



Science of Reading Research Basis

Hooked on Phonics aligns to the 2023 (up-to-date) best practices for effective reading instruction.

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For more information: classroom@hookedonphonics.com

The Problem

The United States is experiencing a reading crisis—a crisis that has lasted for decades and cuts across all demographics.

It starts in early childhood of course, when the aptitude for learning is at its peak. But the inability to read proficiently leads to severe, lifelong obstruction to an individual's ability to succeed in the modern world. As many as 44 million adults in the U.S. cannot decode well enough to read a simple story to a child (Kirsch, et al., 1993).

Without proper intervention, the outlook for struggling readers is bleak. Sixty percent of America's prison inmates are illiterate, and 85% of all juvenile offenders have reading problems (Greenberg, Dunleavy, & Kutner; 2007). In fact, some states in the U.S. refer to third-grade reading proficiency rates when projecting the number of prison cells that will be needed 20 years into the future (Bolton & Lavoie, 2004). A Criminal Justice Policy Council study reported that 37 percent of young prisoners were less likely to return to prison if they learned to read during their incarceration (Susswein, 2000, as cited in Keith & McCray, 2002).

COVID took a very bleak situation and made it even worse. When the 2022 NAEP scores were released, the long-simmering awareness of the nation's setbacks in reading instruction bubbled over into front-page headline news in leading newspapers and TV news and led to an acknowledgment of the problem's severity at every kitchen table.

In sum, the average reading score at both fourth and eighth grades decreased by three points as compared to 2019—the first significant reduction ever from already severely low proficiency scores. At fourth grade, the average reading score was lower than all previous assessment years dating back to 2005 and not significantly different in comparison to 1992.

At eighth grade, the average reading score was lower compared to all previous assessment years dating back to 1998 and not significantly different compared to 1992. In 2022, fourth- and eighth-grade reading scores declined for most states/jurisdictions compared to 2019 (NAEP, 2022).¹

¹ The 2022 Math scores were even worse. The average fourth-grade mathematics score decreased by five points and was lower than all previous assessment years going back to 2005; the average score was one point higher compared to 2003. The average eighth-grade mathematics score decreased by 8 points compared to 2019 and was lower than all previous assessment years going back to 2003. In 2022, fourth- and eighth-grade mathematics scores declined for most states/jurisdictions as well as for most participating urban districts compared to 2019. (NAEP, 2022)

As the below charts from the NAEP report show, reading scores began their decline *before* the COVID shutdowns.

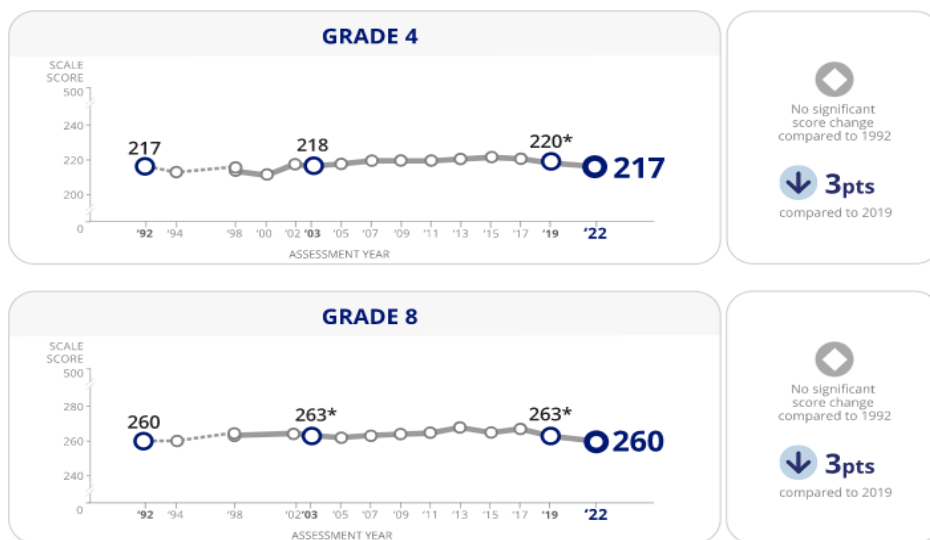


Figure 1. Trend in fourth- and eighth-grade reading average scores (NAEP, 2022)

Put in everyday terms, the state of affairs is even more shocking: more than two-thirds of fourth graders in the United States today are not proficient readers. The question immediately turns to “Why?” Why, despite massive investment at federal, state, and local levels specifically targeted to early education—and more specifically intended to help our nation’s youth learn to read—have we been essentially running in place for the last 30 years?

