# Measuring and Supporting Language Skills to Increase Reading and Writing Aptitude

Suzanne M. Adlof
sadlof@mailbox.sc.edu
@SuzAdlof




@SCROLL Lab

1

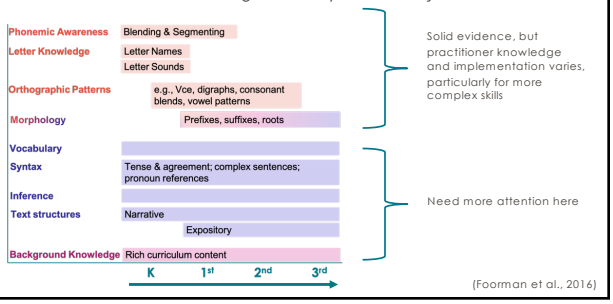
## Recap

- Language is the foundation for all school learning, and especially developing proficiency in reading and writing
- Language difficulties are common, but often missed or identified late
  - 7% of kindergarteners have developmental language disorder (DLD)
  - ~ 2/3 of children with DLD not identified for clinical, educational services
  - Children with seemingly "late-emerging" *reading* problems usually show a history of earlier language difficulties
  - Language difficulties go unnoticed because they are not being directly measured
- The language of text is more complex than that of conversation
  - Classroom talk usually falls in between these
  - Even those with "typical" language skills experience difficulty in demanding situations
- **Measuring and supporting language skills in all students will help promote strong reading and writing for all.**

2

## Evidence-Based Reading Instruction

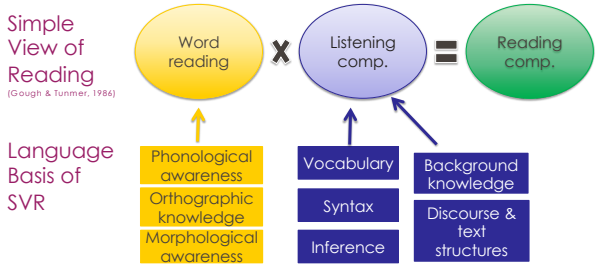
*Addresses both word reading and comprehension from the start*




(Foorman et al., 2016)

3

## Language Basis of Reading (and Writing) Development

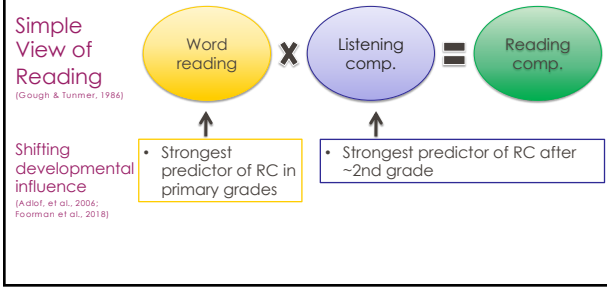



4

## Definitions

- **Phonological awareness** – ability to reflect on and manipulate the speech sounds in spoken words
- **Orthographic knowledge** – knowledge of how spoken language is represented in print; English uses an alphabetic orthography where letters represent sounds
- **Morphological awareness**– awareness of how the smallest meaningful units of language (morphemes) can be combined to make words, and how those combinations influence the spelling of words
- **Vocabulary** – knowledge of word meanings
- **Syntax** – knowledge of how words and phrases can be combined to make meaningful and grammatical sentences

5




6

## Simple View of Reading

(Gough & Tunmer, 1986)




Linked to different disorders that frequently co-occur

(Adlof, 2020; Adlof & Hogan, 2018; Catts et al., 2005; Ehrhorn et al., 2021; Snowling et al., 2020)

- Weak in children with **dyslexia**
- Weak in children with **developmental language disorder (DLD)**

7

Language develops automatically, but reading must be taught.

