

# Why can't my best word readers understand what they read?

Supporting Executive Skills for Better Comprehension

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READ LAB  
CHESTER/NEWPORT UNIVERSITY

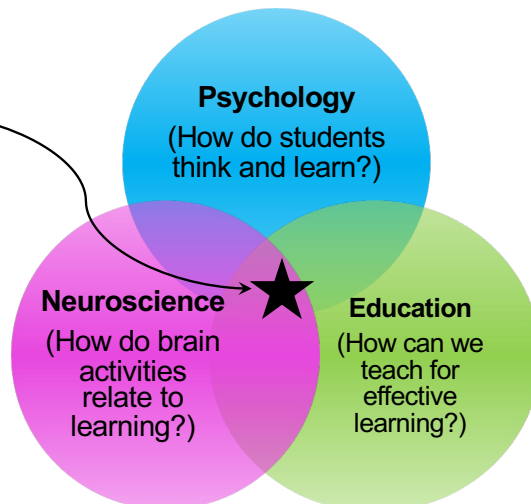
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## Working at an intersection...

Today,  
we are  
here!



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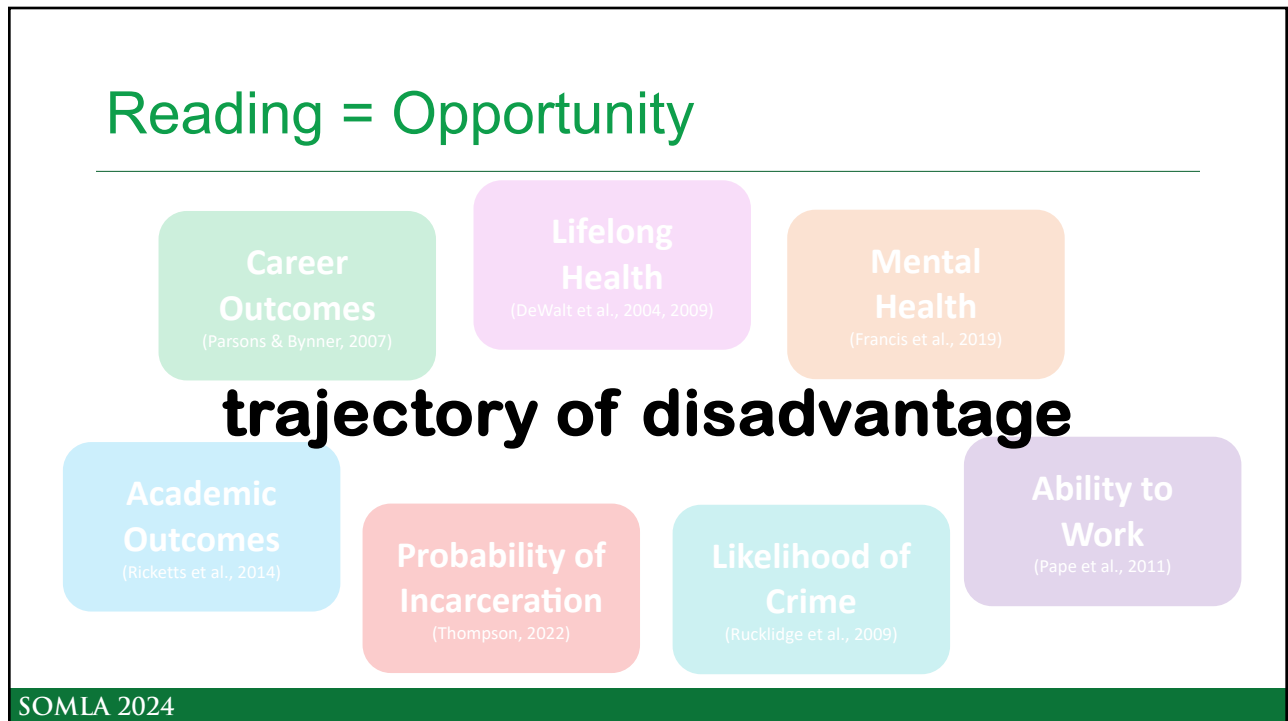
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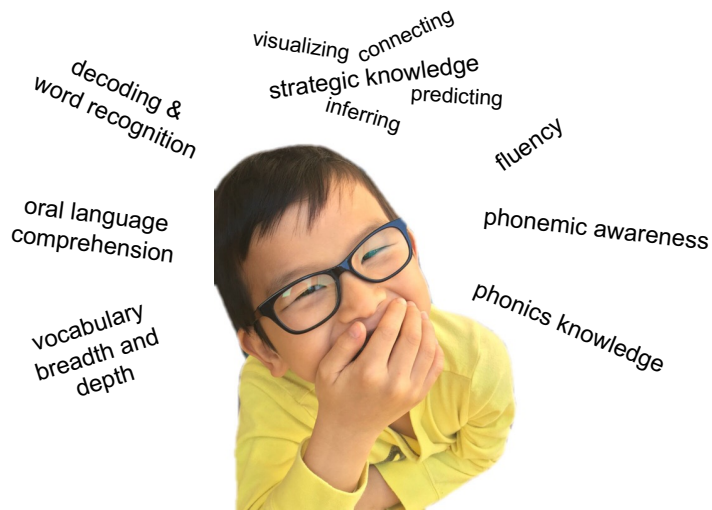
reading is thinking

