

DYSLEXIA, THE SCIENCE OF READING, AND STRUCTURED LITERACY: AN OVERVIEW

A Collaborative Panel Presentation
Just Read, Florida!
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PRESENTERS

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FOCUS OF THIS SESSION: PD

Who?

- Teachers, Administrators, Families, Faculty, Speech Pathologists, School Psychologists

What?

- Knowledge about Dyslexia

Why?

- The Science of Reading (research evidence)

How?

- Structured Literacy (application of the SoR)

TAKEAWAYS FOR TODAY

Professional Development is key!

Dyslexia: A language-based disability, neurobiological in origin, that affects phonemic awareness, word recognition, and spelling

The Science of Reading: vast, interdisciplinary body of scientifically-based research about reading and issues related to reading & writing

Structured Literacy: Content, Principles, and Strategies

Knowledge and Practice Standards for Teachers of Reading (KPS): See next slide

KNOWLEDGE & PRACTICE STANDARDS FOR TEACHERS OF READING (IDA, 2018)

The KPS sets forth the knowledge and skills that ALL teachers of reading are expected to possess to advance students' reading and writing profiles from a Structured Literacy approach in classroom, remedial, and clinical settings.

These standards reflect the current state of the scientific research base and are the result of a rigorous development and vetting process that included the input of a wide range of stakeholders, including researchers, educators, higher education faculty, clinical specialists, parents, and advocates.

Sharon Israel
&
Sue Sasko

DYSLEXIA

FACT OR FIB?

1. Seeing letters or words backwards is a characteristic of dyslexia.
2. Children can outgrow dyslexia.
3. Dyslexic parents are more likely than non-dyslexic parents to have children with dyslexia.
4. Dyslexia can be caused by a literacy-poor home environment (e.g., not reading to children).
5. One of the major reasons for dyslexia-caused difficulties is due to visual problems.

FACT OR FIB? (CONTINUED)

6. Individuals with dyslexia have difficulty with decoding / word recognition.
7. Dyslexia is a disability specific to the English language.
8. Children who are dyslexic tend to have lower IQ scores than children who are not dyslexic.
9. Dyslexia is a learning disability that affects language processing.
10. Children with dyslexia also have problems with spelling.

PREVALENCE

About 85% of all students with learning disabilities have a primary learning disability in reading and language processing.

Many more people— perhaps as many as 15–20% of the population as a whole—have some of the symptoms of dyslexia, including slow or inaccurate reading, poor spelling, poor writing, or mixing up similar words.

International Dyslexia Association

READING IS . . .

an extraordinary ability,

peculiarly human and yet

distinctly unnatural.

Dr. Sally Shaywitz, *Overcoming Dyslexia*, 2020, p.3

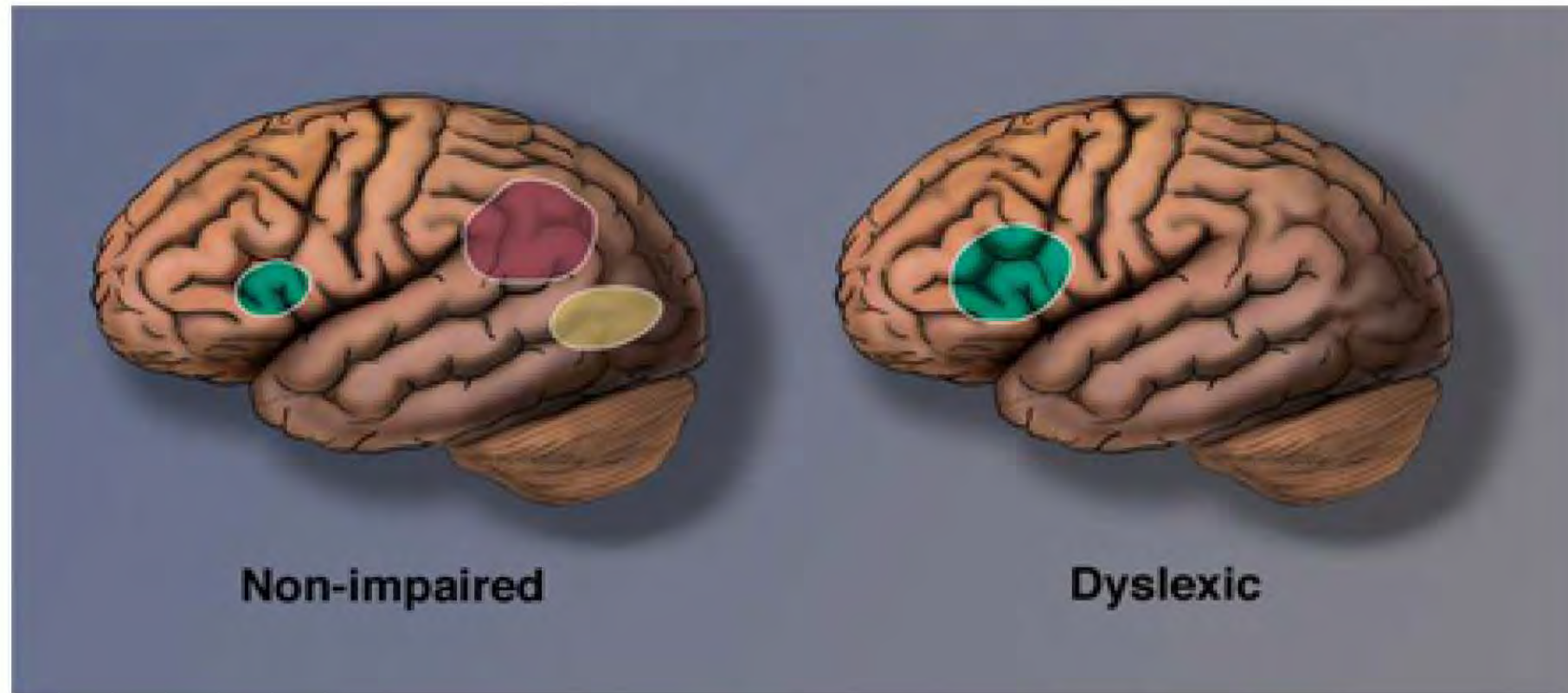
OUR BRAINS ARE NOT PRE-WIRED TO READ THROUGH EXPOSURE ALONE

Reading is not a skill that can be acquired automatically, like spoken language.

- Humans have used spoken language for 50,000-100,000 years. Our brains have become pre-wired to acquire spoken language through exposure alone.

Reading is different: humans have only been reading for about 5,000 years.

Neural Signature for Dyslexia: Disruption of Posterior Reading Systems



EARLY INTERVENTION IS CRITICAL

Results of longitudinal studies have shown that when intervention is delayed until 3rd grade or 9 years of age (the average age at which these children receive services), then approximately 74% of these children will continue to have difficulties learning to read through high school.

Children identified as reading disabled after 2nd grade rarely catch up to their peers.

American Academy of Pediatrics 2011



EARLY INTERVENTION IS CRITICAL

The best current approach to the problem of reading failure is to allocate resources for prevention and early identification.