*About language development: "there is almost no way to prevent it from happening, short of raising a child in a barrel" (Pinker, 2009)*

8

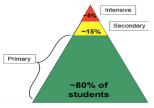
## Differences in development reflected in school frameworks

| | Language | Reading |
|---|---|---|
| **Development** | From birth<br><br>Incidental learning through meaningful interactions | From ~age 4+<br><br>Focus of school instruction |
| **Identification of difficulties** | Relies on noticing<br><br>Referral to SLP for assessment (screening or diagnostic evaluation) | Directly monitored in schools<br><br>Multiple personnel involved in screening, progress monitoring, diagnostic evaluation |
| **Support services** | Provided by SLP to those who are deemed eligible<br><br>ELL supports for children learning English as an additional language | Teacher is responsible for core instruction in Tier 1<br><br>Multiple personnel involved in provision of support, intervention for students "at risk" and those deemed eligible for special education |

Adlof (2020)

9

## Multi-tiered Systems of Support




National Center on Intensive Intervention
https://intensiveintervention.org

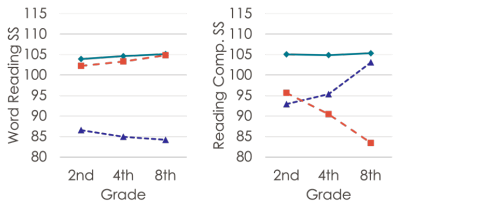
**Prevention-oriented, whole-school framework**

- Tier 1: All students receive high quality evidence-based instruction
- Universal screens and progress monitoring assessments are used to "catch them before they fail"
- Tier 2: Students "at risk" receive additional supports and closer monitoring
- Tiers 3+: Increased intensity of intervention and frequency of assessment; which may lead to an IEP
- Shared responsibility for students' literacy development among school personnel; less separation between general and special education

10

## Reading comprehension difficulties that seem late to emerge are linked to early oral language weaknesses

(Catts, Adlof, & Weismer, 2006)



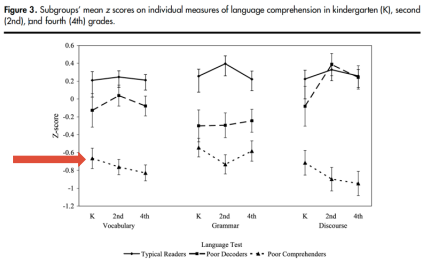

3 groups classified based on 8th grade scores in Word Reading and Reading Comprehension

- Typically Developing
- Poor Decoders
- Poor Comprehenders

11

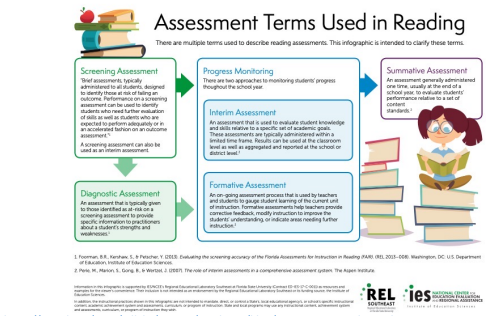
## Reading comprehension difficulties may appear late to emerge; but they are linked to early oral language weaknesses

(Catts, Adlof, & Weismer, 2006)


Figure 3. Subgroups' mean z scores on individual measures of language comprehension in kindergarten (K), second (2nd), and fourth (4th) grades.



12



https://ies.ed.gov/ncee/edlabs/regions/southeast/blog/2020_03_06_early_reading_terms.asp

13

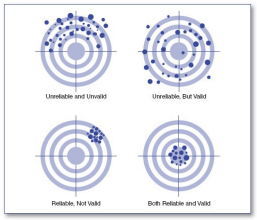
## What is Screening?