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### Scientific Evidence on Reading

(NRP, 2000 and subsequent work)



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## What's the goal?

“The only purpose for reading is to **comprehend the author's message**...For a long while it was assumed that...once a reader was able to identify words on a page, comprehension of the text would follow automatically. That has turned out not to be the case.”



(Wagner et al., 2009, xi)

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## Scientific Evidence on Reading

(NRP, 2000 and subsequent work)



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# Scientific Evidence on Reading

(NRP, 2000 and subsequent work)



**Specific Reading Comprehension Difficulties (RCD):**  
strong word reading but comparably low reading comprehension



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# Scientific Evidence on Reading

(NRP, 2000 and subsequent work)



**What's missing?**



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## Let's think about these students...

Name	Reading Rate (WCPM)	Word Decoding (Grade Level)	Comprehension (Grade Level)
Benson, Charles	52	2.1	1.3
Carter, Andrew	83	3.5	2.0
Franklin, Megan	73	3.2	3.1
Jones, Sarah	90	4.1	2.4
Lopez, Selma	63	3.1	3.0
Martin, David	91	4.3	4.0

3<sup>rd</sup> grade students in September; grade-level rate = 83 WCPM  
(Hasbrouck & Tindal, 2017)

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A quick note:  
Emergent Bilingual students (English Learners) often fit this profile because of their developing L2 skills, NOT a reading disability!

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(Hasbrouck & Tindal, 2017)

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## Let's think about these students...

Different Issue:  
Word Reading  
Difficulties

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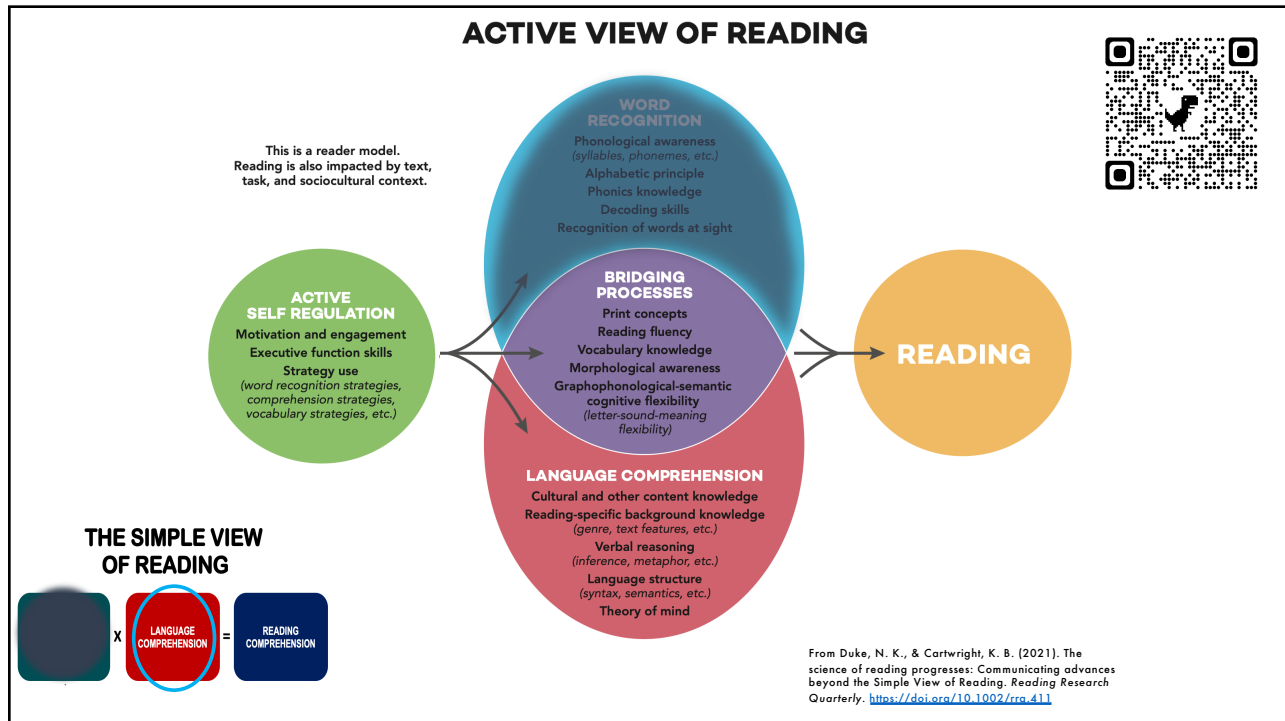
## How Many?

