



Literacy for English Learners: What's “Reading Science”

Got to Do with It?

Science as activities Science as findings

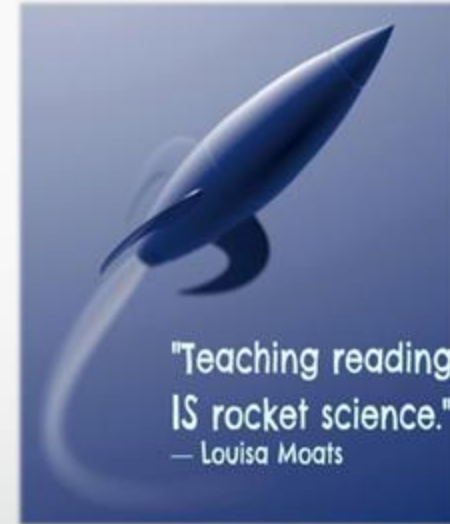
Claude Goldenberg
cgoldenberg@stanford.edu or
claudegoldenberg@gmail.com

Think about teaching reading, “just” in general

Is it rocket science?



OR



Not that complicated?






Now think about this:

Many students around the world learn to read (and write) in a language they are *simultaneously* learning to speak and understand. (“English learners” in the U.S.)

Is teaching reading to these students **rocket science** or **not that complicated**? Or closer to one or the other?



Think about this and discuss with someone
next to you:

Is teaching reading to
**students who are simultaneously learning the
language**

“rocket science” or “not that complicated?”

Or closer to one or the other?

(Idk, not sure, etc. are acceptable.)



And now this:

If you're learning to read in a language you
are simultaneously learning to speak and
understand

Is it basically...

- similar to or
- different from

... learning to read in a language you
already know?

Which is true?



a. Learning to read in a language you are simultaneously learning is basically **the same** as learning to read in a language you already know.



b. Learning to read in a language you are simultaneously learning is basically **different from** learning to read in a language you already know.



c. No clue. You tell me. 

So, whether rocket science or not....

Learning to read in a language you are learning to speak and understand is complicated.


And therefore, so is the teaching.

BUT (good news coming)

It's basically similar to learning to read in a language you already know.

BUT (qualifier ahead)

"Similar" is not the same as "identical."



What's “Reading Science” Got to Do with English Learners?

What do we know from SOR about how children learn to read when they know the reading language?

How is learning to read similar or different for children learning to read *as they're learning the language*?

So, how does the teaching need to be similar or different?

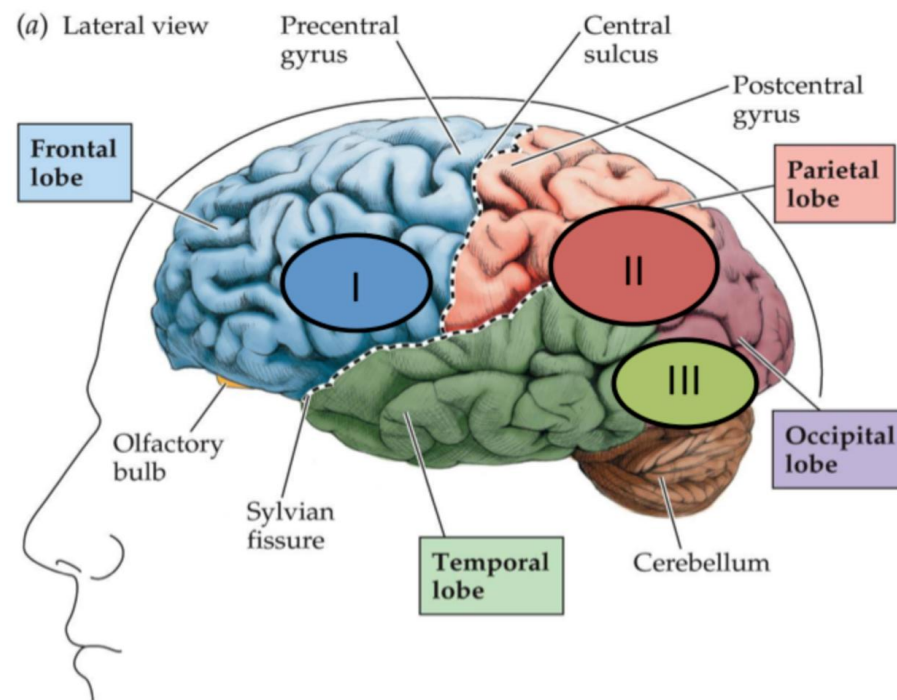
A word (or 2) about bilingual education

- The single most controversial issue
- Bilingual education is desirable for many reasons.
- The vast majority of ELs don't have the benefit.
- Reality on the ground: Most ELs must become literate in a language they are simultaneously learning to speak and understand.