Prevention and early phonological awareness intervention programs in Kindergarten through 2nd grade can increase reading skills in many poor readers to average reading levels.

Dr. Joseph Torgesen reviewed many studies on early intervention and found that when intervention began in the 1st grade, the expected incidence of reading disability of 12%-18% was reduced substantially to 1.6%-6%.

American Academy of Pediatrics, 2011

DYSLEXIA

What is dyslexia? dys-lexia

- dys—*difficulty*
- lexia—*with words*

Why define dyslexia?

- Clear up myths and misconceptions
- Link the public to information and resources
- Enable research on the value of educational treatments

DYSLEXIA DEFINITION IDA (2002)

Dyslexia is a specific learning disability that is **neurobiological in origin**.

It is characterized by difficulties with **accurate and/or fluent word recognition** and by **poor spelling and decoding abilities**.

These difficulties typically result from a **deficit in the phonological component of language** that is often **unexpected** in relation to other cognitive abilities and the provision of effective classroom instruction.

Secondary consequences may include **problems in reading comprehension and reduced reading experience** that can impede growth of vocabulary and background knowledge.

ANOTHER DEFINITION OF DYSLEXIA

A **heritable** learning disorder that involves difficulty reading due to problems identifying **speech sounds** and learning how they relate to letters and words (decoding). Also called reading disability, dyslexia affects areas of the brain that process **language**. (Mayo Clinic)

Dyslexia involves difficulty with RAN (rapid automatic naming). This is the ability to name letters, symbols, words, and objects in a quick and automatic manner. RAN is the ability to retrieve information rapidly and automatically without effort.



DYSLEXIA IS A FAMILY AFFAIR THAT
DOES NOT DISCRIMINATE.

. . . reading and its disorders are complex traits, requiring multiple cognitive and neural processes. These are mediated by interacting genetic and environmental factors, and are, to a large extent, intergenerationally transmitted from parents to offspring.

-Dr. Fumiko Hoeft

SIGNS AND SYMPTOMS OF DYSLEXIA

A lifelong disorder

Preschool to Adulthood

Preschool

- Family history of learning disorders
- Delayed speech as a toddler
- Difficulty with direction words
- Trouble recalling the right word
- Has not established a dominant hand
- Trouble with sequencing/following directions
- Difficulty learning letter sounds, the alphabet, numbers, days of the week, colors, shapes, how to spell their name
- Trouble clapping rhythm



K - 1ST GRADE

History of language impairment (expressive, receptive, pragmatic language disorders)

Family history of reading difficulty

Difficulty remembering directions

Poor phonological & phonemic awareness

Forgets letter names and can't recall them quickly

Difficulty learning letter sounds

Difficulty recognizing high frequency words

May develop frustration, anxiety, or complain of stomach aches or headaches

Poor working memory



2nd - 3rd Grade

Slow, labored, inaccurate decoding of words in isolation and in context

Great difficulty with spelling

Misreads, adds, or omits small function words & articles

May read word by word without expression

Difficulty with rote memorization such as times tables and abstract facts

Persisting letter reversals (b, d)

May guess based on picture, context, or beginning letter

Difficulty with segmenting, blending, and manipulating phonemes

May confuse voiced and unvoiced pairs (d/t, b/p, g/k)

May mix up sounds and syllables in long words (busgetti for spaghetti, mawn lower for lawn mower, pacific for specific)

Word substitutions – house for home/pony for horse



4th - 6th Grade

With Dyslexia

- Continued difficulty with oral reading fluency & accuracy
- Difficulty decoding novel & nonsense words
- Poor spelling, often including high frequency words
- Often spells the same word different ways within the same assignment
- Fatigues quickly when reading
- Avoids reading and writing
- Frustrated, may develop low self esteem
- Better listening comprehension than reading comprehension
- Skips or misreads suffixes



TWEEN AND TEEN YEARS

Reads slowly

May omit, substitute, or add small words and parts of longer words when reading aloud

Avoids reading aloud

May have reduced background knowledge and vocabulary

Over simplified written expression and a significant discrepancy between verbal and written expression

Difficulty learning foreign languages

Poor grades and in danger of dropping out of school, especially if retained

ADULTS WITH DYSLEXIA

Slow reader – may have to re-read for comprehension

May dislike or avoid reading, or simply take months to finish a book

Reading results in tiredness

May continue to struggle with organized, efficient written expression

May continue to have difficulty with spelling

Word retrieval problems continue

May use malapropisms, e.g., Rainy weather may be hard on the “sciences” (instead of sinuses).

SOCIAL AND EMOTIONAL CONSEQUENCES

Frustration, fear, anxiety

Learned/chronic helplessness

Avoidance behaviors/misbehaviors

Feelings of inadequacy, poor self-esteem

Language difficulties, memory weaknesses, and possible social immaturity can cause challenges with interpersonal communication.

POSSIBLE COMORBIDITIES

Dysgraphia = SLD in Writing/Disorder of Written Expression

Dyscalculia = SLD in Mathematics

ADHD/ADD

Language Disorders: Expressive, Receptive, Pragmatic
Developmental Language Disorder (DLD)

Speech Sound Disorder (SSD)

Giftedness: Twice Exceptional (2e), Dyslexia is unrelated to IQ

Dyspraxia = Developmental Coordination Disorder (DCD)

Auditory Processing Disorder (APD)

Sensory Processing Disorder (SPD)

Autism Spectrum Disorder (ASD)

DYSGRAPHIA & DISORDER OF WRITTEN EXPRESSION

Dysgraphia can adversely affect the fine motor skills needed to produce neat, legible writing. Letter formation, size, spacing, and positioning may be inaccurate. For a simulation, of these fine motor challenges, try writing NEATLY with your non-dominant hand.

Individuals with dysgraphia may need more time to process, slowing down to think about what they are writing. They have difficulty organizing their thoughts and keeping them in their working memory while composing. Dysgraphia can affect one's ability to produce complete, coherent written compositions with correct grammar.

Written compositions, including word selection, are much more basic than their oral expression.

PRESENT LEGAL REQUIREMENTS IN FLORIDA STATUTES

BASED UPON HOUSE BILL 7069 (2017)

Data retrieved from:

[http://www.fldoe.org/core/fileparse.php/7690/urlt/
Dyslexia-Dysgraphia-17.pdf](http://www.fldoe.org/core/fileparse.php/7690/urlt/Dyslexia-Dysgraphia-17.pdf)

“Taking a Closer Look at Dyslexia & Dysgraphia”

PROVIDE INTENSIVE, EXPLICIT, SYSTEMATIC, AND MULTISENSORY READING INTERVENTIONS IMMEDIATELY FOLLOWING THE IDENTIFICATION OF THE READING DEFICIENCY TO...

1) Students in K-3 with a substantial reading deficiency

The student's reading proficiency must be monitored, and the intensive interventions must continue until the student demonstrates grade level proficiency. 1008.25(5)(a).

