Structured Literacy

Applying the Science of Reading in the Classroom

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ALL FOR LITERACY

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Introduction

Structured Literacy is an approach to teaching oral and written language based on the science of how children learn to read. In a Structured Literacy program, reading skills are taught in a logical order that is beneficial for all students, especially those who are struggling. It's important to understand the difference between the science of reading and Structured Literacy: the science of reading refers to the accumulated evidence from gold-standard research on reading acquisition and instruction (Reyna, 2004; Seidenberg, 2017), whereas Structured Literacy is reading instruction that applies the science of reading to classroom practice.

The Science of Reading → **Structured Literacy**
Evidence   Application

Structured Literacy is a fairly new practice in the reading world. Coined and trademarked by the International Dyslexia Association, the term was intended to differentiate reading instruction or programs that are truly informed by the science of reading from those that claim to be but are not. As cognitive scientist Mark Seidenberg cautioned in 2019, it is important to safeguard the term so administrators and educators understand the importance of science-based reading instruction that is both comprehensive and thorough.

The Hallmarks of Structured Literacy Instruction

After the Reading First program was mandated under the 2002 No Child Left Behind Act, a lot of reading approaches and programs claimed to be research-based, evidence-based, or science-based to qualify for federal funding. Still today, there are approaches and programs that profess to be informed by the science of reading, but cherry-pick the evidence to accommodate certain beliefs. That's why we need a term like Structured Literacy to provide differentiation among reading programs and instructional approaches. The two critical hallmarks of Structured Literacy instruction are that it 1) teaches all the components that evidence has found to be foremost in ensuring reading success and 2) employs principles that align to the necessity of each component.

The Components—What to Teach

Structured Literacy is not just about phonics. The Simple View of Reading (Gough & Tunmer, 1986; Hoover & Gough, 1990) proposes that reading comprehension is **the product of decoding** (or word recognition) **and linguistic comprehension** (or language comprehension). This serves as a framework for understanding and identifying Structured Literacy instruction. Because inefficiency in one component may lead to overall reading failure, Structured Literacy instruction includes both of the critical components and their underpinning components, as outlined below. These components distinguish Structured Literacy as being informed by the science of reading.

Decoding	**X**	**Linguistic Comprehension**	**=**	**Reading Comprehension**
• Phonology		• Syntax		
• Orthography		• Semantics		
• Morphology		• Pragmatics		
		• Discourse		

✳ **Because inefficiency in one component may lead to overall reading failure, Structured Literacy instruction includes both of the critical components and their underpinning components.**

Decoding

Translating printed symbols on a page into their spoken equivalents is known as decoding. In other words, when we segment the sounds of the letters C, A, T and blend them to make the word *cat*, we are decoding. The ultimate goal of decoding is to free cognitive resources to focus on the meaning of what is being read. As students achieve fluent reading, decoding instruction remains essential only for students who are not fluent readers. The underpinning components of decoding are *phonology*, *orthography*, and *morphology*.

Phonology:
The speech sound system of language is known as phonology. The phonology of English comprises approximately 44 speech sounds, or phonemes.

The Science of Reading

Evidence

Phonological and phonemic awareness are necessary components in learning to read (National Institute of Child Health and Human Development [NICHD], 2000), to the extent that early instruction can prevent reading failure (Snow, Burns, & Griffin, 1998). In fact, the ability to detect, think about, and manipulate phonemes is particularly predictive of reading success (Bradley & Bryant, 1983; Liberman & Liberman, 1990; NICHD, 2000). Ninety percent of students who struggle with decoding have a core deficit in the phonological component of reading (Blachman, 1995).

Structured Literacy

Application

- Students in pre–K through grade 1 engage in phonological awareness tasks at an oral level to say, detect, match, and produce rhyming words; blend words into sentences and syllables into words; and segment sentences into words and words into syllables.

- Subsequently, students in grades K through 2 and struggling readers in any grade engage in phonemic awareness tasks that require blending phonemes into spoken words and segment spoken words into phonemes.

Orthography:

The writing system of language is known as orthography. The orthography of English consists of 26 letters that—singly or as groups (e.g., *th*, *ng*, *tch*)—represent the 44 phonemes in written words. Decoding begins with an understanding that spoken sounds are represented by letters (i.e., the alphabetic principle).

The Science of Reading

Evidence

Proficient reading comprehension relies on automatic associations of sounds and letters (Gough & Tunmer, 1986; Hoover & Gough, 1990). Well supported by research, instruction that matches sounds to letters or groups of letters (i.e., *phonics*) develops accurate decoding and spelling skills (Ehri, 2014; NICHD, 2000; Tremain, 2018). Repeated exposure to letter patterns when reading and spelling words builds letter patterns and words in memory, so words can be instantly recognized (Ehri, 2014). In addition to letter-sound patterns, instruction that aids students in determining where long words divide into syllables and how vowels in syllables are pronounced is beneficial to fluent reading. When reading is effortless, cognitive resources are available for the reader to focus on meaning (Perfetti, 1985).