What do we know from SOR about how children learn to read when they know the reading language?

How is it similar or different from how children learn to read *as they're learning the language*?

So, how does the teaching need to be similar or different?



Biological Psychology 6e, Figure 2.12 (Part 1)

© 2010 Sinauer Associates, Inc.

Neural systems for reading. (I) Anterior system in left inferior frontal lobe
(II) Dorsal parietotemporal and (III) Ventral occipitotemporal system.

Learners who know the language “rely on a large network of brain regions, as they try to *bind orthography* [the spelling system] to an already-present knowledge of *phonology* [sounds of the language] and *semantics* [meaning carried by language].”

Beginning and early literacy in alphabetic **writing systems**

Requires learning...

- the alphabetic principle
 - letters represent *speech sounds*
- spoken words comprise individual sounds
- the sound-symbol system (aka *phonics*)
 - most reliable way to read words*
- word recognition by decoding (context and word meanings secondary)

* even in *opaque orthographies*

→ *Working toward fluency*



These are the foundations for learning to read.

- Understanding the *alphabetic principle*
- Spoken words comprise individual sounds
- The sound-symbol system (aka *phonics*)
- Word recognition by decoding (context and word meanings secondary)

→ *Working toward automaticity and fluency*

If all you have is a foundation,
you haven't got much.

But the foundation is still essential.



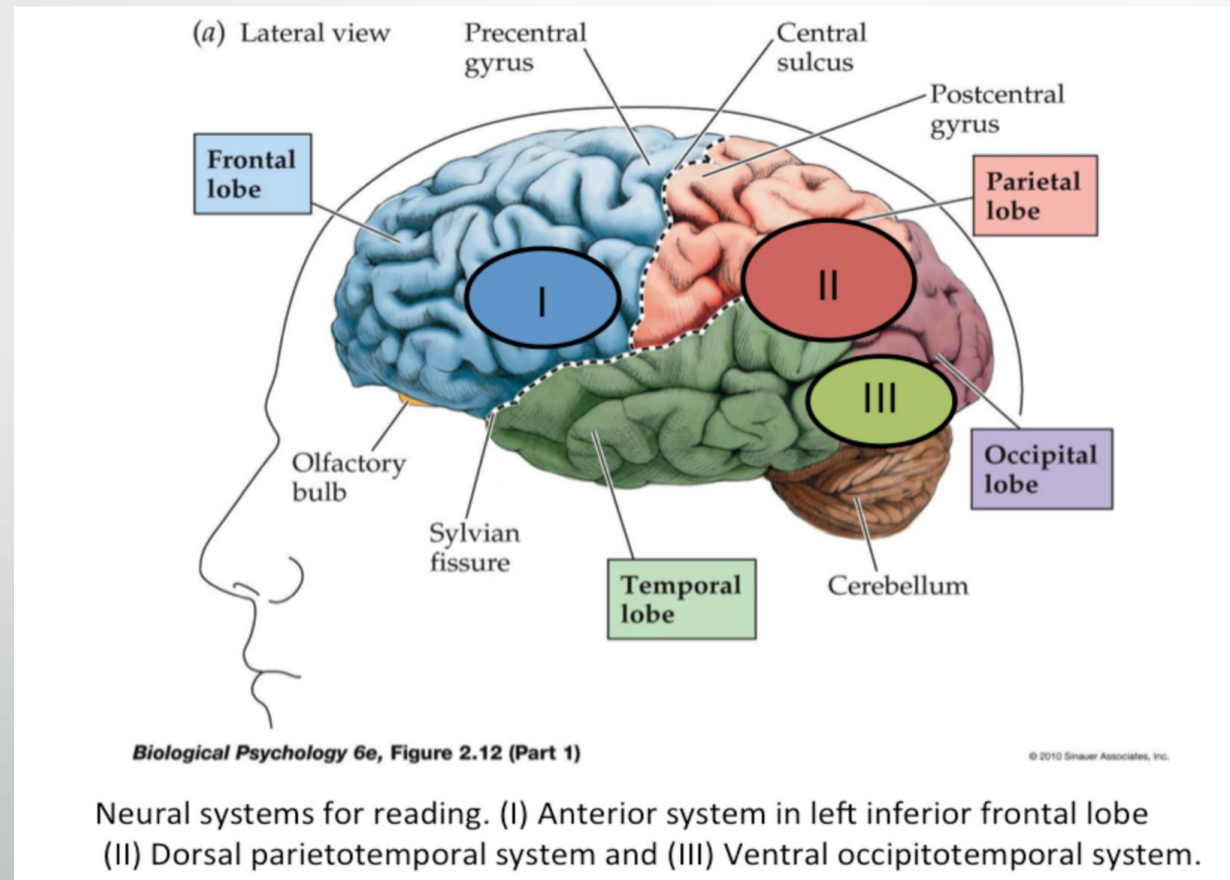
What do we know from SOR about how children learn to read when they know the reading language ?