2) A student who is promoted to grade 4 with a good cause exemption shall be provided intensive reading instruction and intervention that include specialized diagnostic information. 1008.25(6)(b)

3) Students retained in 3rd grade must be provided intensive interventions in reading to ameliorate the student's specific reading deficiency and prepare the student for promotion to the next grade. These interventions must include evidence-based, explicit, systematic, and multisensory reading instruction in phonemic awareness, phonics, fluency, vocabulary, and comprehension. 1008.25(7)(a)

Districts must allocate funds for remedial and supplemental instruction in the following priority:

- Students in K-3 with a substantial reading deficiency
- Students who fail to meet performance levels required for promotion 1008.25(3)

Provide training to reading coaches, classroom teachers, and school administrators in effective methods of identifying characteristics of conditions such as dyslexia and other causes of diminished phonological processing skills 1012.98(4)(B)(11)

The training must help teachers integrate phonemic awareness; phonics, word study, and spelling; reading fluency; vocabulary, including academic vocabulary; and text comprehension strategies into an explicit, systematic, and sequential approach to reading instruction.

s. 1012.585(3) F.S. • (f) An applicant for renewal of a professional certificate in any area of certification identified by State Board of Education rule that includes reading instruction or intervention for any students in kindergarten through grade 6, with a beginning validity date of July 1, 2020, or thereafter, must earn a minimum of 2 college credits or the equivalent Inservice points in the use of explicit, systematic, and sequential approaches to reading instruction, developing phonemic awareness, and implementing multisensory intervention strategies.

KINDERGARTEN

1002.69(2) ...concerning each student's readiness for kindergarten...data from the screening, along with other available data, must be used to identify students in need of intervention and support pursuant to s. 1008.25(5).

INSTRUCTIONAL MATERIALS: CORE and INTERVENTION

1011.67(2) Beginning July 1, 2021, for core reading materials and reading intervention materials used in kindergarten through grade 5, that the materials meet the requirements of

1001.215(8) evidence-based reading instructional and intervention programs that incorporate explicit, systematic, and sequential approaches to teaching phonemic awareness, phonics, vocabulary, fluency, and text comprehension and incorporate decodable or phonetic text instructional strategies.

Work with teacher preparation programs approved pursuant to ss. [1004.04](#) and [1004.85](#) to integrate effective, research-based and evidence-based reading instructional and intervention strategies, including explicit, systematic, and sequential reading strategies, multisensory intervention strategies, and reading in content area instructional strategies into teacher preparation programs.

Kelly Farquharson
&
Jesse Steif

SCIENCE OF READING

The Science of Reading is a **vast, interdisciplinary body of scientifically-based research** about reading and issues related to reading and writing.

WHAT IS THE
SCIENCE OF
READING?

(PETSCHER ET AL., 2020;)

WHAT IS THE SCIENCE OF READING (SOR)?

(PETSCHER ET AL., 2020;)

SOR represents:

- Over 5 decades of global research
- Thousands of multi-linguistic studies, including randomized-control trials
- Evidence regarding how skilled reading develops (and sometimes why it doesn't)
- Guidance for how to effectively assess and teach reading

WHAT IS THE SCIENCE OF READING (SOR)?

(PETSCHER ET AL., 2020;)

SOR is NOT:

- A philosophy or trend
- A one-size-fits-all approach
- A program
- Based solely on phonics

SIMPLE VIEW OF READING (SVR)

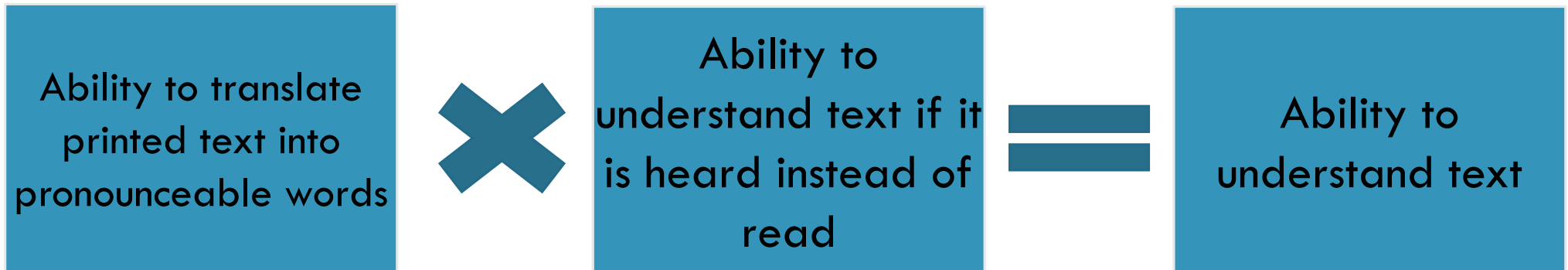
(CATTS, HOGAN, & FEY, 2003; CATTS, HOGAN, & ADLOF, 2005; GOUGH & TUNMER, 1986; HOOVER & GOUGH, 1990)



(Hogan, Adlof, & Alonzo, 2014, p. 200)

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SVR – OVER TIME

(GOUGH & TUNMER, 1986)

