, the emphasis is on anything but the links between speech sounds and spellings. The three “cueing systems” are used to justify contextual guessing strategies over strong phonics skills. Unfortunately, balanced-literacy students are learning strategies that poor readers rely on, not what good readers know.²⁹

Rejection of systematic decoding, spelling, and grammar instruction

All sorts of unproductive activities fill the void when language structure is not taught in an organized, explicit, and systematic manner. These include posting words alphabetically on a “word wall” and limiting instruction to haphazard teaching of one sound for each letter. English is not so simple, however, and single letter-sounds are insufficient for reading and spelling. The complex correspondences between the fifteen to eighteen vowel sounds and their multiple spellings are never directly taught in balanced-reading programs. For example, the words *on*, *only*, *one*, *out*, and *of* may be listed under “o” on a word wall, but no consistent instruction is delivered in how the spellings do or don’t correspond to the speech sounds. Instead, students might unsystematically build words with letters or sort words, with no direct tie or application to a reading or spelling text that uses the words. Thus students might be taught that “o” spells the first sound in *octopus*, but then be given a book to read with *to*, *town*, *come*, and *over*—none of which uses the letter “o” to represent the short “o” sound.

**Four Blocks is particularly insidious
because it appears to be a “balanced” framework but does not require
a teacher to know very much about language or reading.**

Likewise, children are expected to write and read because they can talk. Teachers may, or may not, correct poor grammar, sentence structure, or word choice. There is no planned development of component language skills within a composition program.

Confusion of phonemic awareness with phonics

The most compelling insight of reading research in the past twenty years—that reading and spelling an alphabetic code require awareness of the speech sounds the code represents—is still lost on balanced literacy. Typical balanced-literacy programs equate phonological instruction with rhyming and alliteration. What science supports is instruction in individual speech sounds—how they are formed in the mouth, how they compare with one another, how they distinguish word meanings, how they are represented in writing, and how they are different from letters. The overt blending of sounds and pronunciation of words, as well as the production of oral language, with feedback from the teacher, is a key element of SBRR often omitted in balanced literacy.

Reliance on process writing

Balanced literacy preempts explicit and systematic instruction in those skills necessary to perform complex language tasks. In teaching writing, balanced literacy embraces a “workshop” approach wherein a teacher “models all the things writers do,” including “thinking aloud” about what to write.³⁰ Teachers are instructed to motivate their children to write, and then teach punctuation, spelling, word use, and grammar in the editing or correction phase of writing.³¹ This method, which is known as process writing and which is part of the writers’ workshop approach, sounds appealing; research, however, shows that written language poses too many challenges to be learned without systematic instruction.³²

Leveled books

“Leveled” books are a series of short paperbacks that are supposed to increase in difficulty with each advancing level. Difficulty, however, is defined in many of these series by the amount of verbiage on a page and the number of new words introduced, not by the difficulty of the language in the texts or the relationship between what has been taught and what students are then supposed to read.³³

Leveled books cannot be the basis for a systematic, explicit approach to beginning reading instruction. With each advancing level, students encounter many untaught phonic patterns and words. Lacking the tools to decode the books, students become ever more reliant on memorization and guesswork, unless they are lucky enough to intuit the print code from exposure or incidental teaching. Leveled books are fine for students who can read them but are not helpful as the central tool of instruction for children at risk.

Comprehension

Many skills and strategies are needed for readers to comprehend a text. Among these are knowledge of domain-specific vocabulary; comfort with complex or academic sentence structures; and the ability to locate a passage’s main idea. These can be taught explicitly, although balanced-literacy proponents resist doing so because they are afraid of contaminating children’s pure enjoyment of the reading experience. Especially in early balanced-literacy instruction, reading aloud and undirected classroom discussions are the sole activities designed to foster comprehension. Teachers are encouraged to accept whatever meanings students construct for themselves from the text, instead of holding out for consensual meanings or those intended by the author. Research, however, shows the advantages of direct, overt, planned teaching of theme recognition and text structure, even to novice readers.³⁴

In summary, whole-language derivatives are still popular, but they continue to fail the students who most need to benefit from the findings of reading research. Approaches such as Four Blocks and balanced literacy do not complement text reading and writing with strong, systematic, skills-based instruction, in spite of their claims. Only programs that teach all components of reading, as well as writing and oral language, will be able to prevent and ameliorate reading problems in the large number of children at risk.

English Language Learners

Over thirty million persons in the United States today are immigrants. More than one in eight individuals in this country are Hispanic, and in two years, the projected enrollment of Hispanic students in English-speaking schools will be about nine million. Responding to these trends, researchers have recently started to study and report on issues in English-language learning and reading instruction. Unfortunately, much of this research is ignored, and balanced literacy and other whole-language spin-offs remain the dominant approach in many schools serving ELL children. The result is high rates of student failure.