- Applegate, Applegate, & Modla (2009)  
Teacher-identified fluent readers; **34%** were struggling comprehenders
- Torppa & Colleagues (2007)  
Finnish 1<sup>st</sup> & 2<sup>nd</sup> graders at risk for reading difficulties; **22%** were poor comprehenders
- Catts, Hogan, & Fey (2003)  
183 poor comprehenders; **28.8%** were good decoders
- Riddle Buly & Valencia (2002)  
108 children, failed state reading assessment; **33%** poor comprehenders
- Shankweiler & colleagues (1999)  
Across 3 studies of struggling readers: **28%** poor comprehenders

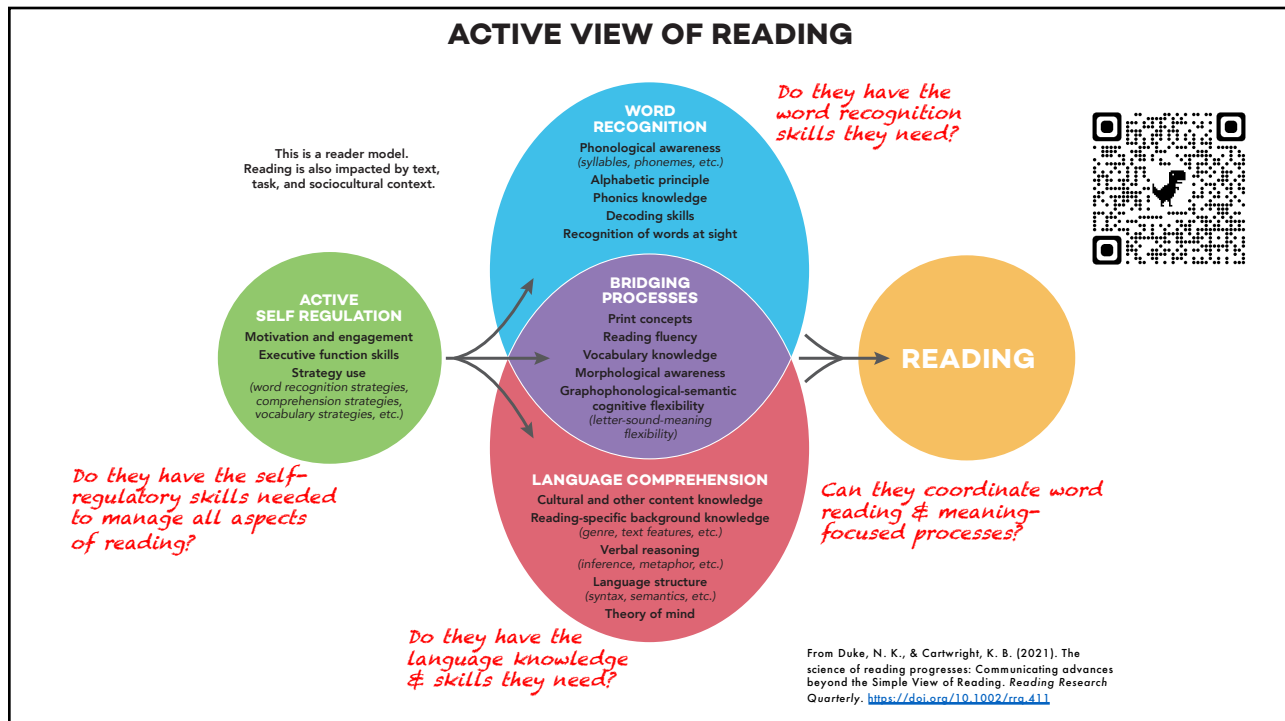
Students with  
RCD comprise  
20—30% of  
struggling  
readers!