Word recognition



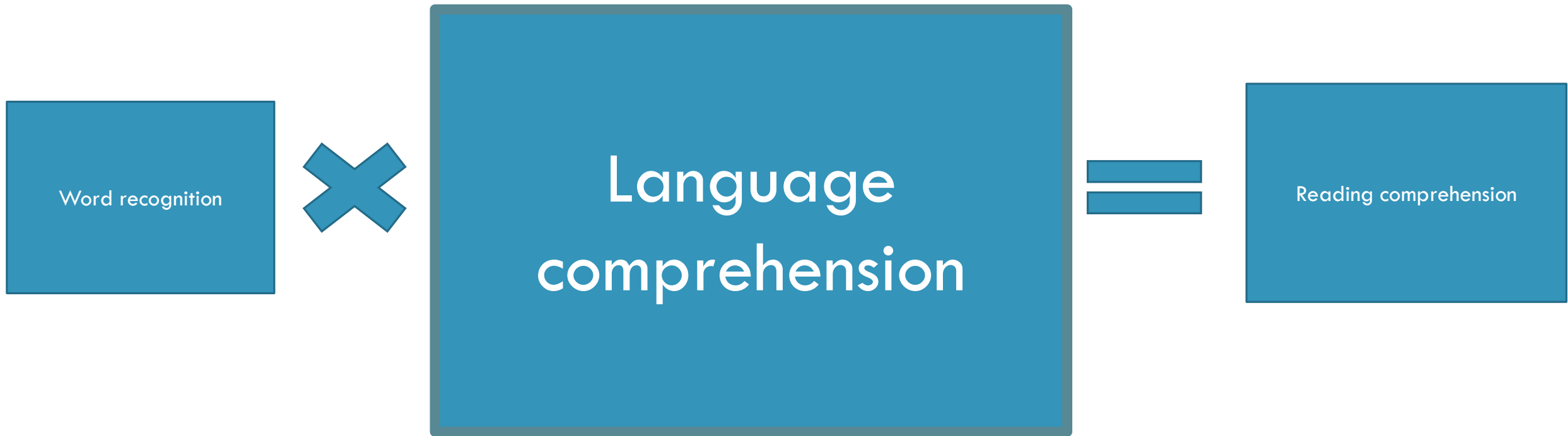
Language comprehension



Reading comprehension

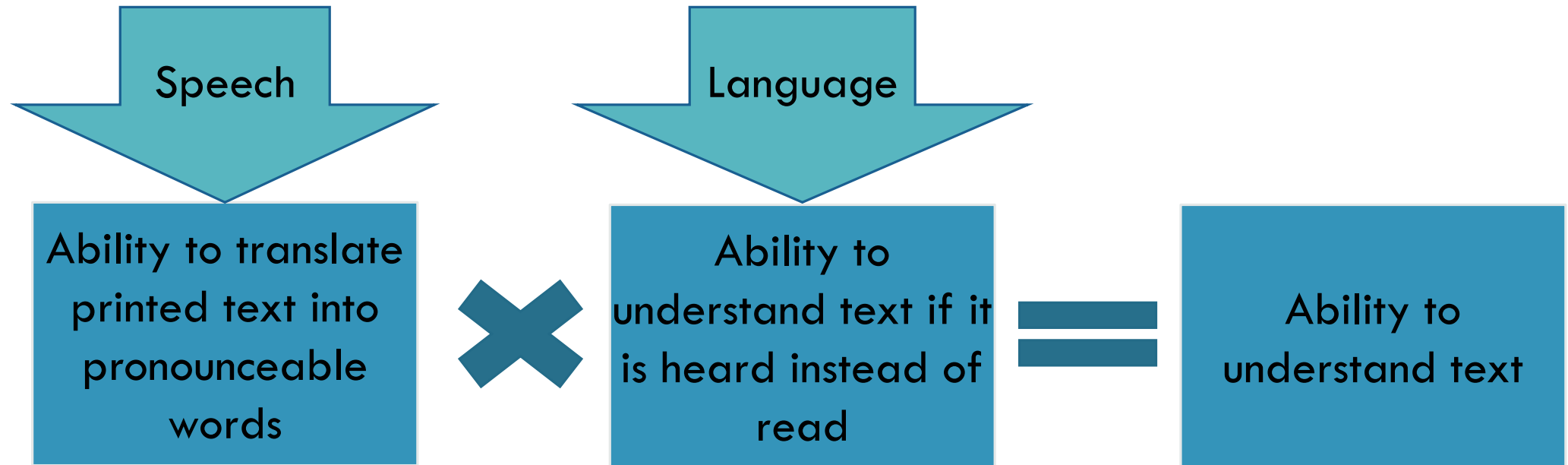
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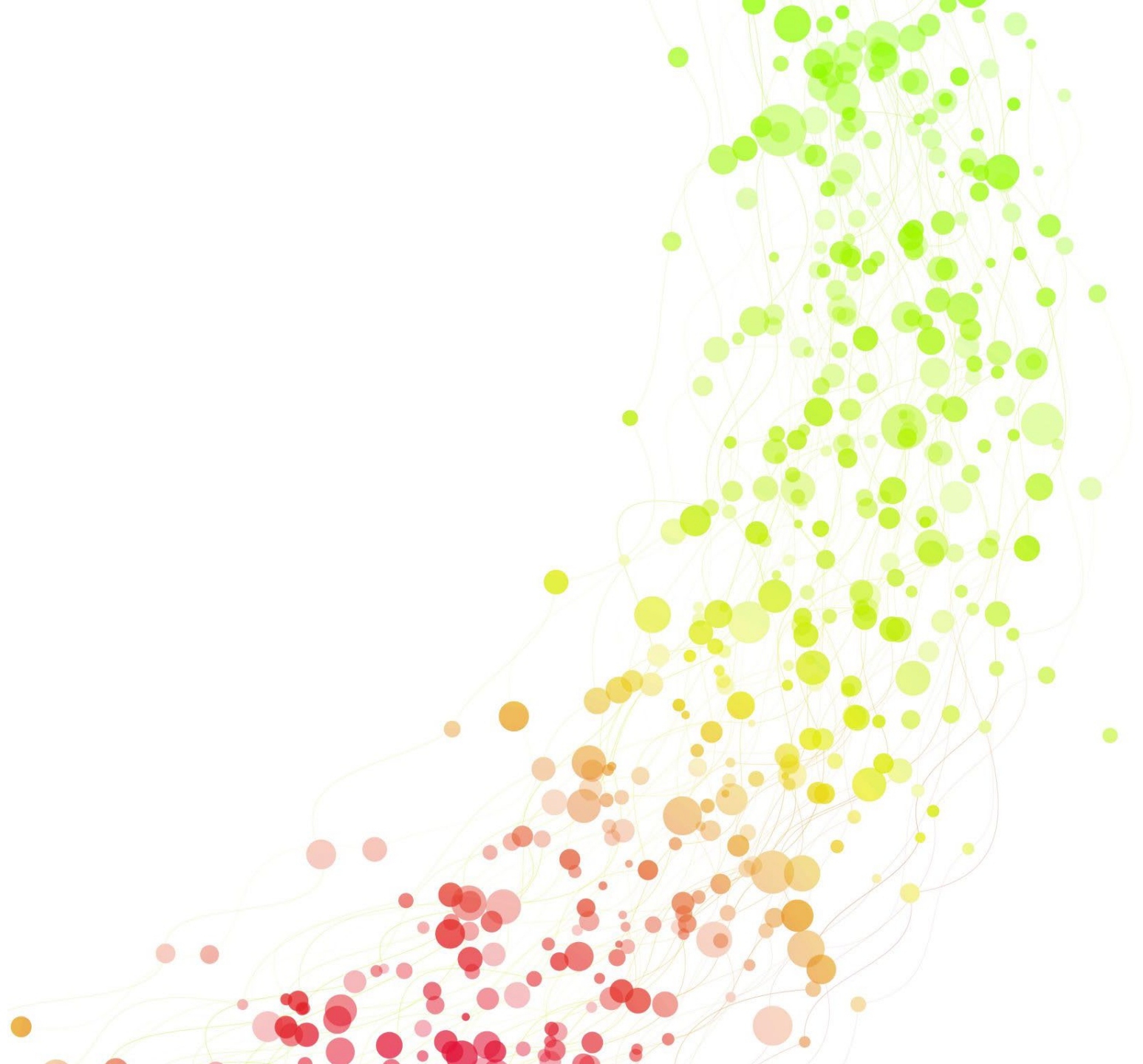
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IS IT THAT
SIMPLE?



Language Comprehension

- Background Knowledge
- Vocabulary Knowledge
- Language Structures
- Verbal Reasoning
- Literacy Knowledge

Increasingly
Strategic

Skilled Reading

Fluent execution and coordination of word recognition and text comprehension.

Word Recognition

- Phonological Awareness
- Decoding (and Spelling)
- Sight Recognition

Increasingly
Automatic

Scarborough, H. 2001. Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. Pp. 97-110 in S. B. Neuman & D. K. Dickinson (Eds.) *Handbook of Early Literacy*. NY: Guilford Press.