Structured Literacy

Application

- Students in grades K through 2 learn the reliable and frequently recurring patterns required to match sounds to letters or groups of letters (e.g., digraphs, diphthongs).

- Beginning in grade 1, students are taught the six orthographic syllable types—closed, open, silent-*e*, vowel-*r*, vowel pairs, and consonant-*le*—that facilitate the accurate recognition of monosyllabic and multisyllabic words.

- In grades 1 through 3, students are taught the four major syllable division patterns in English: VCCV, VCV, VCCCV, and VV.

- Students in grades 1 through 3 learn reliable patterns for spelling sounds as well as spelling rules that determine when a letter needs to be doubled, dropped, or changed.

- Students in grades K through 3 read grade-appropriate texts aloud to build fluency.

Morphology:

The study of morphemes, or meaningful units of words—prefixes, roots, suffixes, and combining forms—is known as morphology.

The Science of Reading

Evidence

Knowledge of morphemes facilitates decoding and provides a springboard for vocabulary development (Adams, 1990). As morphology combines phonology, orthography, and meaning, it bridges the gap between alphabetic reading (i.e., word-level reading) and comprehension. The more a reader knows about morphemes, the easier it is to instantly recognize and comprehend the long words that comprise increasingly complex text (Goodwin & Ahn, 2013; Henry, 2018).

Structured Literacy

Application

- Beginning in kindergarten and extending beyond, students learn common prefixes (e.g., *un-*, *mis-*, *over-*), inflectional endings (e.g., *-s*, *-ing*, *-ed*), and suffixes (e.g., *-ful*, *-less*, *-ness*) that are primarily of Anglo-Saxon/Old English origin and are foundational in early reading.

- Students in grade 3 and beyond are taught Latin-based prefixes, suffixes, and roots and Greek-based combining forms that comprise literary and informational texts across upper elementary and secondary curricula.

As morphology combines phonology, orthography, and meaning, it bridges the gap between alphabetic reading and comprehension.

Language Comprehension

The ability to derive meaning from words, sentences, and texts at a listening level is referred to as language comprehension (Gough & Tunmer, 1986; Hoover & Gough, 1990). To derive meaning from words, the reader needs vocabulary, knowledge, understanding of sentence structures, and the ability to infer what the author is implying. That makes explicit, systematic, and cumulative instruction as important to the development of language comprehension as it is to the development of accurate and automatic decoding. The underpinning components of language comprehension include semantics, pragmatics, syntax, and discourse.

Semantics:

Semantics refers to the meanings and relationships of words. A reader's breadth and depth of vocabulary contributes to reading achievement.

The Science of Reading

Evidence

As the primary goals of reading and writing are determining and communicating meaning, it is important for students to understand the meanings of words and how words function in sentences (NICHD, 2000; Soifer, 2018). Effective vocabulary instruction focuses on grade-appropriate Tier 2 words because these have the greatest utility across the curriculum (Beck, McKeown, & Kucan, 2013). Additionally, because the majority of words in English have multiple meanings or shades of meaning, it is necessary for the reader to be flexible in determining the author's intended meaning of a word within a sentence (Castles, Rastle, & Nation, 2018).

Structured Literacy

Application

- Students in grades 3 and beyond continue instruction with Latin- and Greek-based morphemes.

- Students in pre-K through grade 8 are taught grade-appropriate Tier 2 words (e.g., *cover*, *author*, *title*, *compare*, *contrast*, *arrange*, *explain*, *fortunate*, *reluctant*, *coincidence*) through user-friendly definitions, multiple contexts, repeated exposures, and discussion.

- Students learn and explain shades of meaning and their connotations.

- Students learn and explain the literal and nonliteral meanings of similes, metaphors, and other figurative expressions.

Pragmatics:

The rules of conversation or discussion (e.g., eye contact, taking turns) and the use and interpretation of language in a particular context are referred to as pragmatics. Often called the "hidden curriculum," it should not be assumed that students understand the content of pragmatics, nor that they will intuit this on their own.

The Science of Reading

Evidence

When taught explicitly and systematically, pragmatics facilitates the social use of language, fluent reading, and comprehension. This component is particularly important for Emergent Bilingual students who are learning English, students with deficits in executive function, and students with developmental language disorder (Gordon-Pershey, 2018; Pershey, 1997).

Structured Literacy

Application

- Students in pre-K through grade 8 learn the rules of conversation that are commensurate with their grade level.

- Students learn how context—as well as tone of voice, facial expressions, gestures, and body language—aid the use and interpretation of oral communication that involves idiomatic expressions, metaphors, sarcasm, rhetorical questions, and hyperbole.