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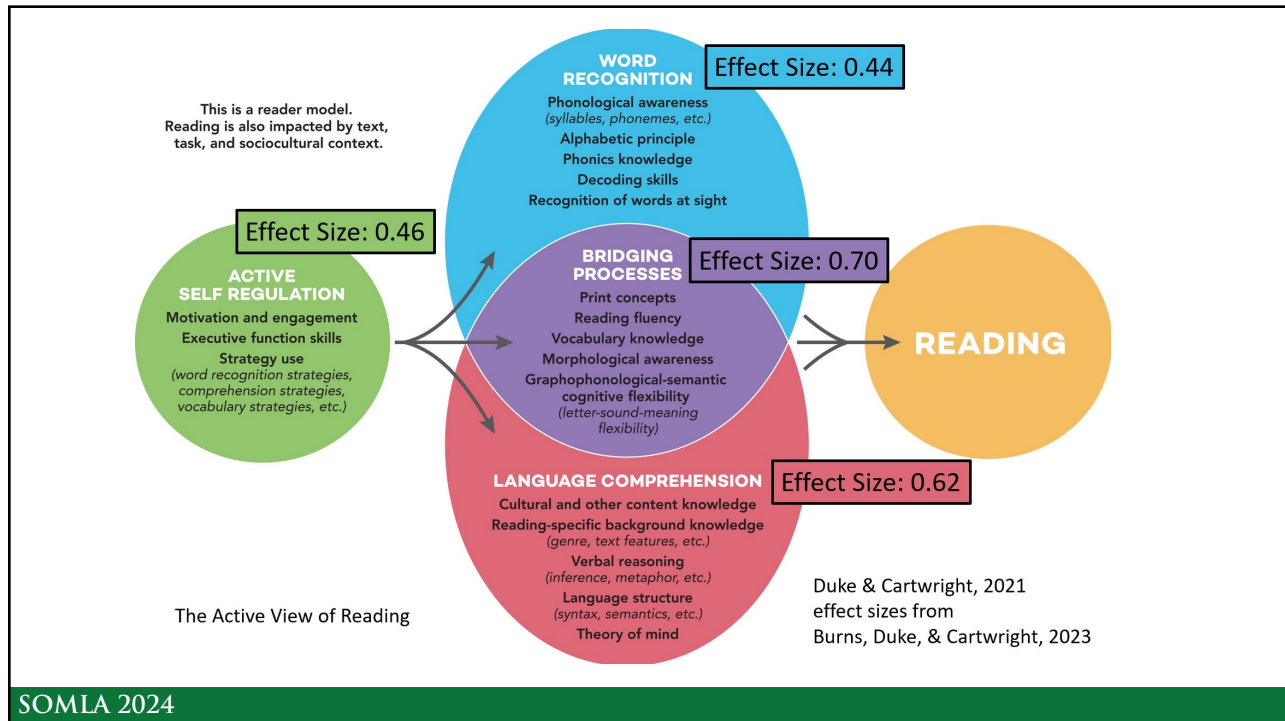


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## Executive Skills (aka Executive Functions)



mental skills we use to manage our thoughts, feelings, & behaviors to achieve goals

→ self-regulation

**IN READING: a critical set of mental skills that enable the management of reading processes toward the end goal of reading comprehension**

\*Umbrella term: includes many skills, core (or basic) & more complex

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## Specific Executive Skills Underlie Reading

- **planning** (strategic, goal-directed behavior) (Cutting et al., 2009; Locascio et al., 2010)
- **organization** (recognizing and using structure) (Cutting et al., 2009; Locascio et al., 2010)
- **cognitive flexibility** (switching between & coordinating aspects of a task) (Cartwright et al., 2017; Cartwright et al., 2020; Colé et al., 2010)
- **inhibition** (resisting impulses, distractions, & irrelevant information) (Cain, 2006; Locascio, et al., 2010)
- **working memory** (holding information in mind while carrying out a process) (Borella, et al., 2010; Cain, 2006;; Carretti et al., 2005; De Beni et al., 1998; Oakhill et al., 2005)
- **social understanding** (considering others' thoughts/perspectives; "mind reading") (Dore et al., 2018; Guajardo & Cartwright, 2016; Weimer et al., 2021)

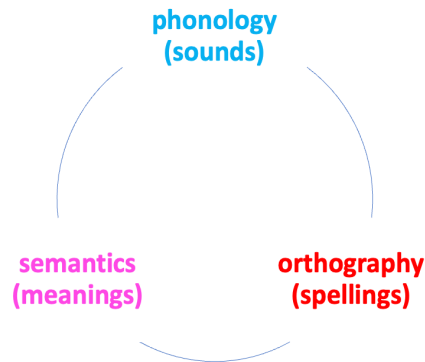
**Students with RCD show significant weaknesses in ALL of these!**

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## Linking Print Parts: Orthographic Mapping

“the formation of letter-sound connections to bond the **spellings**, **pronunciations**, and **meanings** of specific words in memory (Ehri, 2014, p. 5)”



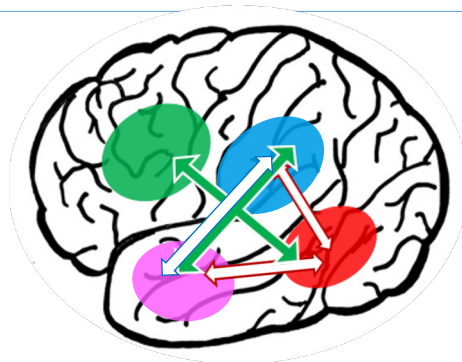
**Executive Skills** facilitate these links (Perfetti & Stafura, 2014)!