FRAMING THE WORK

30-60%*- Will learn to read fluently via most literacy approaches. Many kids will learn to read fluently via any reading approach

40-70%- Requires explicit phonological awareness training and foundational skills instruction to read fluently



** Population-level estimates vary depending on several factors**

10-15% Must receive structured literacy-based approach

THE DISCONNECT BETWEEN RESEARCH AND PRACTICE: A SYSTEMIC ISSUE

The skills needed for proficient reading have been known to researchers across many fields for several decades.

- There is often very little communication between researchers and “on the ground” teachers and other practitioners.
- Teachers are operating in good faith with the knowledge that they’ve been given in their teacher training programs and via their employers.

THE DISCONNECT BETWEEN RESEARCH AND PRACTICE: A SYSTEMIC ISSUE

The mark of the proficient word reader is the ability to quickly store new written words in memory so that they are automatically and effortlessly retrieved when reading.

- We know lots about how this process works but misconceptions abound.
- Many popular reading programs around the country are based on inaccurate theories of how words are learned and stored in memory.
- This is problematic since one's conception about how words are recognized and stored in memory is what dictates how words are taught.

HALLMARKS OF SKILLED READING

Context-free, accurate, and immediate word recognition
(Kilpatrick, 2015)

- Relies on a process called “orthographic mapping” or the process by which sequences of letters (words) are stored in memory for instant, effortless retrieval when reading.
- Skilled single-word recognition does not require context! Context is helpful when identifying some unknown words and is helpful with word meanings.
- We know this is true because when we see a familiar word, areas of the brain responsible for orthography and phonology activate sooner than areas responsible for semantics (meaning).

HALLMARKS OF SKILLED READING

The primary contributor to reading fluency is the size of one's sight word lexicon.

- Sight word lexicon- pool of words one is able to identify accurately and automatically without having to decode.

Oral Reading fluency is **highly** correlated with comprehension

- Fluency correlation with comprehension- .91 (Fuchs, Fuchs, Hosp, & Jenkins, 2009)
- Fluency is correlated more strongly with comprehension than oral retell (0.7)
- Oral reading fluency is as good or better of a predictor of overall risk than many of our other ubiquitous school-based assessments.
- “First, foremost, and forever, the foundation of fluency is accuracy!”
- Jan Hasbrouck

HALLMARKS OF SKILLED READING

In “typically developing readers” linguistic comprehension accounts for increasing amounts of variance in reading comprehension as students become increasingly accurate and fluent readers. (Catts, 2018)

- Linguistic comprehension is generally comprised of students’ vocabulary, background knowledge, verbal reasoning skill, knowledge of syntax/text structure, and general expressive/receptive language.

After approximately 3rd grade, skilled reading comprehension is largely determined by linguistic comprehension in students without basic skills difficulties.

Linguistic comprehension is vastly more complex than word-level reading skill and continues to grow and evolve over time throughout childhood and into adulthood.

HOW SIGHT WORD LEARNING (ORTHOGRAPHIC MAPPING) REALLY HAPPENS

ORTHOGRAPHIC MAPPING

Sight words are highly familiar spellings (i.e., letter sequences), regardless of the visual look of the word.

Letter sequences are “anchored” in long-term memory via a connection in the brain between the word’s pronunciation and the letter sequence in the word’s spelling

- The phonemes in a word’s spoken pronunciation are the “parking spots” for the letters. Phonemic awareness is like “the glue” which allows letters to stick in one’s memory

ORTHOGRAPHIC MAPPING

Phonemic segmentation/analysis and letter-sound skills are central to this connection-forming process

- Difficulties with either skill lead to problems with storing the word.
- Phonemic segmentation/analysis and letter-sound acquisition are hallmark difficulties associated with Dyslexia. Dyslexia can be characterized by difficulties with orthographically mapping words.

ORTHOGRAPHIC MAPPING

“The evidence shows that words are read from memory when graphemes are connected to phonemes. This bonds spellings of individual words to their pronunciations along with their meanings in memory. Readers must know grapheme–phoneme relations and have decoding skill to form connections, and must read words in text to associate spellings with meanings.” (Ehri, 2020)

Students must have proficient phonemic awareness and decoding skills in order for orthographic mapping to occur! Ample exposure and practice in text is also a critical component in order to ensure high “lexical quality” (Perfetti & Hart, 2002)

Orthographic mapping is not the same as rote memorization of whole words without reference to the phoneme-grapheme properties of the word.

**SOME KEY
INSTRUCTIONAL
IMPLICATIONS OF THE
SCIENCE OF READING FOR
STUDENTS WITH DYSLEXIA**

Highly effective approaches for students with Dyslexia eliminate phonemic awareness deficits, systematically teach and reinforce phonics and phonemic decoding skills, and provide for ample opportunity to read and practice within connected text.

(Kilpatrick, 2015)

INSTRUCTIONAL IMPLICATIONS

- Phoneme awareness does not naturally develop in children as spoken language does. Explicit instruction is necessary for most students, particularly for those with Dyslexia.
- Phonological sensitivity skills (sentences, syllable and onset-rime level) do not appear to be pre-requisites for phonemic awareness. (Hulme, Hatcher, Nation, Brown, Adams & Stuart, 2002)
- Phonemic awareness instruction is most effective when connected with letters in the context of a synthetic phonics approach. (Brady, 2021)
- Phonemic awareness deficits can be remediated *relatively* quickly with effective, explicit instruction. Studies suggest a “ceiling effect” after about 12 hours of PA instruction, after which gains in reading likely result from instruction in phonemic decoding and increased orthographic mapping (Truch, 2004; Kilpatrick, 2015).

INSTRUCTIONAL IMPLICATIONS

- Phonological awareness instruction, combined with instruction that connects the phonological segments to letters, enables more children to master early decoding than programs that lack these components (Blachman, 2019)
- Teaching phonemic awareness in isolation is certainly not enough to remediate students with Dyslexia.
- Synthetic phonics appears to be marginally more effective than analytic phonics or embedded, implicit phonics approaches and should be provided at tier 1 for K-2 and for struggling 3-12 readers who have decoding difficulties. (Johnston & Watson, 2004, 2012, Brady, 2021)