- ***Brief*** measure that is ***highly predictive*** of later outcome
- Useful tool to identify children who might otherwise be missed
- Sorts individuals into (1) those that need closer attention, and (2) those who do not
  - –What to consider
    - Feasibility of administration, scoring, interpretation
      - –Cost, time, personnel constraints
    - Psychometric properties
      - –Reliability
      - –Validity

14

## Evaluating Screening Tools

- Reliability: How consistent is it?
  - Consider consistency across administrators, testing occasions, and items of the test
  - Are all the items equally "good"?
- Validity: How accurate is it?
  - Does it measure what we think it measures?
  - Does it distinguish between high and low performers within our population?



https://methods.sagepub.com/book/the-practice-of-survey-research/i977.xml

15

## Evaluating Screening Tools

Classification Accuracy

| | |
|---|---|
| **Sensitivity**<br>How accurately does my screen classify children who have DLD?<br>Goal: > 80% | **Specificity**<br>How accurately does my screen classify children with typical language abilities?<br>Goal: > 80% |
| **False Negative Rate**<br>How many children with DLD does my screen miss?<br>Goal: < 20% | **False Positive Rate**<br>How many children with typical language abilities does my screen flag?<br>Goal: < 20% (sometimes < 33% is accepted) |
| **Negative Predictive Value**<br>Probability that a patient with a negative (normal) test result does not have the disease<br>= 1 – False Negative Rate | **Positive Predictive Value**<br>Probability that a patient with a positive (abnormal) test result actually has the disease<br>= 1 – False positive rate |

16

## Dyslexia Screening

- Family history of reading, language, or learning disabilities
- Phonological awareness
- Alphabet knowledge
- Letter sound knowledge
- Rapid automatic naming
- Non-word repetition
- Vocabulary
- Word recognition fluency (after some instruction)

17

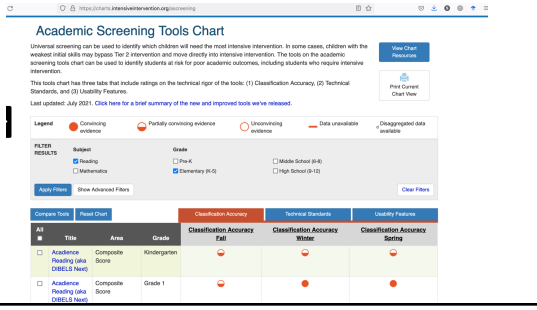
## What a Screening is NOT

- Required for diagnosis in every situation
  - –If you know a child is struggling, you can move on to evaluation
  - –RTI/MTSS process cannot be used to delay or deny a request for formal SPED evaluation: https://sites.ed.gov/idea/idea-files/osep-memo-11-07-response-to-intervention-ltr-memo/
- A diagnostic assessment
  - –Often over-identifies, on purpose: "*catch them before they fail*"
- A list of skills that must be taught
  - –Can't change family history
  - –Intervention effort is best focused on literacy skills themselves, not the cognitive predictors
    - **YES**: teach PA, letter-sound correspondence, decoding
    - **NO:** no evidence that training on RAN or NWRep improves reading

18

National Center on
INTENSIVE INTERVENTION
at the American Institutes for Research®

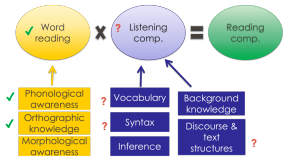
https://charts.intensiveintervention.org/ascreening




19

## Will Dyslexia Screening Catch DLD?

- Family history of reading, language, or learning disabilities
- Phonological awareness
- Alphabet knowledge
- Letter sound knowledge
- Rapid automatic naming
- Non-word repetition
- Vocabulary
- Word recognition fluency

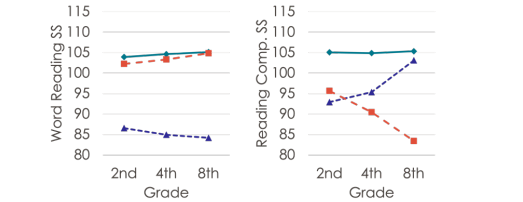



- **Some students with dyslexia will also have DLD, so screeners may flag them**
- **Others with deficits located outside word reading may be missed.**
- **Both groups will need support in these broader language skills to build good comprehension and writing skills.**