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## The Brain's Reading Network

Students with dyslexia and RCD have weak connections in the reading network and weak executive skills!



**Phonological/Sounds**

**Semantic/Meanings**

**Letterbox/Print**

**Executive Functions**

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## Teaching and Supporting Executive Skills...

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- Requires that we TALK about THINKING in ways that may be unfamiliar to us
- Goes beyond comprehension strategies & typical think-alouds
- Is also familiar because it brings together many things that we already do!

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## Teacher Talk Examples: “Good readers are good thinkers...”

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- **Good planners:** Know why they are reading and make a plan to get there
- **Organizers:** Organize what they read and use
- **Are focused:** Stay on task and use
- **Have good strategies:** Use various strategies to understand
- **Are good at ignoring (minimizing) things that are not important to understanding**
- **Are good “mind readers”:** Can think about characters’ thoughts and feelings

Making INVISIBLE processes  
VISIBLE for students!

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## Planning and Reading

- Planning in reading involves many things we know successful readers do (Duke & Pearson, 2002; Israel et al., 2005; Paris et al., 1984; Pressley & Afflerbach, 1995)
- Involves goal-setting and teaching students steps they can take to reach their reading goal for a particular text
- Explicit explanation and tools to make the plan visible

**Good readers are good planners:** They know why they are reading and make a plan to get there

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## Planning Tool for Students

### My Plan to Understand

**First ask:** Why am I reading? What is my goal?

**Then, with my goal in mind, take steps to get there . . .**

- Preview: Looking through the book, what do I see to help me reach the goal?
- Focus: Should I pay more attention to some parts and slow down for others?
- Connect: What do I already know about this topic that will help me reach the goal?
- Question: What goal-related question(s) can I ask myself?
- Predict: What do I guess will be in this book?
- Strategize: What other steps can I take to reach my goal?
- Reflect: What will I know when I'm done?

**FIGURE 2.2.** A planning guide for your students.

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## Organization Example

(Ability to recognize order, impose order, or create systems to manage information or objects)

How many  
**SENTENCES**  
can you make  
with these  
words?

book fun a good reading is

Reading a good book is fun.  
Reading a fun book is good.  
A good reading book is fun.  
A fun reading book is good.  
A good book reading is fun.  
A fun book reading is good.

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## Similarly, with words....

How many  
**WORDS**  
can you make  
with these  
letters?

**W B L O E**

below  
blow  
bowl  
elbow  
bow  
lob  
low

teaching phonics and  
spelling patterns =  
how letters are  
organized to create  
words; focus on the  
**INTERNAL  
STRUCTURE** of  
words!

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## Organization and Reading

**Recognition** of organization already in words and texts

- spelling patterns (letter/sound organization)
- syntax (word order)
- text structure (narrative or various informational structures)

**Ability to USE** a word's organization to decode it; or a text's organization to remember what's in it

**Ability to apply one's own knowledge** of organization to words and texts (requires explicit knowledge of organization as a tool)

**Good readers are organized thinkers:** They know how words, stories, and books are put together and use what they know to help them remember what they read

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## Language Organization: Syntax

Syntax: how language is organized to make meaning

1. like dogs I I like dogs.
2. have cats fur Cats have fur.
3. fast run horses very Horses run very fast.
4. books fun reading is Reading books is fun.
5. I apple the red eat I eat the red apple.
6. school ride I the bus to I ride the bus to school.

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## Supporting Syntax Awareness: Word Grouping Activity (Weaver, 1979)

quickly backyard dog the she in brushed the

First: Which word is the **action** word?

Next: Group the rest of the words by answering these questions

- **Who** did it? (The answer to this question usually goes before the action word.)
- **How** did they do it? (The answer to this question usually goes right before the action word)
- **To whom or what** did they do it? (The answer to this usually goes after the action word.)
- **Where** did they do it? (The answer to this usually goes at the end of the sentence.)

She quickly brushed the dog in the backyard.

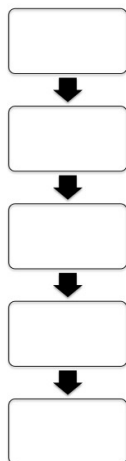
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## Teach Organization: Story Structure

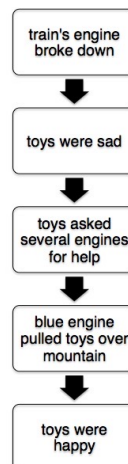
(van den Broek, 1989; Walker, Gopnik, & Ganea, 2014; Wolman, van den Broek, & Lorch, 1997)

In narratives, events are connected because of cause/effect



Think about The Little Engine that Could:

How are events causally connected?