- Students learn how features of spoken language are imitated in print with dialogue, bolded words, italics, capitalization, and punctuation to aid comprehension.

When taught explicitly and systematically, pragmatics facilitates the social use of language, fluent reading, and comprehension.

Syntax:

Syntax refers to the order and relationships of words in sentences as well as the structure of sentences in oral and written language.

The Science of Reading
Evidence

The syntax component includes learning the parts of speech and the sentence structures that support reading comprehension and written composition. A reader's knowledge of pronoun references, verb tenses, and subject-verb agreement is predictive of reading comprehension (Foorman, Herrera, Petscher, Mitchell, & Truckenmiller, 2015; Foorman, Koon, Petscher, Mitchell, & Truckenmiller, 2015). Success with complex texts is dependent on a reader's understanding of sentences with multiple clauses, and particularly of the connective words that signal the relationships of clauses within and across complex sentences (Foorman, Koon, et al, 2015.; Friedberg, Mitchell, & Brooke, 2017).

Structured Literacy
Application

- Students in pre-K through grade 8 learn the parts of speech and the structures of sentences—simple, compound, complex, and compound-complex—that are commensurate with their grade level.

- Students learn pronoun reference, verb tenses, and subject-verb agreement.

- Students learn the words that connect clauses within and across sentences and how these words signal the relationship between and among clauses (e.g., additional information, comparison, contrast, cause, effect).

Discourse:

The organization of spoken and written communication is referred to as discourse. Students' proficiency in understanding words, phrases, and text at an oral and listening level predicts reading comprehension and writing proficiency.

The Science of Reading
Evidence

The use of multiple strategies develops metacognitive skills and proficiency in understanding the organization of written communication. Strategies include comprehension-monitoring, graphic organizers, question-answering and generation, cooperative learning, story structures, and summarization tasks (NICHD, 2000). Because developing a deep understanding of complex texts requires relating what is being read to what is already known, it is also important to spend instructional time boosting students' background knowledge through listening, reading, discussion, and writing (Adams, 1990; Willingham, 2006). The ability to make inferences that are implied by a text best differentiates students with good comprehension from students with poor comprehension at all ages (Cain & Oakhill, 1999) and can be taught explicitly (Oakhill & Cain, 2007; Yuill & Oakhill, 1988).
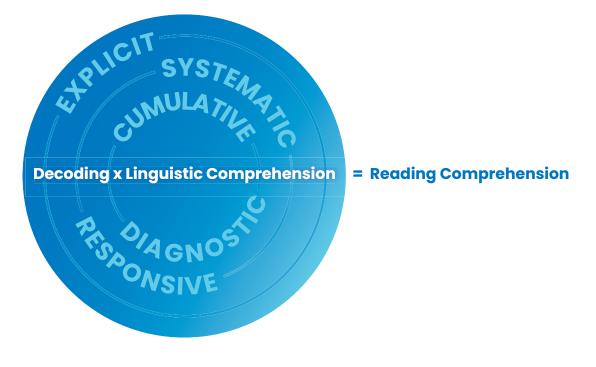
Structured Literacy
Application

- Students in pre-K through grade 8 generate questions as they listen or read to monitor their understanding and answer questions after they listen or read to check their comprehension.

- Students use graphic organizers to identify salient elements and features of different text structures and orally summarize texts that are commensurate with their grade level.

- Students increase their background knowledge by listening to or reading widely on one topic to build a body of knowledge and words that allow them to compare and contrast related topics in discussion and writing.

- Students learn how to integrate their background knowledge with information in a text to infer information that is not directly stated in the text.

The Principles—How to Teach

Structured Literacy instruction of all the aforementioned components across the grade levels is characterized by these principles: explicit, systematic, cumulative, diagnostic, and responsive (Birsh & Carreker, 2018; NICHD, 2000). These principles further distinguish Structured Literacy as being informed by the science of reading.

EXPLICIT SYSTEMATIC CUMULATIVE

Decoding x Linguistic Comprehension **= Reading Comprehension**

DIAGNOSTIC RESPONSIVE

- *Explicit* means that concepts and skills are directly taught and practiced. Do not assume that students will learn skills and concepts implicitly.

- *Systematic* refers to a logically ordered presentation of concepts and skills that progresses from simple to complex. A scope and sequence orders specific details about the concepts and skills to be taught, which align not only to state standards but also to reading science.

- *Cumulative* indicates that new learning is built on prior learning. As underpinning concepts and skills are taught and practiced to automaticity, students' knowledge continuously increases through the introduction of more complex concepts and skills.

- *Diagnostic* and *responsive* signify that students' instructional needs and strengths are identified, and instruction is designed accordingly. Students' progress is frequently monitored, with adjustments to instruction (e.g., more time, slower pace, smaller group size) made as needed.