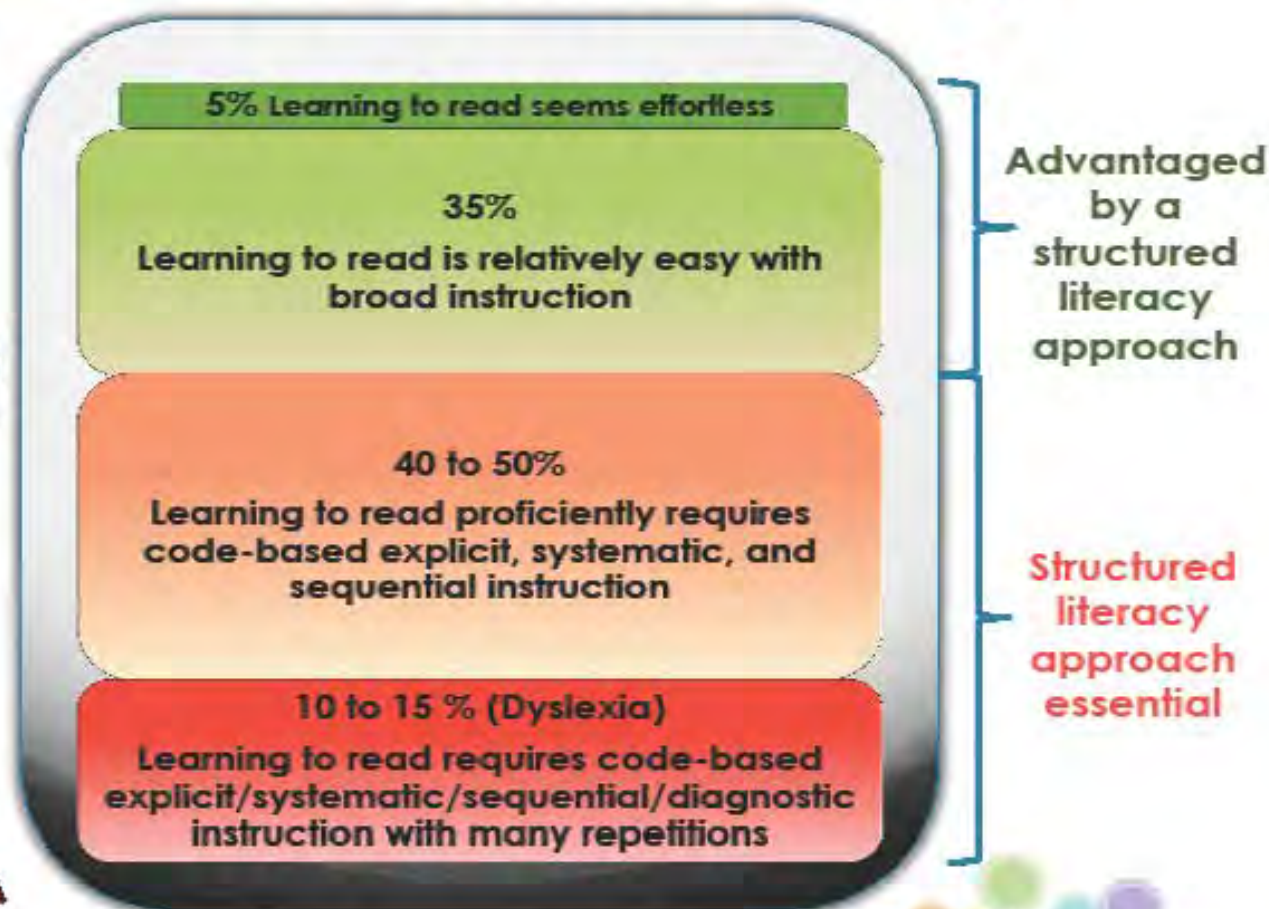
INSTRUCTIONAL IMPLICATIONS

- Gains in rate tend to lag behind gains in accuracy and spelling in children with dyslexia who have received intensive explicit, systematic intervention after 2nd grade.
- Overall fluency gaps are much smaller or nonexistent in students whose basic reading skills were remediated prior to 3rd grade.
- There is no “statute of limitations” after which instruction in the word reading strand of the SVR will be ineffective.
 - Students should not be shifted to a “whole word memorization” approach if they exhibit continued difficulties with word reading.
 - More fine-grained phonemic analysis is needed at the word-level, not less as a whole word memorization approach would entail.

Judith Cohen

STRUCTURED LITERACY

The Ladder of Reading



© N. Young, 2012 (Updated 2020)

Artwork by Dean Stanton

(Lyon, 1998; NRP, 2000; IDA, 2015; Hempenstall, 2016)

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Reading
Spelling
Writing

STRUCTURED LITERACY: WHAT IS IT?

The application of The Science of Reading!

The most effective approach for students who experience difficulty learning to read and spell printed words.

Refers to both the content (elements) and methods (principles) of instruction.

Benefits ALL students, but is **vital** for students with dyslexia.

(Moats, Spring 2019, *Perspectives on Language and Literacy*)

STRUCTURED LITERACY: WHAT DOES IT DO?

Teaches oral and written language skills in an explicit, systematic, multisensory manner.

Integrates listening, speaking, reading, and writing.

Emphasizes the structure of language across the speech sound system (**phonology**), the writing system (**orthography**), the structure of sentences (**syntax**), the meaningful parts of words (**morphology**), the relationships among words (**semantics**), and the organization of spoken and written discourse.

STRUCTURED LITERACY: ELEMENTS (CONTENT)

P-S-S / M-S-S

Phonology . . . Phonemic awareness

Sound-symbol . . . Alphabetic Principle

Syllables . . . Syllable types & division

- Align with the SVR and Reading Rope: **Word Recognition**

Morphology . . . Base words and affixes

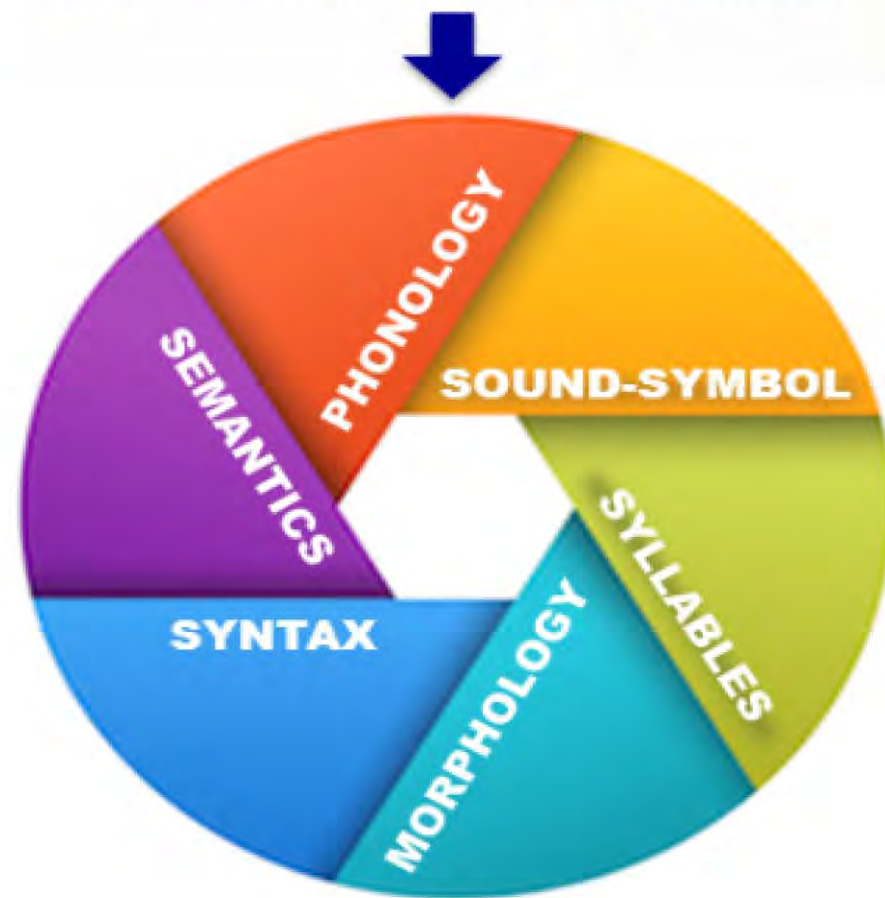
Syntax . . . Grammar, sentence structure

Semantics . . . Meaning, comprehension

- Align with the SVR and Reading Rope: **Language Comprehension**

STRUCTURED LITERACY PRIMER

**Structured Literacy's
ELEMENTS work together.**



Structured Literacy's
Evidence-Based Elements

Phonology (study of sound structure of spoken words) is a key element of Structured Literacy Instruction. **Phonemic awareness** (ability to distinguish / segment / blend / manipulate sounds relevant to reading/spelling) is central to phonology.