Children with RCD struggle to understand cause and effect in stories.

Their retellings are like a string of unrelated events!

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## Supporting Organization: Connectives

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Sharon got wet, \_\_\_\_\_ she forgot her umbrella.

Students with RCD tend only to use simple “additive” connectives (e.g., *and*), but not others in retelling and writing.

– They need explicit support.

(Cain, 2003; Carretti et al., 2006; Trabasso et al., 1981)

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## More on Connectives

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(Cain, 2003; Carretti et al., 2016; Trabasso et al., 1981)

Track and teach use of connecting words when

- Story sequencing (putting pictures in correct order) with verbal explanation for WHY they are connected
- Retelling
- Narrating of wordless picture books
- Writing

Explicitly teach connecting words, such as

**Independence Between Ideas:** and, additionally, now, as well, also, in addition...

**Dependence (Connection) Between Ideas:** if, but, because, so, so that, in order to, however, in contrast, or else, instead of...

**Time Sequence:** later, first, next, since, and then, when, before, finally...

(Cain, 2003; Trabasso et al., 1981)

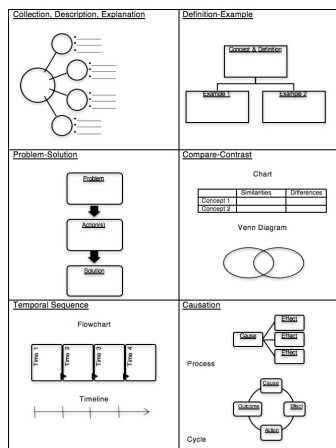
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## Teach Organization: Expository Text Structures

Teach them explicitly!

- collection, description, explanation
- definition-example
- problem-solution
- compare-contrast
- temporal sequence
- causation (process or cycle)



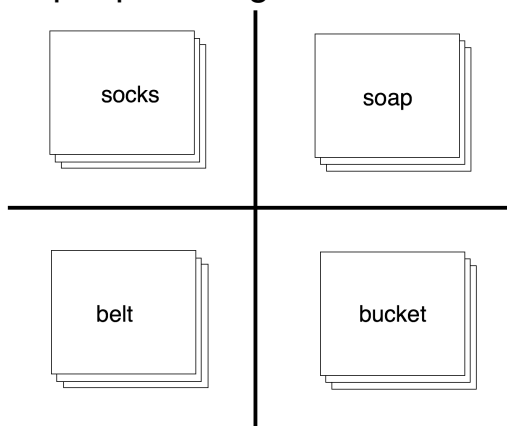
(Reutzel, Read, and Fawson, 2009; Williams, 2003, 2005; Williams et al., 2014)

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## Assess Flexibility: Coordinating Words' Sounds and Meanings

Graphophonological-semantic cognitive flexibility (GSF)



Reflects coordination of WR and LC; contributes to children's & adults' reading comprehension

Children and adults with RCD are significantly less flexible!

(Cartwright, Bock et al., 2017; Cartwright, Coppage et al., 2017)

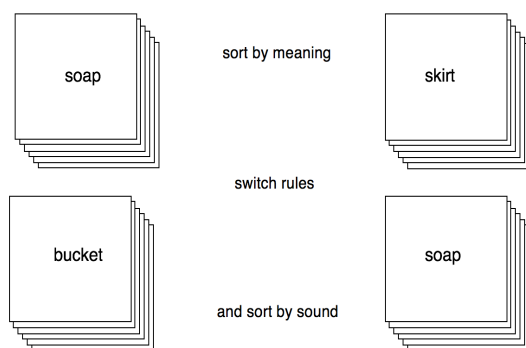
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## Teach Flexibility to Improve Reading

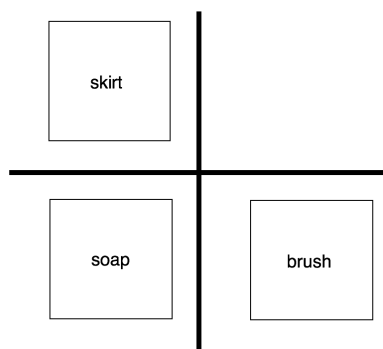
(Cartwright, 2002; Cartwright, Bock, et al., 2020; Cartwright, Coppage et al., 2017; Cartwright, Marshall et al., 2019; Fong, 2023)

first, single sorts



2 steps with one card set

then, sort completions  
(place 3, child completes)



criteria: 4-in-a-row correct

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## Supporting Inhibition: Ambiguity in Academic Language

Sometimes we expect students to learn (or know) academic meanings for words that also have everyday meanings

readers (and listeners) must inhibit the common meaning and pay attention to the more specialized academic meaning!