**For English-language learners, SBRR programs are critical,
yet this fact is ignored and whole-language spin-offs remain
the dominant approach to teaching ELL students.**

Students learning English need to know how to segment speech sounds and process the English phonics system just like their English-speaking peers.³⁵ If ELL students learn the English alphabetic code (spelling, letter knowledge, and phonemic awareness), they can acquire English vocabulary through both reading and oral language instruction. There is no reason to delay teaching children with limited English proficiency the letter names, English speech sounds, and letter-sound correspondences, as so many whole-language programs do.³⁶

The overall outcomes for grade-one students in both Spanish and English tend to be quite low unless teachers offer direct, robust instruction in the semantic and syntactic aspects of language and in vocabulary. Children instructed bilingually (initially in Spanish and then in English) may score as well in reading as children instructed only in English and can attain high levels in both languages. Good teaching—monitoring students’ learning, offering sufficient practice, modeling, explaining new concepts clearly and explicitly, prompting—accounts for the progress of ELL students in English reading.³⁷

Tutoring

Regular classroom instruction, supplemented with small-group intervention support for struggling students, is the key to reading improvement for whole classes and for most individual poor readers. Individual tutoring, on the other hand, is hard to justify as a standard intervention model, especially if it fails to incorporate the key components of SBRR.

Reading Recovery is a high-profile individual tutorial approach that has been widely used in the United States, particularly for first graders. Analyses of Reading Recovery by independent researchers have shown that between 25 and 40 percent of students have been dropped from the program’s own data analyses because they do not do well enough in the program to be maintained in it. For readers below

the 25th percentile, Reading Recovery is *not* effective unless it is modified with systematic, sequential instruction in decoding and phonemic awareness.³⁸ Without these changes, the gains have been almost zero for the poorest readers instructed with Reading Recovery.³⁹ The better students who do complete the Reading Recovery sequence in first grade lose many of their gains without subsequent systematic phonics instruction, and may suffer lasting problems with self-confidence in reading.⁴⁰

Even if the model were to be repaired with a systematic phonics component and emphasis on a code-based word-reading strategy, Reading Recovery is not cost effective. Teacher training is very expensive, and caseloads for Reading Recovery teachers are supposed to be limited to five children per day. Paraprofessionals and tutors trained in SBRR can get results that are just as good using less expensive programs,⁴¹ and small groups are just as effective as one-on-one tutorials for most at-risk students.⁴²

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The failures of whole language are many—from failure to teach phonics and other language skills explicitly and systematically, to an overly personalized, nondirective approach to reading comprehension. For millions of children who struggle to learn to read, the results are disastrous.

Final Thoughts: Progress Is Possible

Teaching reading is something that we know how to do. Unfortunately, educators continue to resist proven SBRR programs, assessments, and professional development. In many schools, administrators accept the claim that teachers should be able to invent reading instruction as they see fit, and teachers of teachers are often reluctant to understand or apply the science of reading because to do so requires conviction and familiarity with research-based practices. To complicate matters, some, such as the creators of Four Blocks, have hijacked the terms associated with research-based instruction and used them to wrap whole-language practices in the camouflage of SBRR. Even where SBRR programs are available, many schools simply do not implement aggressive and effective practices for tackling reading, writing, and language issues in children. The results are devastating to the 40 percent of our population who are not “born” readers.

Intervention can help those children, but it needs to occur early, preferably in kindergarten or first grade. The later one starts, the less positive the outcome and the more costly the remediation. If a student hits third grade reading poorly, the chances of remediating him or her are not good. The vast majority of such youngsters will never climb beyond the bottom third of all readers.

Valid screening instruments are now available at the kindergarten and early first-grade levels for identifying children at risk of reading failure.⁴³ At the end of grade three, oral reading fluency (words correct per minute) becomes the best predictor of reading comprehension. Students who can read with about 90 percent accuracy are likely to pass high-stakes state tests that require sustained passage reading with comprehension. Students reading below this level are likely to score below grade level on such assessments. An in-between group, those at some risk of failure who need extra support in the classroom to increase their chances of success, can also be identified.

Short, fluency-based screening measures are reliable, efficient, and inexpensive. They can help educators organize children into instructional groups and focus on those skills most important for nurturing progress; they can also help educators determine how to allocate instructional time and resources. Most important, they make it possible to monitor students’ progress closely, so that children do not stagnate for weeks without appropriate help. Given our ability to prevent most reading failure with early screening and intervention, ignoring these tools is inexcusable.