Sound-Symbol Association Once students develop phoneme awareness, they must learn the **alphabetic principle**—how to map phonemes to letters (**graphemes**) and vice versa.

Syllables Knowing the six syllable / vowel grapheme types helps readers associate vowel spellings with vowel sounds. Syllable division rules help readers divide / decode unfamiliar words.

Morphology A **morpheme** is the smallest unit of meaning in language. Studying base elements and affixes helps readers decode and unlock the meanings of complex words.

Syntax—the set of principles that dictate the sequence and function of words in a sentence—includes grammar, sentence structure, and the mechanics of language.

Semantics Semantics is concerned with meaning. The Structured Literacy curriculum (from the start) includes instruction in the comprehension and appreciation of written language.

STRUCTURED LITERACY: PRINCIPLES (METHODS)

Explicit

- Intentional, direct teaching; teacher–student interaction
- Multi-modal: visual, auditory, kinesthetic, tactile (VAKT) in activities directly related to reading and writing (e.g., saying and feeling the word in your mouth, while reading and writing the word)

Systematic & Cumulative

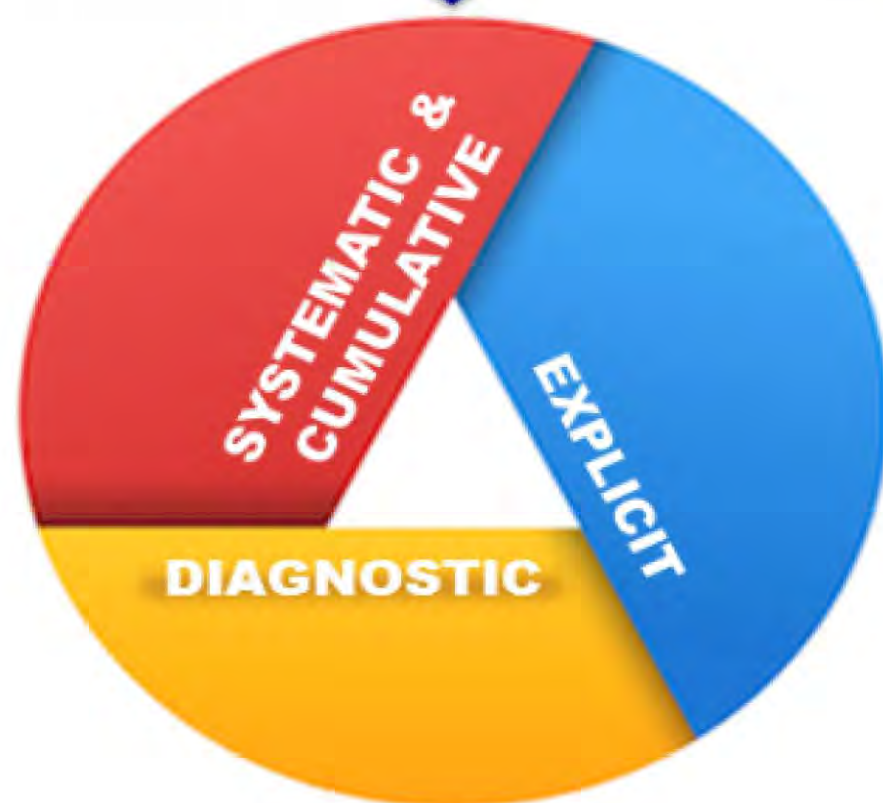
- Organization of materials follows a logical order.
- Each step is based on concepts previously learned.

Diagnostic

- Teacher must be able to individualize instruction based on careful and continuous assessment.

STRUCTURED LITERACY PRIMER

These PRINCIPLES guide how Structured Literacy's elements are taught.



Structured Literacy's
Evidence-Based Teaching Principles

Systematic & Cumulative

Structured Literacy teaching is systematic and cumulative. **Systematic** means that organization of material follows the logical order of language. The sequence begins with the easiest and most basic concepts and elements and progresses methodically to the more difficult. **Cumulative** means each step is based on concepts previously learned.

Explicit Structured Literacy instruction requires direct teaching of concepts with continuous student-teacher interaction and does not assume students deduce concepts. (While **multisensory teaching** lacks the extensive research validating Structured Literacy's other teaching principles, decades of clinical results support efficacy of simultaneous association of auditory, visual, and kinesthetic-motor modalities for enhancing memory and learning in students with dyslexia.)

Diagnostic Teachers must be adept at individualizing instruction (even within groups) based on careful and continuous assessment, both informal (e.g., observation) and formal (e.g., with standardized measures). Content must be mastered to the degree of automaticity needed to free attention and cognitive resources for comprehension and oral/written expression.

PHONOLOGY

The study of the sound structure of spoken words

The science of speech sounds

The rule system within a language

The speech-sound system of a language



PHONOLOGICAL AWARENESS

Refers to all levels of awareness of the sounds and syllables heard in oral language, including Phonemic Awareness.

Sensitivity to the sounds of language: words, syllables, and sounds (phonemes).

Understanding of the different ways that oral language can be divided into smaller components and manipulated.

Includes: words, rhymes, syllables, onset-rime, and phonemes (phonemic awareness)

PHONEMIC AWARENESS

Awareness of the individual sounds that make up words and the ability to manipulate those sounds in words.

Phoneme: The smallest unit of sound that distinguishes the meanings of spoken words.

44 sounds in the English language

25 consonant sounds

18 vowel sounds + schwa: ə

PHONEMIC AWARENESS

A developmental hierarchy of skills

isolation: first sound of mat = /m/

identity: same sound in bag, ball, bus = /b/

categorization: which is “odd?”? milk, mop, cat = cat

blending: /s/ /ŭ/ /n/ = sun

segmentation: mat = /m/ /ă/ /t/

manipulation:

addition: add /m/ to the beginning of at = mat

deletion: say play without /l/ = pay

substitution: change the /ă/ in bat to /ō/ → boat

reversal: say **might** backwards → time



HOW MANY SOUNDS DO
YOU HEAR?