20

## Reading comprehension difficulties that seem late to emerge are linked to early oral language weaknesses

(Catts, Adlof, & Weismer, 2006)




3 groups classified based on 8th grade scores in Word Reading and Reading Comprehension

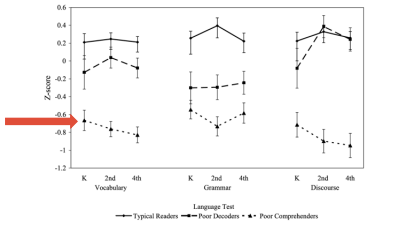
- Typically Developing
- Poor Decoders
- Poor Comprehenders

21

## Reading comprehension difficulties may appear late to emerge; but they are linked to early oral language weaknesses

(Catts, Adlof, & Weismer, 2006)

**Figure 3.** Subgroups' mean z scores on individual measures of language comprehension in kindergarten (K), second (2nd), and fourth (4th) grades.




22



OK, let's measure language!

How do we start?

23

## Selecting a Universal Screening Tool

**Feasible within your setting**

Quick

Easy to administer

Inexpensive

**Psychometrically sound**

Reliable

Valid

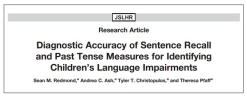
Standardization sample is representative of your population

- Age and/or grade level
- Language and cultural background

24

## Sampling of Language Screens for School-aged Children:
















25

## Example Language Screens for School-Aged Children

- Multiple options available for quick screens on a 1:1 basis, some for free!
- Product manuals may or may not report sufficient information to evaluate the screening tool; be aware of these limitations to many current tools:
  - Most tools evaluate diagnostic accuracy by comparing existing clinical vs. nonclinical samples; be aware that these may over-estimate sensitivity and specificity when used in a universal screening context
  - Some tools provide sensitivity and specificity for a wide age range (e.g., 5-21 years) but sample size for ages within the range are small.
    - Not clear that the same sensitivity and specificity applies to all ages in the range
- If considering as universal screen, time required to administer and score screens for every student may be high.

26

## Developing an Efficient Approach to Universal Oral Language Screening

Existing screens are individually administered. Time per participant may be low, but total time for universal administration and scoring (all students) is high.

- Feasibility:
  - Assuming validity and reliability can be maintained, group administered screens can be more cost and time efficient
- Goal:
  - Administer one screen to entire class in similar amount of time as it takes to screen a single student
  - Maintain or reduce the time required to score

27

27

## Developing an Efficient Approach to Universal Oral Language Screening

**Adlof et al., 2017**

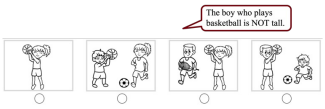
- Demonstrated feasibility of group-administered language screens with 2nd grade students
- Acceptable classification accuracy when language and reading screens used in combination (80% sensitivity, 24% FPR)

**Hendricks et al., 2019**

- Demonstrated feasibility of group-administered screens with 1st as well as 2nd grade students
- Single measure approached acceptable classification accuracy for DLD (76% sensitivity, 25% FPR)

**Work in Progress**

- New items developed, iteratively trialed & revised
- Established feasibility for screening as young as kindergarten
- Currently comparing distributions in different school systems; pre- and post-pandemic




28

## Benefits of Universal Screens

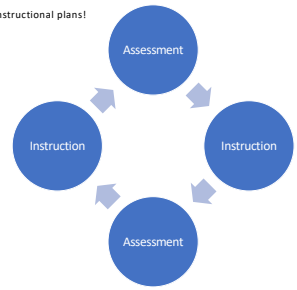
- Important step to improving reading comprehension for all
- Identify children at risk who might otherwise be missed
- Administrator obtains direct knowledge of the full range of typical development
  - Range of competence is big, even if the range of use is smaller

29

29

## What happens next?

Assessment (including screens) guide instructional plans!