In some places, this message is catching on. Significant progress is occurring in selected states, districts, and schools. According to 2005 NAEP results, achievement gaps measured between fourth-grade Hispanic and African American students and their white counterparts at the “basic” level are now the smallest ever. (There has been little movement at the proficient and above level.) Unyielding

Alabama Success

Beset by years of failing reading scores, Montgomery Public Schools Assistant Superintendent Mike Looney turned to the experts at SoprisWest, an educational development firm, for guidance. His students needed a lot of help.

In 2002, the scores of MPS students on state reading tests ranked 118th out of 130 Alabama districts, with just 37 percent of the district’s K-3 students passing it. To correct the problem, the district decided to implement a solid, scientifically-based reading program—Read Well. But implementation involved more than dropping it in teachers’ laps the first day of school.

B.J. Wise of SoprisWest said, “It was obvious that teachers did not know how to conduct small group instruction.” To change that, Wise brought in 10 of the worst-performing schools consultants well-trained in reading instruction and Read Well. They worked one-on-one with teachers and principals. And the consultants returned month after month—answering questions, offering guidance and support, and fine-tuning teachers’ skills as reading instructors. The following year, 68 percent of K-3 MPS students passed the reading test. And the year after that, some 90 percent of kindergarteners were testing at grade level, and some 80 percent of first through third graders were.

The turn-around was not magical; there’s no great mystery to Montgomery’s success. Weiss noted that MPS “had a good administration that did what we thought needed to be done, and they let the teachers know that this is what is expected.” And, she continued, MPS “gave us adequate resources,” and the state was fully behind all this, creating “a perfect storm that made it all possible.”

gaps between racial and ethnic groups continue in eighth grade, however, and high school gaps have widened since 1988. State tests also show that gaps between minority and white students are closing, although state tests tend to be less rigorous than the NAEP.

Many individual districts and schools have improved significantly even with substantial populations of minority, poor, ELL, and at-risk students. Among the places where pupils are making significant gains are Montgomery, Alabama; Los Angeles; Aldine, Texas; Pueblo 60 in Colorado; Charlotte-Mecklenburg, North Carolina, and Toledo, Ohio.

Strong reading instruction is part of a strong curriculum with high and definitive standards for student learning. Where progress does occur, it is due to strong leadership, well-designed curricular materials, content-rich professional development, valid screening and progress-monitoring assessments, and classroom coaching. It is also due to teachers' use of screening and diagnostic data to group children for instruction, monitor their progress, and solve instructional dilemmas.

**We need regional centers that offer continuing education seminars
for teachers of teachers and that certify them through
a process akin to board certification in medicine.**

Why hasn't progress been more widespread? At least two conditions impede progress. First, what teachers learn in their preparation programs continues to be largely irrelevant to the knowledge and skills they will need in the classroom.⁴⁴ Universities seem unable or unwilling to cultivate a pool of knowledgeable instructors who can design and implement effective, research-based teacher education courses.⁴⁵ Second, language arts departments in districts and schools are often led by individuals who have never studied reading research and do not understand what the National Reading Panel recommendations call for. The ideas, content, and practices referred to by the panel's report and similar documents are not simple; they require specialized disciplinary knowledge that is difficult to acquire through typical education channels.

Finally, those concerned by the pace of progress need to keep in mind that implementing SBRR programs is only a first step in the journey toward a nation of readers. Knowledgeable teachers, supportive mentors and coaches, and informed and determined administrators are also needed, as are valid assessments and a willingness to take their results seriously. Even with all these conditions in place, implementation will remain hard work—but work we cannot afford to neglect.

Recommendations For Policymakers

While this monograph is intended for practitioners—administrators, curriculum developers, teachers, politicians, and school board members—improving reading instruction depends on smart policies. To that end, here are some suggestions.

1. *Teachers licensed for elementary school should be required to complete a course of study in the structure of the English language and how language is learned.*

A recent study of reading coursework in typical schools of education⁴⁶ shows that SBRR has had little effect on the textbooks, syllabi, or assignments given to future teachers. Fluency and phonology receive the least adequate treatment in the reading courses, and study of the English language is absent in all but a handful of education schools.

A growing research literature on teachers’ knowledge indicates that teachers often do not understand the system of phoneme-grapheme correspondences, the phonological system of English, the difference between a morpheme and a syllable, the structure of English grammar, or even the differences between expository and narrative texts.⁴⁷ Furthermore, they cling to many misconceptions about dialect differences and second-language learning. When teachers are actually given sufficient information to promote insights into children’s learning needs, they commonly express anger that they were not taught the information before.