The answer lies in the “How.” How have we been instructing our young, emergent students in learning to read, and what type of intervention have we used with older students who read below grade level? For the last three decades, the dominant practice in our classrooms has been the “three-cueing method” of reading instruction, also known as the “whole language approach.”

These techniques are also known as MSV, an acronym that stands for the three sources of information: meaning, sentence structure, and visual (the letters). By focusing on the “whole language” rather than the decoding of words (phonics), MSV is supposed to promote a joy of reading—and may do so on its own in those who pick up reading naturally or with minimal systematic instruction. The fact remains, however, that reading scores have remained flat, and at a very low level, during the entirety of this period.

The Solution—The Science of Reading

It has been repeatedly demonstrated that, for the two-thirds of the population who do not pick up reading naturally, a systematic approach to decoding words is required. Phonics turns out to be central to that approach. The proper methodology does not ignore meaning and comprehension, it simply begins with explicit instruction on foundational literacy skills: on phonemic awareness (hearing and manipulating the smallest units of sound that make up words) coupled with phonics (matching letters and spelling patterns to sounds). Decades of research have proven that most students require this type of explicit, systematic instruction in order to become fluent readers.

The systematic approach that encompasses all of this, as well as fluency, vocabulary, and comprehension, is known as the science of reading.

For 50 years, a wide body of research has demonstrated the superiority of the science of reading for the majority of people who will not read proficiently without it. In 1975, Keith Stanovich set out to demonstrate the efficacy of the whole language approach developed in 1967 by Ken Goodwin, to focus on words and context rather than phonemic awareness. Instead Stanovich’s research definitively demonstrated the opposite: “It was the poorer readers, not the more skilled readers, who were reliant on context to facilitate word recognition. The skilled readers could instantly recognize words without relying on context.” The struggling readers had no choice but to rely on the “cues” because they could not read the words. This inability is self-reinforcing—the frustration continues through school and into adulthood (Stanovich, K. E., & Stanovich, P. J., 1995). Stanovich’s findings have been repeatedly confirmed in the 50 years since (Kim, 2008; Stanovich, 2016; Høien, Lundberg, Stanovich, & Bjaalid, 1995; Allen, Cipielewski, Stanovich, 1992). Acknowledging this reality, 29 states and the District of Columbia have passed new legislation or implemented policies mandating the science of reading and related evidenced-based methodologies since 2022 (Schwartz, 2022).

Hooked on Phonics Methodology

The *Hooked on Phonics* method delivers engaging, explicit, systematic phonics instruction through an approach based on current science of reading (SoR) best practices. Instruction is cumulative and organized in a sequence that enhances learning and simplifies teaching. We start with phonological and phonemic awareness, in which each individual sound of the English language is explicitly taught along with the letter(s) that represents the sound. Building phonological awareness is a good predictor of later reading success or difficulty.

Five phonetic skills are taught to help students recognize short and long vowel patterns in words and syllables. Decoding skills are presented to show students how to decode multisyllabic words.

Multisensory Instruction

Our multisensory approach, including videos, interactive games, e-books, printed material, and manipulatives enhances learning and memory by engaging auditory, visual, and kinesthetic modes during instruction. Throughout the course of instruction, students are provided with engaging activities for practice and application of the skills learned.

Multisensory teaching links listening, speaking, reading, and writing to reinforce learning of the language structure through active student engagement. Multisensory learning involves the simultaneous use of visual, auditory, and kinesthetic-tactile modalities to enhance memory and learning of written language (Farrell & Sherman, 2011).