**“sentence” in language arts vs. math class**  
**“some” (part) vs. “sum” (total)**

(Durkin & Shire, 1991 Logan & Kieffer, 2017; 2021)

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## Supporting Inhibition Resolving Ambiguous Meanings

(inhibiting incorrect ones, focusing on correct ones; also requires working memory)

### Homonyms and Homophones

e.g., bear/bare, deer/dear,

### Idioms and Other Figures of Speech

e.g., hold your tongue; *Parts* and *More Parts*,

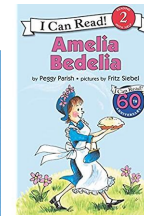
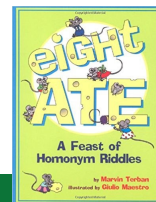
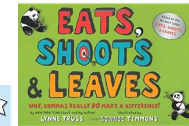
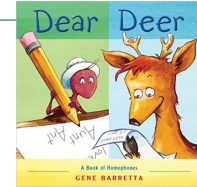
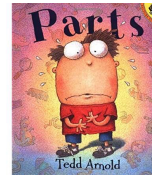
### Ambiguous Sentences

e.g., Let's eat Grandma. vs. Let's eat, Grandma.

### Books with Multiple Meanings

e.g., *Amelia Bedelia*, riddles books

(Yuill, 1996, 2008; Zipke, 2008; Zipke, Ehri, & Cairns, 2009)



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## Supporting Working Memory: Resolving Anaphors

Sally loves to go to the park with Jane because she always pushes her very high on the swings.

Authors use **shortcuts** when writing. They **substitute shorter words or phrases for longer bits of text**, and we have to figure out what they mean. Requires holding words in mind so you can connect them to later words.

**Jim's** mother said **he** couldn't have **a pet** because **he** didn't have time to take care of **one**.

(Francey & Cain, 2015; Garcia-Madruga et al., 2013; Oakhill & Yuill, 1986; O'Connor & Klein, 2004; Yuill & Oakhill, 1988)

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## Supporting Working Memory: Inferences

It was 8:55, and the school bell rings at 9:00.  
Andy was pedaling as fast as he could, because  
he was worried that he might miss his test.

Where was Andy going? (Text-connecting, local coherence inference)

How was Andy getting there? (Gap-filling, global coherence inference)

(Bowyer-Crane & Snowling, 2005; Cain & Oakhill, 1999; Elbro and Buch-Iversen, 2013)

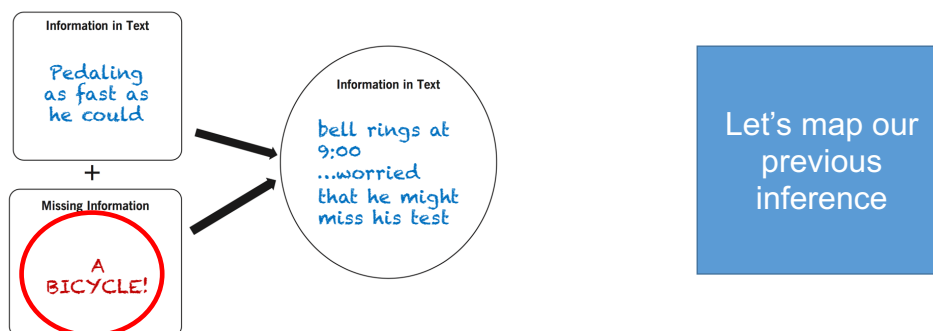
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## Supporting Working Memory: Inferences

(Elbro & Buch-Iversen, 2013)

- We need to provide concrete, visible supports for the inference-making process
- Inference maps scaffold weak working memory skills



(Carr et al., 1983; Clarke et al., 2010; Elbro & Buch-Iversen, 2013; McGee & Johnson, 2003; Yuill & Oakhill, 1988)

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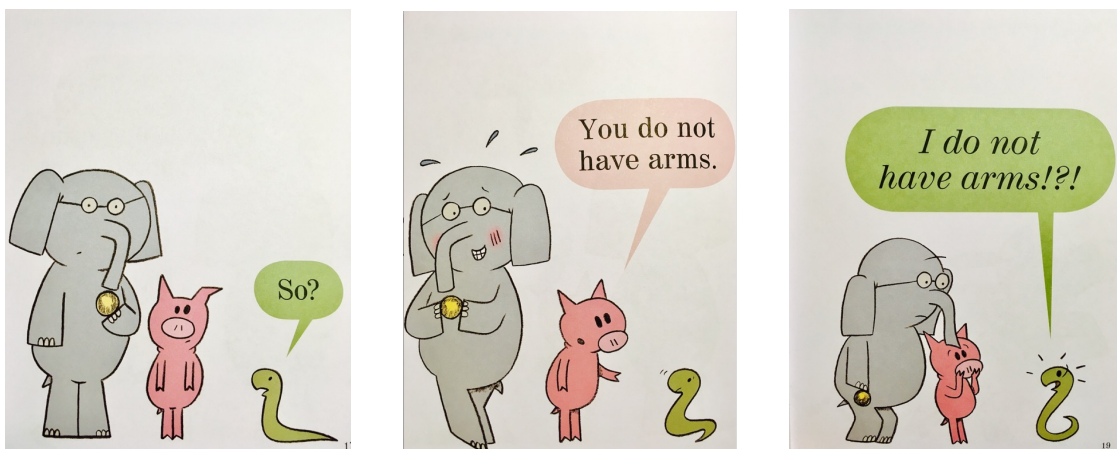
## Social Understanding Example