2. *Teachers licensed for elementary school should be required to complete a course of study in reading research, including scientific findings about how children learn to read, why some children fail to learn to read, and what instructional methods have been validated.*

A 2002 white paper by the American Association of Colleges of Teacher Education (AACTE)⁴⁸ contains many clues to the irrelevance and inadequacy of our typical teacher licensing programs and to the reasons teachers come to believe that all methods of instruction are equal. The paper warns against a phonics-emphasis approach, “scripted” programs, “paper and pencil standardized testing,” and “one size fits all” instruction. The danger in these approaches, the paper claims, is that children subjected to them may not understand or enjoy reading. The AACTE seemingly believes that children “become literate” through interactions with print engineered by a facilitating teacher; it never endorses direct instruction. Most tellingly, the AACTE asserts that teacher preparation programs must train their candidates in all methods of teaching reading, and it denies that some approaches have stronger scientific support than others or that some are associated with much higher rates of reading failure in at-risk children.

A 2002 study of reading courses in California, sponsored by the Commission on Teacher Credentialing, found that about half the courses did not teach the standards, methods, or rationale for the new state curriculum frameworks, and that they were still offering whole-language readings and practices to their students.⁴⁹

3. *All teachers of reading and related language skills should be given ready access to models of effective teaching. Modeling can be provided through videotaped instruction or in-class coaching.*

Some of the SBRR practices, such as instruction in sound blending, peer tutoring, small-group intervention, and directed questioning during oral reading lessons, may be difficult for teachers to implement. Certainly reading and writing instruction present many technical challenges and require many changes on the part of teachers. One way to help teachers master difficult practices and adopt necessary behaviors is to offer them models of technical teaching skills, either through instruction or in class. The study of language may be analogous to the study of anatomy by a physician, but the study of teaching behaviors may be analogous to the study of surgical procedures. Seeing one precedes doing one.

4. *Continuing education for the teachers of teachers, certified by a respected and independent body, will be needed before colleges of education will change.*

Reading First was funded before sufficient time and resources had been allotted to educate those responsible for implementing it. Too few people had the background to understand what was intended by the legislation. Likewise, in colleges of education, there are not enough knowledgeable instructors with cross-disciplinary expertise who can teach introductory language courses to teachers of reading or who know scientific research and its applications. We need regional centers that offer continuing education seminars for teachers of teachers and that certify them through a process akin to board certification in medicine. In those centers, researchers should present their work to practitioners, cross-disciplinary dialogue should be encouraged, and model syllabi should be shared to help education instructors develop their own courses.

5. *Alternative teacher licensing and professional development must be encouraged by states and districts.*

So long as colleges of education provide training that is inconsistent with research, policymakers must nurture alternatives to those institutions. These may include district-sponsored professional development and graduate degrees, on-line coursework, and internships that couple coursework with extensive mentoring.

6. *Teacher testing must be calibrated to measure knowledge of scientifically-based reading research and the disciplinary knowledge base required for effective instruction.*

Once state licensing standards for teachers of reading are improved, teachers should be tested with instruments that measure critical concepts and maintain a high standard of performance. The majority of today’s teacher licensing tests are irrelevant for predicting teacher competence and do not have content consistent with SBRR.⁵⁰ Once testing content is aligned with SBRR, we will have additional leverage to improve teacher preparation.

7. *School boards must support the necessary conditions for instructional improvement in reading: professional development time and SBRR resources; leadership training for principals; adoption of a core, comprehensive program of instruction and appropriate supplemental programs and materials; and use of valid screening and progress-monitoring assessments to guide instructional decision making.*

All of these conditions together promote improvement. Core, comprehensive program adoption alone is not sufficient.

8. *Curricula must remain broad, rich, engaging, and challenging.*

Good reading instruction should not supplant content-area learning. Instead it should be integrated into the study of science, social studies, math, literature, and the arts as students move past the primary grades.

Endnotes

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- ³⁹ James W. Chapman, William E. Tunmer, and Jane E. Prochnow, "Does Success in the Reading Recovery Program Depend on Developing Proficiency in Phonological-processing Skills? A Longitudinal Study in a Whole Language Instructional Context," *Scientific Studies of Reading* 5, no. 2, (2001): 141-176.
- ⁴⁰ Ibid.
- ⁴¹ The Sound Partners tutorial program, for example, can be taught by paraprofessionals and has been validated in several well-designed studies (Pat Vadasy). (Patricia Vadasy, E.A. Sanders, Julia Peyton, and Joseph Jenkins, "Timing and intensity of tutoring: A closer look at the conditions for effective early literacy tutoring." *Learning Disabilities Research and Practice* 17: 227-241).