Multisensory techniques were first used in the mid-1920s by Dr. Samuel Orton, who was influenced by the kinesthetic teaching method described by Grace Fernald and Helen Keller. Later, Anna Gillingham and Bessie Stillman published a manual describing a structured, sequential, and multisensory teaching method based on Dr. Orton's theories, creating what is now known as the Orton-Gillingham multisensory approach to instruction (International Dyslexia Association, 2009).

In a number of research studies, multisensory instruction is proving to be more effective than traditional instruction in the areas of phonemic awareness, decoding skills, and reading comprehension (Carreker et al., 2005; Carreker, Neuhaus, & Swank, 2007; Foorman, Francis, Shaywitz, et al., 1997; Joshi, Dahlgren, & Boulware-Gooden, 2002). In one study on the development of literacy-related skills, second and third graders who received an Orton-Gillingham-based, synthetic phonics (i.e., part-to-whole) approach outperformed children who received a combined synthetic/analytic (i.e., part-to-whole/whole-to-part) phonics approach or a sight-word approach (Foorman, Francis, Beeler, et al., 1997).

Hooked on Phonics was designed to teach and support emergent readers in pre-kindergarten to second grade and can also be used to improve reading skills of older students, those with special needs, English language learners, and others that did not master reading during early grade school.

Research-Driven Approach

This overview of research outlines the way our method relates to each of the five pillars of effective reading instruction as identified by the National Reading Panel (NRP; National Institute of Child Health and Human Development [NICHD] in 2000). Research has consistently demonstrated over five decades that the use of explicit phonics instruction is successful with various types of learners, including emerging readers (kindergarten through third grade), struggling readers (fourth through twelfth grade), adult learners, students with dyslexia and other special needs, and English language learners.

Elements of effective reading instruction as reported by the National Reading Panel (NICHD, 2000) are well established in literature. Empirical studies confirm that instruction that builds phonemic awareness, decoding skills, text-reading fluency, vocabulary, and comprehension is the best antidote for reading difficulty (Fletcher, Lyon, Fuchs, & Barnes, 2007; Foorman & Moats, 2004).

Instruction delivered through *Hooked on Phonics* not only helps prevent reading difficulty by establishing necessary foundational skills for all learners, but also provides a remedy for readers who struggle with the task of decoding. Mastery of the concepts taught in our program empowers students with the ability to successfully decode the vast majority of words they encounter in printed text. Instruction in this method also enhances other areas of reading development.

The National Reading Panel identified five key concepts at the core of every effective reading instruction program: Phonemic Awareness, Phonics, Fluency, Vocabulary, and Comprehension.

Phonemic Awareness

Phonemic awareness is the ability to identify and manipulate phonemes (individual sounds) in spoken words (Liberman, Shankweiler, Fischer, & Carter, 1974) and is one of the best predictors of reading success (Langenberg, 2000; Muter, Hulme, Snowling, & Taylor, 1997; Stuart & Masterson, 1992). Phonemic awareness instruction does not require the use of printed words or letters. However, a meta-analysis conducted by Bus and van IJzendoorn (1999) revealed that programs combining graphemes (letters) with phonemes (sounds) during instruction were more effective than phonemic awareness training alone. Phonemic awareness is necessary for all readers to be successful, although it is only a beginning step in learning to read (NICHD, 2000).

In best practices, phonological and phonemic awareness is addressed prior to phonics instruction, including these seven areas of phonemic awareness: rhyming, syllable counting, initial sounds, blending, final sounds, medial sounds, and segmentation.

The *Hooked on Phonics* method provides explicit instruction in the 44 sounds of the English language. As each phoneme (sound) is instructed, the grapheme (letter or letter combination) that represents each sound is explicitly taught, strengthening phonemic awareness and laying the foundation for fluent decoding.

Phonics

Proficient reading is the ability to identify individual words quickly and accurately (Adams, 1990; Ehri, 1998; Perfetti, 1985; Rayner & Pollatsek, 1989; Snow, Burns, & Griffin, 1998). This is sometimes referred to as reading by sight. Mastery of letter-sound correspondences aids in the successful identification of words.