The Hallmark of Structured Literacy Instructional Practice

The quintessential hallmark of Structured Literacy instruction in pre-K through grade 3 is the presence of the two critical components of reading comprehension—decoding and language comprehension—along with all their underpinning components and the instructional practice that aligns with the principles. The following table illustrates examples of classroom instructional practice that align or do not align with Structured Literacy.

Not Aligned	Aligned
To practice segmenting spoken words into syllables, a small group of kindergarteners works independently without teacher feedback. The students collect various items from the classroom and place them in a container. One student chooses an item and names it. The other students say the name and then clap out the syllables. Students take turns choosing items.	To practice segmenting spoken words into syllables, a small group of kindergarteners works with the teacher. The teacher says a word. The students repeat the word and then clap out the syllables, with the teacher scaffolding as needed. The teacher uses the word in a sentence. Words progress from two to four syllables in length.
Even though phonics is being taught, when students encounter an unfamiliar word while reading, they are encouraged to guess the word based on cues and confirm that their guess makes sense, fits the sentence, and/or looks right.	Phonics is being taught in a first grade classroom. When students encounter an unfamiliar word while reading with the teacher, they are encouraged to look at the word and look for letter patterns they have learned so they can accurately sound out the word. For example, students notice that a short word ends in *e* and determine that the vowel will be long when they sound out the word.
Invented spelling is encouraged to motivate students as writers and becomes the norm for acceptable spelling.	Invented spellings are used diagnostically to determine what a student knows and needs to know. As necessary, sound-letter patterns or rules are taught or retaught.
Spelling instruction is the memorization of lists of words that are organized around a common sound with multiple spellings, often with no indication of when to use each of the different spellings.	Because reliable spelling patterns and rules are explicitly, systematically, and cumulatively taught, students are able to sound out an unfamiliar word and match a best-bet spelling to each sound to spell the word correctly. Only words with spellings that do not conform to reliable patterns and rules are memorized (about 15% of words).
Without explicit, systematic, and cumulative instruction in grammar or syntax, students are encouraged to adjust their reading rate to demonstrate awareness of and accommodate multiple clauses in a sentence.	Students are explicitly taught how to identify clauses and the connective words (e.g., *but*, *so*, *because*) that join the ideas (e.g., *show additional information*, *comparison*, *contrast*, *cause*, *effect*) in two or more clauses within a sentence, which supports fluency, comprehension, and written composition.

Delivering Effective Instruction With the Help of Technology

The science of reading helps us understand how we acquire knowledge; Structured Literacy helps us turn that understanding into effective instruction. Teaching children how to read requires a deep understanding of the science behind how the brain learns to read and how skills like phonemic awareness and spelling contribute to comprehension.

Instructional tools based on the science of reading and Structured Literacy can help students comprehend and apply literacy skills. Based on the science of reading and Structured Literacy, Lexia's suite of offerings includes curriculum, assessment, and professional learning solutions.

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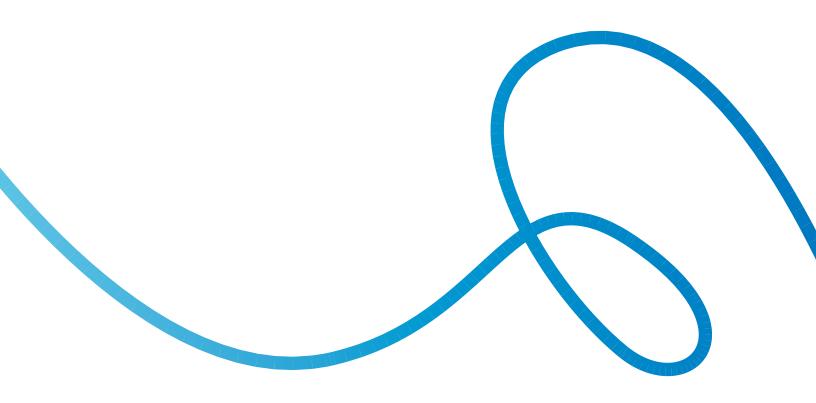
LETRS® (Language Essentials for Teachers of Reading and Spelling): a flexible literacy professional learning suite to help educators and administrators deliver reading Structured Literacy instruction

Summary

Structured Literacy instruction is informed by the science of reading, which is the only proven way to ensure students can become proficient readers and confident learners across the curriculum. Although this instruction is beneficial for all students, it is essential for students who are at risk for reading difficulties. By implementing the components, principles, and instructional practice that align to both the science of reading and Structured Literacy, administrators, teachers, and parents are assured that all students will receive the multifaceted literacy instruction they need for reading and academic success.

Find out how your school can follow the science of reading and Structured Literacy principles to deliver effective reading instruction to your students in our Structured Literacy webinar.

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