How is it similar or different from how children learn to read *as they're learning the language*?

So, how does the teaching need to be similar or different?

Learning to read in a language you are learning is basically the same as learning to read in a language you know.

They involve similar “networks of brain activation.”*




* *Journal of Neurolinguistics* 2019

Similar “networks of brain activation”..... **to do what?**

- Link print and speech
- Support
 - Phonological awareness
 - Letter-sound “mapping”
 - Learning phonics and decoding
 - Other foundational reading processes*

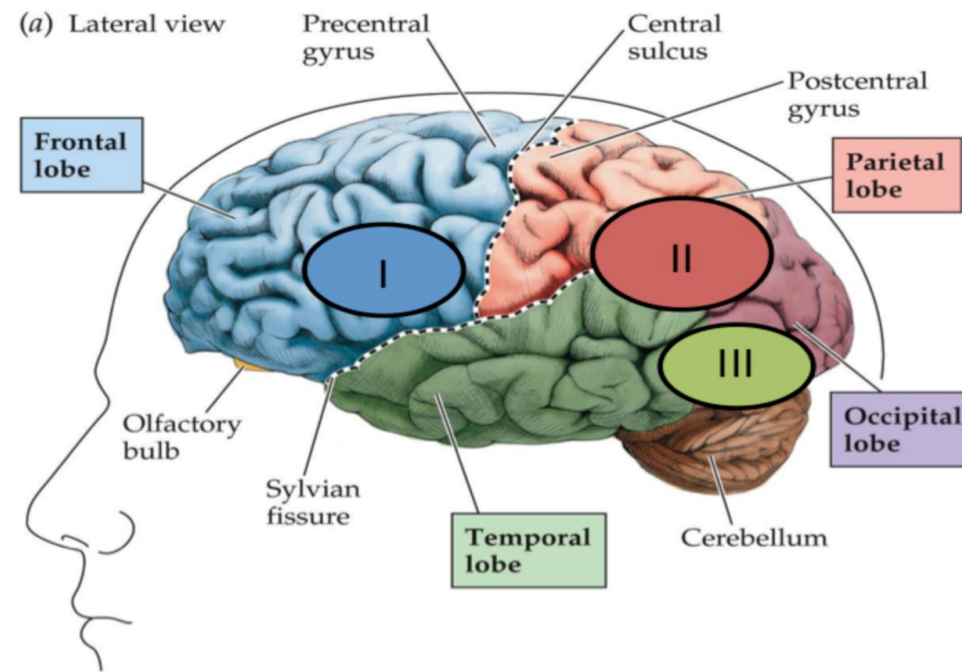
** Journal of Neurolinguistics 2019*



The foundations are identical, regardless of learning to read in a language you know or a language you are learning.

- Letters represent speech sounds
- Letters and sounds combine to represent comprehensible words and text (spoken and written)

*But what is "comprehensible" is **precisely** where the differences exist.*



Biological Psychology 6e, Figure 2.12 (Part 1)

© 2010 Sinauer Associates, Inc.