Phonics is a method of instruction that teaches students the relationships between written letters and spoken sounds and guides them in how to use this knowledge to fluently read and spell words.

Prevention and intervention studies support the explicit teaching of patterns and rules for successful decoding and spelling as opposed to whole-word memorization (Berninger, 2000; Berninger et al., 2005; Ehri, 2004; Felton, 1993; Foorman, Francis, Beeler, Winikates & Fletcher, 1997; Scalon & Vellutino, 1996; Torgeson, 2000; Torgeson, Wagner, & Rashotte, 1997).

Students who are taught to blend sounds to form words learn letter-sound correspondences more quickly, strengthen phonemic awareness, increase automaticity in word reading, and improve spelling and comprehension skills significantly beyond their chronological ages (Johnston & Watson, 2006).

Phonics instruction is most effective when it is explicitly taught and systematically organized in a sequence that moves from simple to complex (NICHD, 2000). The *Hooked on Phonics* program explicitly teaches the structures of words in the English language. In a sequential fashion, each of the 44 sounds in our language is taught along with the letter(s) that represents that sound. Students are immediately taught to blend together sounds to decode and encode words. Five phonetic skills are taught to help students quickly and accurately read and spell words with short and long vowel patterns. Two decoding skills provide students with strategies to decode multisyllabic words.

The instruction in the *Hooked on Phonics* method is explicit, systematic, and cumulative. Skills taught in the program progress from simple to complex. Students are given multiple practice opportunities to read and spell words from each lesson, allowing for mastery of the current skill before the next one is introduced. A particular emphasis is placed on transferring skills to connected text through the process of reading decodable and complex sentences, passages, and books.

Fluency

Fluency is defined as the speed of decoding gained as one masters the alphabetic code (Stanovich, 1980). Phonics instruction initiates the development of decoding ability and word reading accuracy, both of which improve a student's ability to recognize words with automaticity. With practice and repeated exposure to print, fluency develops and improves (NICHD, 2000). When fluency is fully developed, accuracy, rate, and expression function well, and attention can be allocated to comprehension (Wolf & Katzner-Cohen, 2001).

Throughout the *Hooked on Phonics* program, students are given multiple opportunities to develop reading fluency. As students master the written code of English, they more quickly decode and encode a growing number of words. Within each lesson, particular emphasis is placed on transferring skills to connected text through the process of reading and rereading sentences, passages, and books.

Vocabulary

Vocabulary is a storehouse of known meanings used to comprehend and communicate. It has a strong correlation to overall reading comprehension (NICHD, 2000).

Prior to reaching the middle grades, children can understand more words than they can read. Reading comprehension can be expressed as the product of phonics skills and listening comprehension (Lane & Contesse, 2022). In time, vocabulary knowledge increases as more words are learned from reading than from listening to spoken language (Nagy & Anderson, 1984).

Phonics bridges the gap between spoken words that students know and written words that students may not recognize. The ability to accurately decode words enables students to learn new words they encounter in print. The more students analyze, read, and write the same words, the stronger the memory, and the faster the recognition (Ehri, 2004).

The *Hooked on Phonics* reading system not only allows for accuracy in reading and spelling words, but also addresses word meaning and usage. Words that are introduced during direct instruction are encountered by students in the context of a sentence in over 100 fully illustrated eBooks, with a “read to me” option. The stories feature the just-learned words, leading to reading success.

As teachers instruct students using our method, those students will be empowered with the skill to accurately decode known and unknown words they encounter in text, giving them the opportunity to add to their reading and speaking vocabularies.

Comprehension

Though phonics instruction is necessary for students who are learning to read, teaching phonics is a means to an end. The purpose of phonics instruction is to teach students to recognize words automatically and fluently so they can attend to comprehending the text (Adams, 1990; Stahl, 1992). Essential tools for reading comprehension are general language comprehension skills and accurate, fluent, word-reading skills (Gough, 1996; Torgesen, 1998; Snow et al., 1998).