30

30

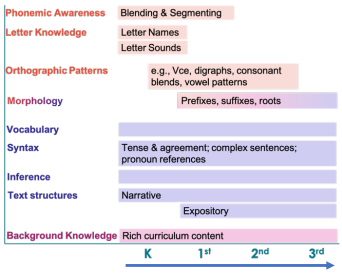
## Evidence-Based Reading & Writing Instruction

| | |
|---|---|
| **Explicit** | • Directly teaches children how the written language system works |
| **Systematic** | • Sequence of instruction is carefully and strategically planned from simple to complex; lessons build on previously learned information |
| **Scaffolded** | • Gradual release of responsibility from teacher to student<br>• I do it; we do it; you do it and I'll give you feedback; you do it and check your own work<br>• Practice until mastery; then periodically review & refresh as needed |
| **Comprehensive** | • Phonemic awareness, orthography, morphology, vocabulary, syntax, and narrative & expository text structures |

31

## Evidence-Based Reading Instruction

*Addresses both word reading and comprehension from the start*




32

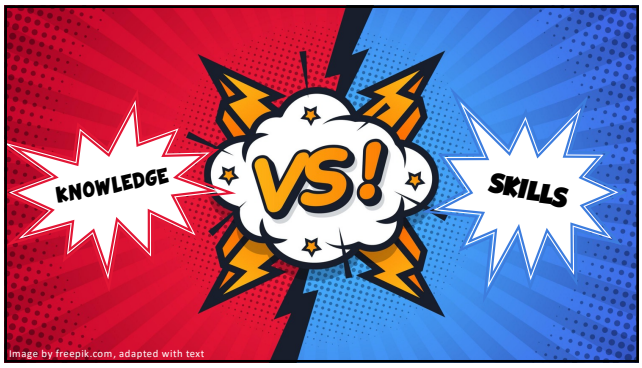



Image by freepik.com, adapted with text

33

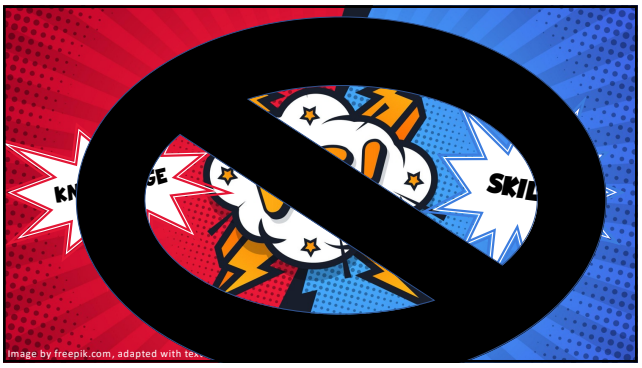
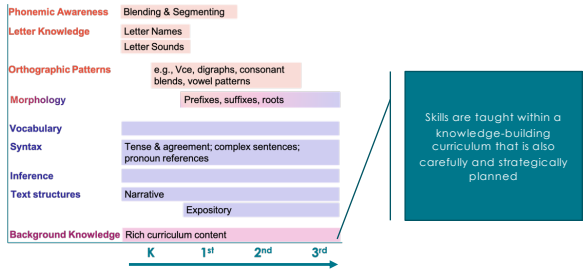


Image by freepik.com, adapted with text

34

## Evidence-Based Reading Instruction

*Addresses both word reading and comprehension from the start*



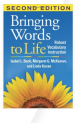

Skills are taught within a knowledge-building curriculum that is also carefully and strategically planned

35

## Vocabulary: Tips and Resources



Free keys to vocabulary instruction infographic :
https://doi.org/10.23641/asha.9765161