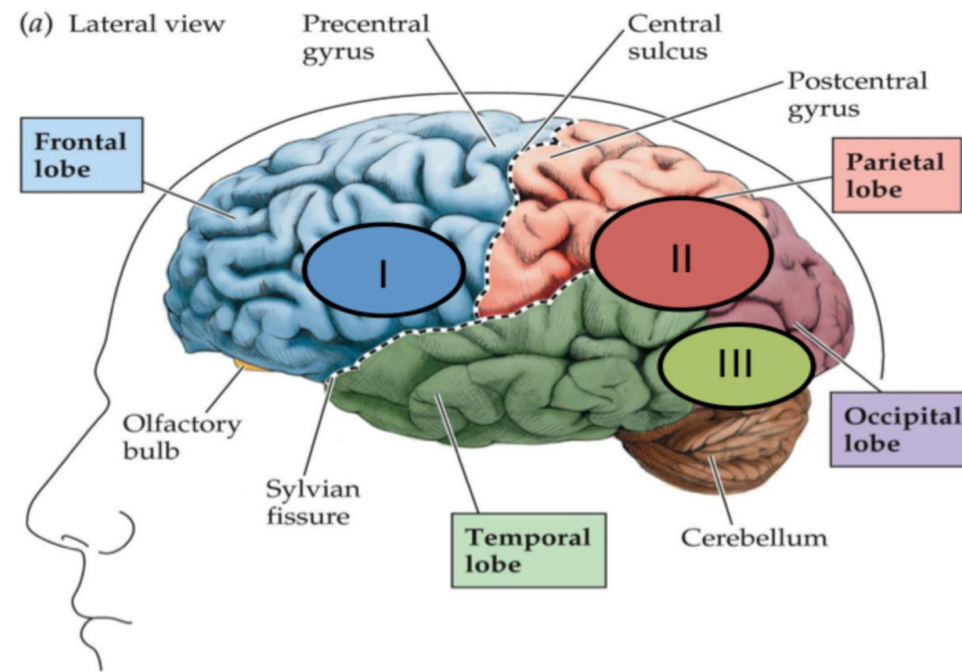
Neural systems for reading. (I) Anterior system in left inferior frontal lobe
(II) Dorsal parietotemporal system and (III) Ventral occipitotemporal system.

REMEMBER: Learners who know the language “rely on a large network of brain regions, as they try to *bind orthography* [the spelling system] to an *already-present knowledge* of *phonology* [sounds of the language] and *semantics* [meaning carried by language].”



So....

- Learning to read in a language you know and one you are learning are similar but not ***exactly*** the same, because
- Emergent bilinguals require “additional supports” that English-proficient students typically don’t need.



Biological Psychology 6e, Figure 2.12 (Part 1)

© 2010 Sinauer Associates, Inc.

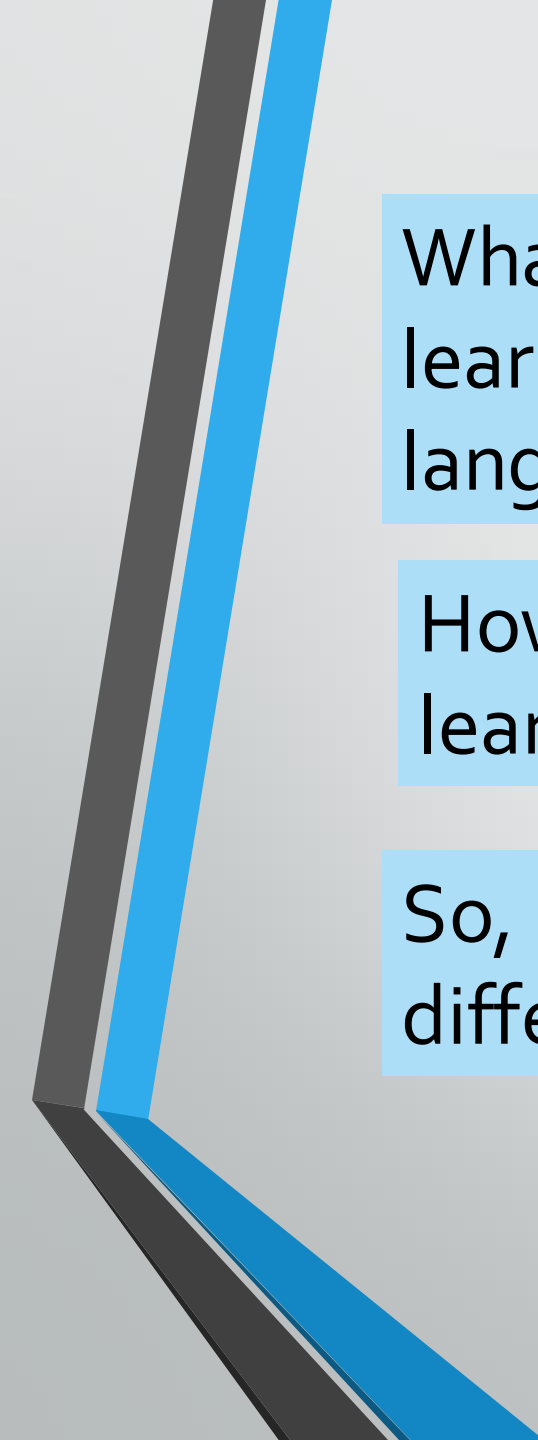
Neural systems for reading. (I) Anterior system in left inferior frontal lobe
(II) Dorsal parietotemporal system and (III) Ventral occipitotemporal system.