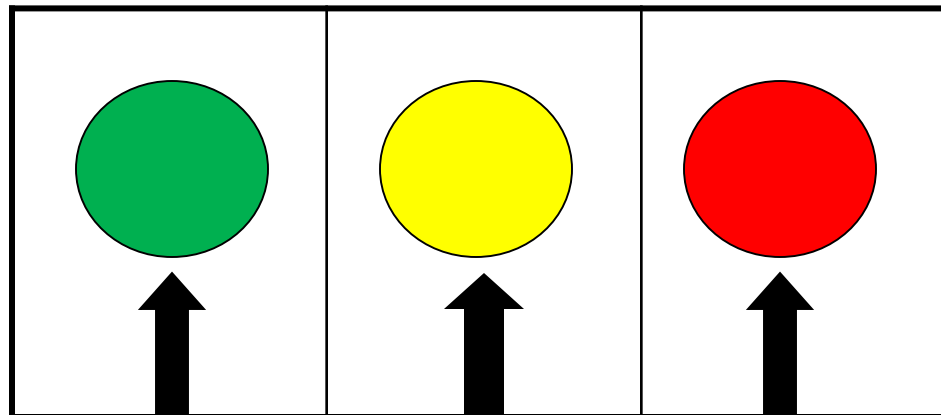
in the word box?
in the word enough?
in the word scratch?

* Can you say enough
backwards?

ELKONIN BOXES

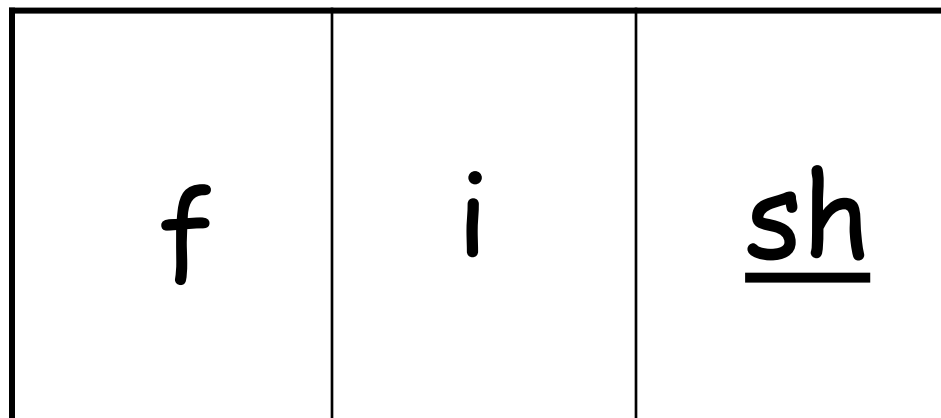
Students slide counters into boxes to represent the sounds they hear in a word - “push and say”

(Phonemic awareness)



Gradually, letters can be used to show how print matches speech: sound to letter (speech to print)

(Phonemic decoding)



ORTHOGRAPHY

The writing and spelling system of a language.

The system in which the sounds (phonemes**) of a language are represented by written or printed symbols (**graphemes**) to spell words.**



WHAT IS THE ALPHABETIC PRINCIPLE?



the *systematic* and *predictable* relationship between the letters of written language and the sounds of



the way print matches speech



the relationship between phonology and orthography



also known as the alphabetic code

SOUND- SYMBOL ASSOCIATION



Single consonants – continuants first (m, s)



Short vowels – in closed syllables



Consonant blends – st, cr, bl, -mp, -nd, . . .



Long vowels – in silent e and open syllables



Consonant digraphs – sh, ch, th, wh, ph



Vowel digraphs – “double vowel talkers”



Vowel diphthongs – “double vowel whiners”



Vowels followed by r – “bossy r” syllables

PHONEME-GRAPHEME MAPPING

mat	m	a	t		
strap	s	t	r	a	p
three	th	r	ee		
punch	p	u	n	ch	
bright					

SYLLABLES



Six basic syllable types



Structure of our language
85-88% regular



Alphabetic code

VOWEL PATTERN CHART

(SYLLABLE TYPES)

<u>Closed</u> cat fish bub-	<u>Open</u> me go ta-	<u>Silent e</u> ride cape hope
<u>Bossy r</u> star corn her girl tur-	<u>Vowel Teams</u> (Double Vowels) <u>Talkers</u> <u>Whiners</u> boat boy meat clown play paw pie moon	<u>C+le</u> ta - ble bub - ble tur - tle

SYLLABLE DIVISION

C+le: tur/tle



bossy r & C+le

VC/CV: rab/bit



closed & closed

V/CV: ti/ger



open & bossy r

VC/V: cam/el



closed & closed

V/V: li/on



open & closed

STRATEGY FOR SYLLABICATION

“Spot and dot” the vowels

Connect the dots

Look at the number of consonants between the vowels


If 2 – break between the consonants

If 1 – break before the consonant

If it doesn't sound right, move over one letter

YOUR TURN

Atlantic
professor
entertainment
accommodate




Try to divide these words, using the Spot & Dot strategy.

YOUR TURN

Atlantic	At / lan / tic
professor	pro / fes / sor
entertainment	en / ter / tain / ment
accommodate	ac / com / mo / date

This strategy helps spelling, too!!



Try to divide these words, using the Spot & Dot strategy.

MORPHOLOGY

Study of meaningful units of language and how they are combined to form words.

Study of base/root words and affixes (prefixes and suffixes)

Morphemes are the smallest units of meaning in a word.

salamander = 1 morpheme

boys = 2 morphemes

photographer = 3 morphemes

ROOT WORDS AND AFFIXES

Prefix

un

re

in

Base/Root

friend

heat

spect

Suffix

ly

ed

or

Use manipulatives, color-highlight,
or draw a box around affixes:

prefix = green; suffix = red

SYNTAX



The sequence or order of words in a sentence



The function of words



Grammar



Sentence structure



Mechanics of language

SYNTAX - SENTENCES

Subject + Predicate

The dog ran.

Read a short passage and ask Ss to put these words in order to answer the question:

Where did the big dog run?

big park dog ran the to The

The big dog ran to the park.

SEMANTICS



words

Meaning in sentences

text

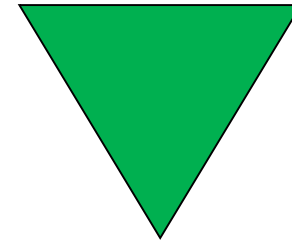


Comprehension of written language

SEMANTICS / COMPREHENSION

Beginning

Setting, characters, problem



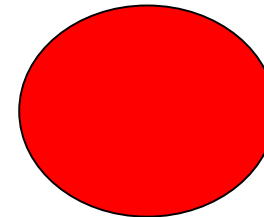
Middle

4 main events



End

Solution



(Dr. Carrice Cummins)



WHY?

When students have the
MEANS

to conquer the code,
they will reach the

GOAL,

and master the meaning!

(E. Judith Cohen)





A MESSAGE FROM DR. ANITA ARCHER

Our message to teachers is critical at this time:

To have equality and equity, we must provide quality instruction to ALL students every year, every day, every period, every moment.

That is our moral imperative.

IN THE WORDS OF MAYA ANGELOU,

“Do the best you can until you know better. Then, **when you know better, do better.**”

Our challenge: To provide *Structured Literacy* - based on the *Science of Reading* - in EVERY classroom!

We know better . . . it's up to us to
DO BETTER!





THE END!

Thank you for
your kind attention!

Please feel free to
contact us for
further
information!

QUESTIONS



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