About 80% of the variance in the reading comprehension scores of first graders can be attributed to the ability to sound out new words. This ability is also a good predictor of reading comprehension skill in fourth grade (Foorman, Francis, Shaywitz, Shaywitz, & Fletcher, 1997; Juel, 1994). Aaron, Joshi, and Williams (1999) found that weak word-reading skills were the primary cause of poor reading comprehension in third grade students. After at-risk readers learn necessary decoding skills, improvements are observed in all reading skills, including passage comprehension (Foorman & Schatschneider, 2003). Reading comprehension is not likely to occur when effort is expended on sounding out each word (Shankweiler et al., 1999). Torgesen (as cited in Hasbrouck, 2010) stated that “there is no comprehension strategy that compensates for difficulty reading words accurately and fluently.”

Teachers who teach using the *Hooked on Phonics* method provide students with the foundational skills necessary to read for meaning and enjoyment. Throughout the *Hooked on Phonics* instruction, students develop automatic word recognition, learn the meanings of new words, and increase their ability to fluently read increasingly complex text, all of which are necessary components for reading comprehension—which is the ultimate goal of reading.

Spelling

Spelling is not considered one of the five pillars of the science of reading; however spelling instruction supports and goes hand-in-hand with reading (Moats, 2005/2006). Accurate spelling indicates that students know the sounds of language as well as the letter or letter combinations that represent each sound.

Students who do not have sufficient knowledge of phonics struggle with reading and spelling (Ehri, 2000; Fayol, Zorman, & Lete, 2009). Automaticity in reading and spelling requires repeated exposure to letter-sound patterns of the language delivered through explicit phonics instruction (Robbins, Hosp, Hosp, & Flynn, 2010).

When reading (decoding) and spelling (encoding) are taught together, students have more practice applying common patterns. Converging evidence shows that integrated encoding and decoding instruction results in significant gains in multiple areas of reading, including word reading skills, fluency, and comprehension (Graham & Hebert, 2010; Weiser & Mathes, 2011).

Spelling instruction and decoding instruction is provided through *Hooked on Phonics'* sister program *Hooked on Spelling*. Students are able to put this knowledge to use as they learn spelling patterns for single words and syllables. As students become more knowledgeable about the spelling patterns in the English language, their spelling improves.

The process of dictation is a central part of each direct instruction lesson. Students apply the skills they have learned by listening to and spelling each word the teacher dictates to them.

K-to-Third-Grade Learners

Reading is not naturally acquired in the same way speech is acquired (Adams, 1990; Adams & Bruck, 1993; Liberman, 1992; Liberman & Liberman, 1990; Perfetti, 1991; Pressley & Rankin, 1994). Effective instruction is necessary for the development of reading skills.

A converging body of research supports explicit and systematic phonics instruction for all students (Ehri, 2004; McCardle, Chhabra, & Kapinus, 2008; Carreker et al., 2005; Joshi et al., 2002; NICHD, 2000; Ryder, Tunmer, & Greaney, 2007). The National Reading Panel found that phonics instruction is most effective when taught from kindergarten to second grade and builds the foundation for reading success in later grade levels (NICHD, 2000).

Both beginning and struggling readers benefit from explicit phonics instruction (Aaron, Joshi, & Quatroche, 2008; Berninger & Wolf, 2009; Birsh, 2005; Fletcher et al., 2007). Such instruction can lead to significant success when intervening with at-risk readers in the early grades (Foorman & Schatschneider, 2003).

Strong phonics instruction can prevent reading failure in many young children and alleviate the effects of poor instruction at any age (Lyon et al., 2001). Researchers now conclude that roughly 95% of first-grade students can be taught to read at a level limited only by their abilities to reason and understand spoken language (Hatcher, Hulme, & Snowling, 2004; Mathes, et al. 2005). In the words of Maryanne Wolf (2007), "Today, we possess sufficient knowledge about the components of reading to be able not only to diagnose almost every child in kindergarten at risk of a learning difficulty but also to teach most children to read" (p. 21).