Language learners “*require additional supporting brain regions during learning*” because they have **no, or limited**, “already-present knowledge of phonology and semantics.”

It's not just brain science.

Classroom and intervention studies support these conclusions:


- The foundation for learning to read **is the same** whether you're learning to read in a language you are learning or one you already know.
- But they're **not identical**; language learners require additional supports.



What do we know from SOR about how children learn to read when they know the reading language?

How is it similar or different from how children learn to read *as they're learning the language*?

So, how does the teaching need to be similar or different?



What's same and different at
beginning and early reading stages?

Best clues we have are from two effective
first-grade early interventions for language
learners at risk for reading difficulties.

An Effective Small-Group Intervention

Effectiveness of an English Intervention for First-Grade English Language Learners at Risk for Reading Problems

Sharon Vaughn
University of Texas at Austin

Patricia Mathes
Southern Methodist University

Sylvia Linan-Thompson
University of Texas at Austin

Paul Cirino
University of Houston

Coleen Carlson
University of Houston

Sharolyn Pollard-Durodola
Texas A & M University

Elsa Cardenas-Hagan
University of Houston

David Francis
University of Houston

The Elementary School Journal
Volume 107, Number 2
© 2006 by The University of Chicago. All rights reserved.
0013-5984/2006/10702-0003\$05.00

Abstract

A first-grade reading and language development intervention for English language learners (Spanish/English) at risk for reading difficulties was examined. The intervention was conducted in the same language as students' core reading instruction (English). Two hundred sixteen first-grade students from 14 classrooms in 4 schools from 2 districts were screened in both English and Spanish. Forty-eight students (22%) did not pass the screening in both languages and were randomly assigned within schools to an intervention or contrast group; after 7 months, 41 students remained in the study. Intervention groups of 3 to 5 students met daily (50 minutes) and were provided systematic and explicit instruction in oral language and reading by trained bilingual reading intervention teachers. Students assigned to the contrast condition received their school's existing intervention for struggling readers. Intervention students significantly outperformed contrast students on multiple measures of English letter naming, phonological awareness and other language skills, and reading and academic achievement. Differences were less significant for Spanish measures of these domains, though the strongest effects favoring the intervention students were in the areas of phonological awareness and related reading skills.

Though the understanding of beginning reading instruction for students at risk for reading problems is incomplete, there is little question that researchers and educators have made great strides in designing effective interventions for monolingual English students at risk for reading problems (O'Connor, 2000; Torgesen, Mathes, & Grek, 2002). Syntheses of interventions (Ehri, Nunes, Stahl, & Willows, 2001; Kuhn & Stahl, 2003; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998) report findings that improve confidence about many elements of reading instruction, and these find-

Effective intervention for English **monolingual** struggling readers:

- Direct instruction approach
- Goal: Fluent meaningful reading
- Phonemic awareness, letter knowledge, word recognition, text fluency, comprehension strategies
- Activities include: writing letters, sounding out and reading words, dictation spelling, reading and re-reading decodable text, using comprehension strategies.

An Effective Small-Group Intervention +

Effectiveness of an English Intervention for First-Grade English Language Learners at Risk for Reading Problems

Sharon Vaughn
University of Texas at Austin

Patricia Mathes
Southern Methodist University

Sylvia Linan-Thompson
University of Texas at Austin

Paul Cirino
University of Houston

Coleen Carlson
University of Houston

Sharolyn Pollard-Durodola
Texas A & M University

Elsa Cardenas-Hagan
University of Houston

David Francis
University of Houston

The Elementary School Journal
Volume 107, Number 2
© 2006 by The University of Chicago. All rights reserved.
0013-5984/2006/10702-0003\$05.00