36

## Top 4 Vocabulary Tips

1. **Expose children to sophisticated words**
   - Most words are learned incidentally. Provide quick definitions when feasible.
2. **Explicitly and systematically teach words that have been strategically selected for instruction.**
   - Show the printed word while teaching its meaning
   - Teach definitions and provide contextual examples
   - Include activities for active processing
   - Review taught words so they are not forgotten
3. **Teach children multiple strategies for discovering the meanings of unknown words**
   - Dictionary skills
   - Context strategies
   - Morphological analysis
4. **Make word learning fun**

37

## Approaches for Selecting Words to Teach

| | |
|---|---|
| **1. Word Tiers**<br><br>Beck, I.L., McKeown, M.G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction* (2nd ed). New York: Guilford Press. | Tier 1: Basic words that don't require instruction<br>*Baby, happy*<br>Tier 2: High frequency words for mature language users<br>*Coincidence, absurd*<br>Tier 3: Low frequency words used in limited domains<br>*Lathe, peninsula* |
| **2. Focus on Root Word Meanings**<br><br>Biemiller, A. (2008). *Words worth teaching.* | Easy: roots known by 80% of students<br>(don't require instruction)<br>High priority: roots known by 40-79% of students<br>important for instruction<br>identified 1600 root words for K-2nd grade and 2900 words for grades 3-6<br>Difficult: roots known by <40% of students<br>teach in later grades |
| **3. Core Vocabulary – focus on morphological families**<br><br>Hiebert, E. (2020). https://ila.onlinelibrary.wiley.com/doi/full/10.1002/trtr.1894 | • 2500 morphological families account for > 90% of all words that appear in texts presented to students in grades K-12<br>• Learning these families helps students uncover the meaning of new words in text<br>• Selection of words (morphological families) for teaching is informed by the frequency of the family and of the words within it<br>• Most common families/words don't need to be taught |

38

## Syntax: Tips and Resources

Shape Coding by Susan Ebbels
https://www.moorhouseschool.co.uk/shape-coding
https://shapecoding.com/

Project Read® FRAMING YOUR THOUGHTS®
https://www.projectread.com/preview-materials-written-expression/

The Syntax Project
https://thesyntaxproject2022.squarespace.com/professional-learning-syntax

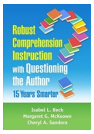
39

## Syntax Tip 1:

**Build explicit syntax instruction into the writing curriculum**

- The job of the author is to express an idea in a way that can be clearly understood by the reader
- We usually need to "follow the rules" so the reader can understand us
  - Speech can be more "relaxed" because it happens in real time, and we can adjust what we say or clear up misunderstandings as we go
- We have different ways of providing the the same information, but our choice of structure can provide different focus or shade of meaning

**Added benefit:** Can discuss that sometimes reading is hard because the author has not done a good job tailoring the message to this audience!



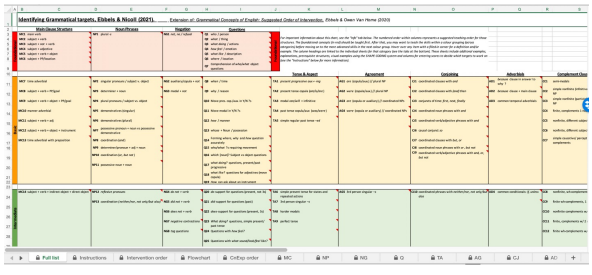

40

## Syntax Tip 2:

**Follow a systematic scope and sequence:**

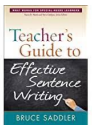
- Simple to complex
  - Basic sentences, parts of speech
  - Expanded subjects and predicates
  - Complex syntactic structures
  - Example scope & sequence: https://shapecoding.com/resources/grammar-spreadsheet-free/ (Ebbels & Nicoll, 2021; Ebbels & Van Horne, 2020)
- The average child has a much wider range of *implicit* syntactic knowledge than they display in their everyday spoken usage
  - Don't underestimate what a child can understand or say, but also
  - Remember that reading and writing require explicit awareness of these structures (meta-linguistic awareness)

41




42

## Syntax Tip 3:




**Use both analysis and production activities**

- How did the author say it?
- How else could it be said?
- Does the meaning change? How?