Hooked on Phonics was created for pre-K to 2nd grade tier 1 instruction. The explicit, systematic, direct instruction provides a solid foundation for students who are, at this age level, "primed" for literacy instruction. The multisensory approach keeps students engaged and strengthens learning and recall. Our program can be delivered to a whole class, a small group, one-on-one, and by the student outside of class on his or her own. *Hooked on Phonics* provides effective instruction for all beginning readers as well as for students who need intervention. Our program can be utilized across grade levels.

Interactive software is available to supplement direct instruction and provide individualized practice and reinforcement of each skill. The program also includes learning materials specific to younger learners, such as decodable readers for each skill lesson. Assessment is administered throughout the program to monitor student progress as well as identify students in need of intervention.

Fourth-Grade-to-Adult Learners

Researchers estimate that one out of 10 adolescents has serious struggles with word identification (Curtis & Longo, 1999), which is a problem that usually stems from difficulties with phonological word analysis (Kamil, 2006; National Institute for Literacy [NIFL], 2007). For such students, *Hooked on Phonics* can be used for tier 2 and tier 3 intervention and recovery.

In a study conducted with 346 adolescent readers, Deshler, Hock, and Catts (2006) investigated which reading skills adolescents had mastered and which skills they had not. After analyzing several reading assessments, the researchers found that struggling adolescent readers who performed at or below the 40th percentile "need intensive word-level interventions in addition to comprehension interventions" (Deshler et al., 2006, p. 21).

Such word-level interventions should include decoding and word recognition. Further investigation reveals that over half of the struggling adolescents in urban schools struggle with word-level reading (Hock et al., 2009). They, along with many other reading researchers, conclude that adequate skills in word-level reading, as suggested by the National Reading Panel (NICHD, 2000), must be developed if proficient reading is to be achieved (Connor, Morrison, & Underwood, 2007; Leach et al., 2003; Curtis & Longo, 1999; Deschler et al., 2001; Lovett, Barron, & Benson, 2003; Penney, 2002).

Hooked on Phonics can be used to improve reading skills of older students, those with dyslexia and other learning disabilities, English language learners, and others that did not master reading during early grade school.

Dyslexic Learners

Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties usually result from a phonological processing deficit and are often unexpected in relation to a student's other cognitive abilities. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge (Lyon, Shaywitz, & Shaywitz, 2003).

Seventy-four percent of children who struggle with reading in third grade remain significantly below grade level in ninth grade (Francis, Shaywitz, Stuebing, Shaywitz, and Fletcher, 1996). However, intensive, systematic, code-based reading interventions rewire the brain and yield significant gains in fluency and comprehension no matter the student's age (Shaywitz et al. 2004). If children who are dyslexic receive systematic, code-based instruction before third grade, they will have significantly fewer problems in learning to read at grade level (Lyon, 1996; Shaywitz, 2003; Shaywitz, et al., 2004).

The *Hooked on Phonics* program has been successfully used anecdotally with students diagnosed with dyslexia. The multisensory instructional approach strengthens modalities (e.g., visual, auditory, and kinesthetic-tactile) that may not have been sufficiently developed in the brain while simultaneously supporting modalities that are more developed. Our method can be used with dyslexic students and adults of any age.

English Language Learners

Phonics instruction is also effective for students and adults learning English. Although phonics has historically not been an area of emphasis in second-language reading, several researchers and educators suggest that the teaching of phonics skills is an effective approach to teaching the foundational skills necessary for literacy development (Anderson, 2008; Birch, 2002; Jones, 1996; Fish et al., 2007). Jones (1996) asserts that “the question should no longer be whether to teach phonics as part of adult ELL instruction, but how this might be done most effectively” (p.2).

English language learners with limited oral vocabularies benefit from early decoding instruction. In one study, English language learners receiving explicit instruction in phonemic awareness and phonics did just as well as native English speakers who received the same instruction and significantly outperformed English speakers who did not receive such instruction (Morgan & Willows, 1998).

Hooked on Phonics has been used with English language learners of all ages. Students learning English benefit from the explicit focus on each of the sounds in English. In addition, as they progress through the program, English language learners learn that the spelling of English is largely predictable and consistent. Vocabulary development is robustly supported in our program for students learning English. For older students, supplemental language instruction materials are available for direct instruction.

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