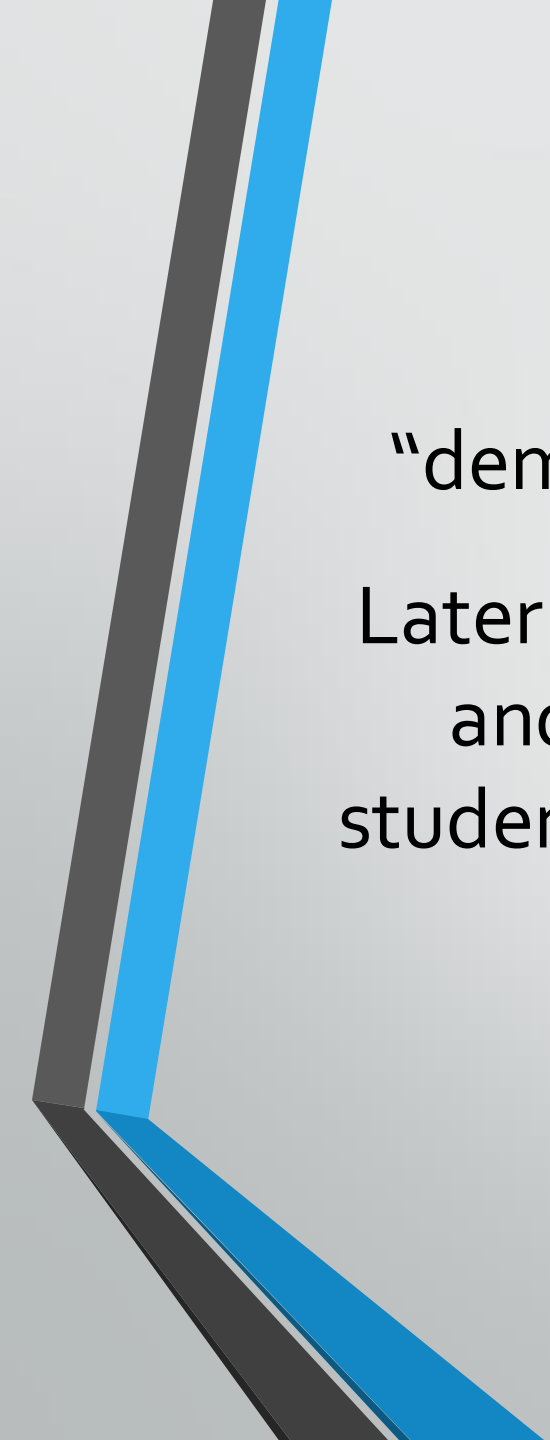
Abstract

A first-grade reading and language development intervention for English language learners (Spanish/English) at risk for reading difficulties was examined. The intervention was conducted in the same language as students' core reading instruction (English). Two hundred sixteen first-grade students from 14 classrooms in 4 schools from 2 districts were screened in both English and Spanish. Forty-eight students (22%) did not pass the screening in both languages and were randomly assigned within schools to an intervention or contrast group; after 7 months, 41 students remained in the study. Intervention groups of 3 to 5 students met daily (50 minutes) and were provided systematic and explicit instruction in oral language and reading by trained bilingual reading intervention teachers. Students assigned to the contrast condition received their school's existing intervention for struggling readers. Intervention students significantly outperformed contrast students on multiple measures of English letter naming, phonological awareness and other language skills, and reading and academic achievement. Differences were less significant for Spanish measures of these domains, though the strongest effects favoring the intervention students were in the areas of phonological awareness and related reading skills.

Though the understanding of beginning reading instruction for students at risk for reading problems is incomplete, there is little question that researchers and educators have made great strides in designing effective interventions for monolingual English students at risk for reading problems (O'Connor, 2000; Torgesen, Mathes, & Grek, 2002). Syntheses of interventions (Ehri, Nunes, Stahl, & Willows, 2001; Kuhn & Stahl, 2003; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998) report findings that improve confidence about many elements of reading instruction, and these find-


EL language supports comprised 3-8 activities/lesson, e.g.:

- Clarify words, content with visuals, gestures, expressions
- Words in the directions defined (e.g., *trace, copy*)
- 2-3 key vocabulary words/day highlighted and illustrated
- Instruction in English language use; student responses
- Teachers guided students' story retelling and discussion