The dog had a bone. The dog was chewing. The dog was happy. The dog was laying down. The dog was in the shade.

Example of a sentence combining activity, cf. Sadler & Preschern (2007), Scott & Nelson (2009)

43

## Syntax Tip 4:

**Provide visual supports to aid understanding of grammatical structures and rules**

For example, Shape Coding system uses

- Colors to represent parts of speech
- Shapes to represent phrase types (e.g., noun phrase, verb phrase)
- Lines & arrows to represent number & tense

Shape Coding
by Susan Ebbels

Subject verb agreement

- Double red line used for plural nouns and pronouns
- Double blue lines used for plural verb



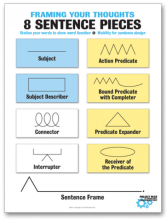

44

## Syntax Tip 4:

**Provide visual supports to aid understanding of grammatical structures and rules**

Project Read's Framing Your Thoughts uses a Sentence Frame

https://www.projectread.com/product/sentence-parts-diagramming-symbols-poster/




45

# Time to wrap up!



46

## What can you do to put this all together?

1. Help raise **awareness** of the importance of language for reading and writing
2. Ensure that all children receive high-quality, evidence-based instruction in **language** as well as reading and writing
3. **Include measures of oral language** in universal screening efforts, and monitor progress in oral and written language development from kindergarten forward
   - Not only phonemic awareness & vocabulary, but also morphology, syntax, and discourse

4. Facilitate **collaboration** between teachers, speech-language pathologists, reading coaches and others to support students at all instructional tiers.

47

## Thank you!




@SCROLL Lab

NIH National Institute on Deafness and Other Communication Disorders

ies INSTITUTE OF EDUCATION SCIENCES

FOUNDATION

CENTRAL CAROLINA Community Foundation

UNIVERSITY OF SOUTH CAROLINA

48

**Measuring and Supporting Language Skills to Increase Reading and Writing Aptitude**
**Suzanne M. Adlof, Ph.D.** sadlof@mailbox.sc.edu
January 25, 2023

**Linked Web Resources**

National Center on Intensive Intervention (NCII)
https://intensiveintervention.org

NCII Academic Screening Tools Chart
https://charts.intensiveintervention.org/ascreening

IES REL Southeast, Assessment Terms Used in Reading
https://ies.ed.gov/ncee/edlabs/regions/southeast/blog/2020_03_06_early_reading_terms.asp

A Response to Intervention (RTI) Process Cannot Be Used to Delay-Deny an Evaluation for Eligibility under the Individuals with Disabilities Education Act (IDEA)
https://sites.ed.gov/idea/idea-files/osep-memo-11-07-response-to-intervention-rti-memo/

Keys to Vocabulary Instruction Infographic
https://doi.org/10.23641/asha.9765161

LSHSS Forum on Vocabulary Across the School Grades
https://academy.pubs.asha.org/2019/10/lshss-forum-on-vocabulary-across-the-school-grades/

Shape Coding
https://www.moorhouseschool.co.uk/shape-coding
https://shapecoding.com/

Grammar Scope and Sequence
https://shapecoding.com/resources/grammar-spreadsheet-free/

Project READ: Framing Your Thoughts
https://www.projectread.com/preview-materials-written-expression/

The Syntax Project
https://thesyntaxproject2022.squarespace.com/professional-learning-syntax

**Sampling of Language Screens for School-Aged Children**

- *CELF-5 Screening Test*. Pearson.
- *Student Language Scale Screener, Test of Integrated Language and Literacy Skills (TILLS)*. Brookes Publishing.
- *Diagnostic Evaluation of Language Variation- Screening Test (DELV-ST)*. Ventris Learning.
- *Grammaggio*. Rice Innovations, LLC.
- *PEARL Dyslexia and Language Screener*. Language Dynamics Group.