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## Social Understanding (Continued)



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## Social Understanding and Reading

(Carnine, Stevens, Clements, & Kameenui, 1982; Guajardo & Cartwright, 2016; Lysaker & Miller, 2002)

- Required to understand WHY characters do what they do
- Supports **social inference-making** – essential for narrative texts and social informational texts (e.g. history and social studies)
- Supports understanding of author's purpose
- Reciprocal: Adults who read more fiction have better social understanding! (Kidd & Castano, 2013)

Good readers are good "mind readers": Can think about characters' thoughts and feelings

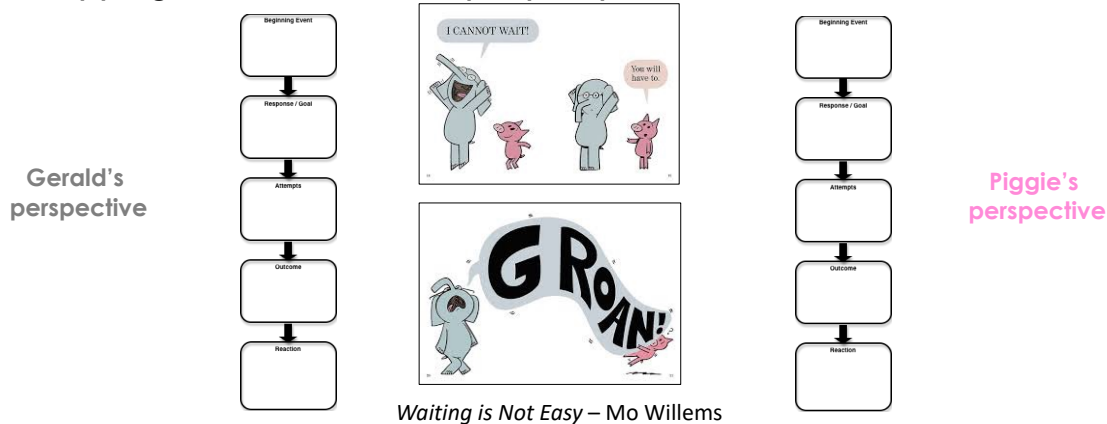
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## Supporting Social Understanding

(Shanahan & Shanahan, 1997)

### Mapping stories from multiple perspectives



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## THINK about it....

- What texts can you think of that would support the development of understanding multiple perspectives?



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## Teaching Social Understanding

(e.g., Dyer, Shatz, & Wellman, 2000)

### Mental and emotional state vocabulary

- Assess how often these words appear in retellings
- Teach these kinds of words to improve social understanding

	<b>cognition (thinking):</b> believe, bet, dream, figure, forget, guess...	
	<b>motivation (desires):</b> desire, hope, like, love, miss, need, want...	
	<b>emotion (feelings):</b> afraid, angry, bad, bored, cry, frustrated...	 

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## Summary of Today's Interventions

### Support students with RCD by enabling:

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- A more planful, goal-directed approach to reading
- Explicit attention to language and text organization and structure with concrete supports
- A more flexible focus on meaning in addition to words' sounds, AND the ability to shift between them
- The ability to consider multiple word meanings and inhibit meanings inappropriate for text context
- The ability to resolve pronouns, make inferences, and connect ideas by using concrete supports
- The ability to make social inferences

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## Key Takeaways

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- Reading difficulties set students on trajectories of disadvantage
- Students with reading difficulties often have problems that extend beyond word recognition and language comprehension
- They may also have executive function (EF) weaknesses, which can underlie their difficulties with language and reading processes
- Instruction for students with reading and EF problems must be
  - **Explicit about the thinking processes involved** in reading
  - **Intentional about providing concrete supports that scaffold the executive skills** underlying reading

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Learn more about interventions for RCD in this book.




**Do you notice executive skill issues in your students?**

**How can you intentionally support your students' executive skills in reading?**

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**Questions?**

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