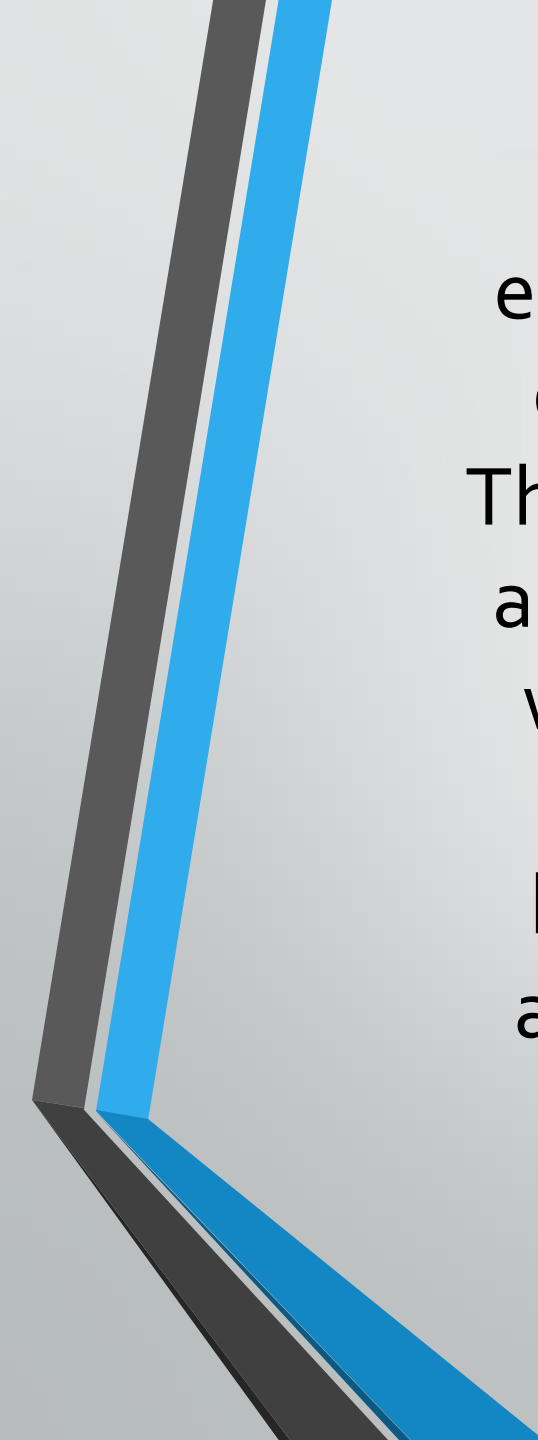


Vaughn et al. study was the only one that
“demonstrated a statistically significant effect in reading.”

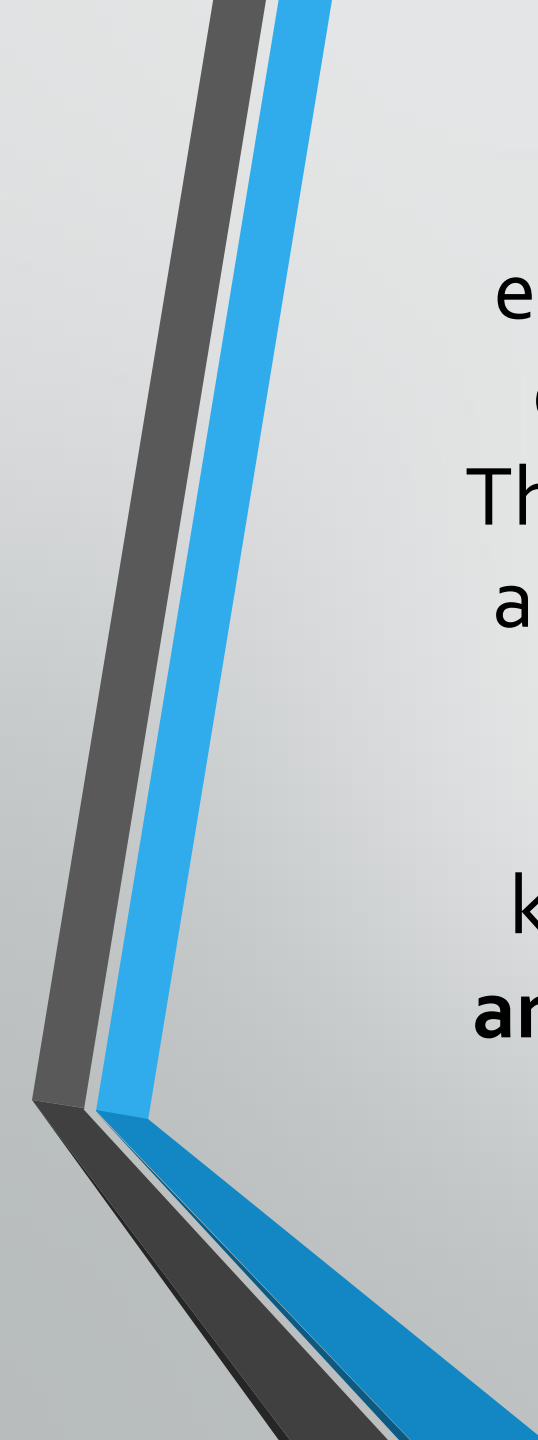
Later study by Ehri et al. also emphasized language support
and also got moderate to strong effects on reading for
students learning to in English as they learned to understand
and speak it.