## References Cited


Adlof, S.M. (2020). Promoting reading achievement in children with developmental language disorders: What can we learn from research on SLI and dyslexia? *Journal of Speech, Language, and Hearing Research, 63*, 3277-3292. https://doi.org/10.1044/2020_JSLHR-20-00118

Adlof, S.M. & Hogan, T. P. (2018). Understanding dyslexia in the context of developmental language disorders. *Language Speech and Hearing Services in the Schools, 49* (4) 762-773. https://pubs.asha.org/doi/10.1044/2018_LSHSS-DYSLC-18-0049

Adlof, S.M., Catts, H.W., & Little, T. D. (2006). Should the simple view of reading include a fluency component? *Reading and Writing, 19,* 933-958.

Adlof, S.M., Scoggins, J., Brazendale, A., & Babb, S., & Petscher, Y. (2017). Identifying Children at Risk for Language Impairment or Dyslexia with Group-Administered Measures. *Journal of Speech, Language, and Hearing Research, 60*, 3507-3522. doi:10.1044/2017_JSLHR-L-16-0473

Catts, H.W., Adlof, S.M., & Ellis Weismer, S. (2006). Language deficits of poor comprehenders: A case for the simple view of reading. *Journal of Speech, Language, and Hearing Research*, *49,* 278-293.

Foorman, B. R., Petscher, Y., & Herrera, S. (2018). Unique and common effects of decoding and language factors in predicting reading comprehension in grades 1–10. *Learning and Individual Differences*, *63*, 12-23.

Gough, P. B., & Tunmer, W. E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education*, *7*(1), 6-10.

Hendricks, A., Adlof, S.M. Alonzo, C. N., Fox, A. B., & Hogan, T.P. (2019). Identifying children with developmental language disorder using a brief, whole-classroom screen. *Journal of Speech-Language, and Hearing Research, 62*, 896-908. https://doi.org/10.1044/2018_JSLHR-L-18-0093

Hiebert, E.H. (2020). The Core Vocabulary: The foundation of proficient comprehension. *The Reading Teacher, 73,* 757– 768. https://doi.org/10.1002/trtr.1894

Pinker, S. (2009). Language learnability and language development. Cambridge, MA: Harvard University Press. As cited in Castles, A., Rastle, K., & Nation, K. (2018). Ending the reading wars: Reading acquisition from novice to expert. *Psychological Science in the Public Interest, 19*(1), 5–51. https://doi.org/10.1177/1529100618772271

Redmond, S. M., Ash, A. C., Christopulos, T. T., & Pfaff, T. (2019). Diagnostic accuracy of sentence recall and past tense measures for identifying children's language impairments. *Journal of Speech, Language, and Hearing Research, 62*, 2438-2454. https://doi.org/10.1044/2019_JSLHR-L-18-0388

Ruel, E., Wagner, W., & Gillespie, B. (2018). The quality of measurement: reliability and validity. In The Practice of Survey Research: Theory and Applications (Chapter 6). https://dx.doi.org/10.4135/9781483391700

Saddler, B., & Preschern, J. (2007). Improving sentence writing ability through sentence-combining practice. *Teaching Exceptional Children, 39*, 6-11.

Scott, C. M., & Nelson, N. W. (2009). Sentence combining: Assessment and intervention applications. *Perspectives on Language Learning and Education, 16*, 14-20.

Snowling, M. J., Hayiou-Thomas, M. E., Nash, H. M., & Hulme, C. (2020). Dyslexia and Developmental Language Disorder: comorbid disorders with distinct effects on reading comprehension. *Journal of Child Psychology and Psychiatry, 61*, 672-680. https://doi.org/10.1111/jcpp.13140