“One purpose was to develop oral language by encouraging students to talk about the books and by explaining the meanings of new vocabulary words. These words were written in students’ personal books, and the meanings were reviewed each time the book was read. ...Students were encouraged to decode unknown words by relying on their letter–sound knowledge and then cross-checking with meaning and pictures to confirm the identities of the words.”
(Ehri et al., 2007, p. 424)



“One purpose was to develop oral language by encouraging students to talk about the books and by explaining the meanings of new vocabulary words. These words were written in students’ personal books, and the meanings were reviewed each time the book was read. ...**Students were encouraged to decode unknown words by relying on their letter–sound knowledge** and then cross-checking with meaning and pictures to confirm the identities of the words.”
(Ehri et al., 2007, p. 424)



“One purpose was to develop oral language by encouraging students to talk about the books and by explaining the meanings of new vocabulary words. These words were written in students’ personal books, and the meanings were reviewed each time the book was read. ...Students were encouraged to decode unknown words by relying on their letter–sound knowledge **and then cross-checking with meaning and pictures to confirm the identities of the words.**”

(Ehri et al., 2007, p. 424)

What about after beginning and early reading?

- Same basic ideas, but language learners face additional challenges at later reading stages.
- Language demands of school become exponentially more difficult.
- Literacy becomes increasingly dependent on higher levels of English proficiency.
- Knowledge of the world becomes increasingly important.
- But foundations remain important.

ELs/EBs and English Speakers

Learning to Read: Same or different?

- Foundational skills are foundational to reading; must be prioritized in beginning and early reading.
- Foundational skills are not enough. More is needed (language, knowledge).
- ELs/EBs need ELD to understand the words they are learning to read *as they use their foundational skills to read them, then confirm with meaning.*
- Ongoing academic language development.

What does ASOT work for? / EEs/EBs?

- Heavy diet of phonics and decoding, insufficient attention to the meanings of words and text
- **As much foundational skills instruction as needed to master the code + ample attention to word and text meanings.**
- “Three-cueing” – using a combination of letters, syntax, pictures, and context clues to recognize words (called “balanced literacy,” but actually unbalanced & random 🤪)
- **Students learn to read words using decoding skills first, then confirm accuracy using meaning and context.**

What does work for ELs/EBs?

- As much foundational skills instruction as needed to master the code + ample attention to word and text meanings.
- Learn to read words using decoding skills, then confirm accuracy using meaning and context.
- Also:
 - Continued ELD + support to comprehend texts.
 - Content and background knowledge.
 - Build on student assets.
 - Relevant and motivating learning experiences.
 -

Final Thoughts

- Both the methods and findings of research (aka SOR) are relevant for helping improve language learners' reading development.
- These methods and findings are also relevant for helping answer ongoing questions to improve student learning.
- We also must draw on informed and effective classroom practices. Science and research are unlikely to answer all of our questions. But they provide a set of invaluable tools.

References

- Ehri, L.C., Dreyer, L.G., Flugman, B., & Gross, A. (2007). Reading Rescue: An effective tutoring intervention model for language-minority students who are struggling readers in first grade. *American Educational Research Journal*, 44(2), 414–448. <https://doi.org/10.3102/0002831207302175>
- Goldenberg, C. (2020). Reading wars, reading science, and English Learners. *Reading Research Quarterly*, 55(S1), S131–S144. <https://doi.org/10.1002/rrq.340>
- Pugh, K. (2004). The reading circuit in different languages/orthographies. In Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, U.S. Department of Health and Human Services, National Symposium on Learning Disabilities in English Language Learners (p. 20). Washington, DC: U.S. Government Printing Office.
- Vaughn, S., Mathes, P., Linan-Thompson, S., Cirino, P., Carlson, C., Pollard-Durodola, S., Cardenas Hagan, E., Francis, D. (2006). Effectiveness of an English intervention for first-grade English language learners at risk for reading problems. *The Elementary School Journal*, 107(2), 153–180. <https://doi.org/10.1086/510653>
- Verhoeven, L., Perfetti, C., & Pugh, K. (2019). Cross-linguistic perspectives on second language reading. *Journal of Neurolinguistics*, 50, 1-6. <https://doi.org/10.1016/j.jneuroling.2019.02.001>



Claude Goldenberg
claudegoldenberg@gmail.com
cgoldenberg@stanford.edu

