Background Knowledge: Bridging the Gap Between Research and Practice

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The Scenario

Ms. Marin's 9th-grade class will be reading about the Vietnam War as part of the standard: The Cold War (1945-1991). Many students have struggled with reading and comprehending texts in the previous lessons, and screening data from NWEA MAP and Ohio State Testing show that several students are reading below grade level.

Ms. Marin believes that her students' lack of background knowledge may hinder their comprehension, as many of them are not familiar with the historical events covered by the texts. She struggles to find ways to build students' background knowledge based on the demands of the students' needs and the limited time she has to cover her curriculum.

The Scenario

- Can you identify with this situation?
- In what ways are your challenges in literacy instruction similar or different?



Reading comprehension is not a skill someone learns and can then apply in different reading contexts. It is one of the most complex behaviors that we engage in on a regular basis and our ability to comprehend is dependent upon a wide range of skills and knowledge.

Hugh Catts, 2021



The Importance of Background Knowledge

The impact of prior knowledge on reading comprehension is significant.

Students can more easily comprehend challenging texts with adequate background knowledge.





Objectives – Participants will:

Define background knowledge.

Review evidence that supports the connection between background knowledge & comprehension.

Review evidence-based practices to build knowledge networks.

Analyze the current role of background knowledge in current reading curricula and instructional practices and identify any next steps to strengthen this role.



Goals For Adolescent Literacy Instruction

- To increase overall levels of reading proficiency to better prepare students for increasing demands for high-level literacy skills both in postsecondary education and the workplace
- To help students who have achieved grade-level reading standards by the end of third grade continue to meet increasingly difficult standards in middle and high school.
- To assist students who are reading below grade-level standards in acquiring the skills and knowledge necessary to meet those standards.



Goals For Adolescent Literacy Instruction

- To increase overall levels of students for increase dem postsecondary edition your capacity.
- To help s.
 the end of third
 in middle
- To assist stude acquiring the

Within your capacity, what is your role in helping students to reach these goals?

difficult standards

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Universal Tier 1 - Reading Tiered Fidelity Inventory

Universal Tier 1 instruction should benefit all learners, including students with disabilities. It integrates listening, speaking, reading, and writing across core subject areas. Core subject-area teachers (ELA, math, science, social studies) meaningfully incorporate relevant discipline-specific text into daily lessons (e.g., different genres for ELA, informational text for social students and science). Evidence-based instructional strategies are used to support students' ongoing development of comprehension processes to actively construct meaning from text and establish a mental model of disciplinary concepts. Tier 1 instruction includes ongoing use of formative data to inform instruction and to help identify learners who may need additional reading intervention supports. In order for Tier 1 instruction to serve all students, it must also align to Tier 2 and 3 reading intervention. Students must have the opportunity to continue practicing and generalizing the strategies and skills they are learning during intervention instruction in their classes.



Instructional Perspective on Teaching & Learning

Two very different questions:

- 1. What is it about this student that makes the student unable to learn?
- 2. What is it about this instruction that makes the student unable to learn?



What is the role of background knowledge in reading comprehension?



What does this text demand of the reader?











- Meanings of words like capitalism, decadence, veiled, and Western culture.
- Knowledge of Iran's "Cultural Revolution" and its impact on people's freedom, education, and livelihoods.
- Understanding of the graphic novel format, including the use of structures like panels, speech & thought bubbles, and captions.



Hennessy & Salamone, 2023



The Research Statement Guiding Our Discussion Today

Controlling for other factors, knowledge plays the LARGEST role in comprehension.

The more a reader knows about a topic, the more likely they are to successfully comprehend a text about it.

Cromley & Azevedo, 2007; Ozuru, Dempsey & McNamara, 2009

Rigorous Texts & Struggling Readers

Recent research indicates that students actually learn more from reading texts that are considered too difficult for them—in other words, those with more than a handful of words and concepts a student doesn't understand. What struggling students need is guidance from a teacher in how to make sense of texts designed for kids at their respective grade levels—the kinds of texts those kids may otherwise see only on standardized tests, when they have to grapple with them on their own.

Shanahan, 2018



Why Use Complex Texts?

"Giving children easier texts when they're weaker readers serves to deny them the very language and information they need to catch up and move on."

- Marilyn Jager Adams



The Matthew Effect

Children who fail at early reading begin to dislike reading.

Their limited comprehension contributes to reading failure.

The Matthew Effect

They read less than their peers who are stronger readers.

Their limited vocabularies interfere with comprehension.

They do not expand their vocabularies and background knowledge.



The Simple View of Reading

Not a single entity. Castles et al, 2018

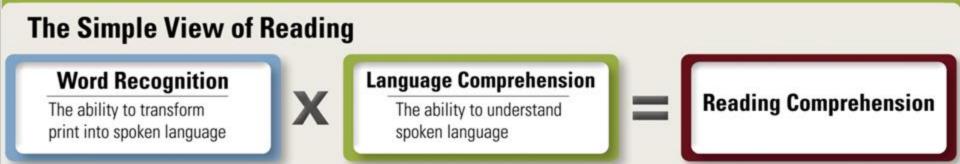


Figure 6. The Simple View of Reading (Gough & Tunmer, 1986)



The Simple View of Reading

Word Recognition

The ability to transform print into spoken language



Language Comprehension

The ability to understand spoken language



Reading Comprehension

Figure 6. The Simple View of Reading (Gough & Tunmer, 1986)

1	X	0	=	0
0	X	1	=	0
.50	X	.50	=	.25



What Is Comprehension?

Reading comprehension is a "process, not a product, through which the reader draws meaning from the text" (Carlisle & Rice, 2002).

Reading comprehension is the "process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (Snow, 2002).



...knowledge about the topic at hand is like mental velcro. The relevant knowledge gives the words of the text places to stick and make sense, thereby supporting comprehension and propelling the reading process forward.

Adams, 2015





Research clearly shows that how much readers understand about a text's topic before they read is a major factor in how much they understand while and after they read it.

> Hugh Catts, Rethinking How to Promote Reading Comprehension







What you're helping children to do is to create a mosaic, putting all those ideas together in a knowledge network.

If you don't do it **explicitly**, many children cannot do it on their own.

Neuman, 2021

...that whether or not readers understand a text depends far more on how much background knowledge and vocabulary they have relating to the topic than on how much they've practiced comprehension skills.

Willingham, 2018





How much a reader already knows about the subject is probably the best predictor of reading comprehension.

When readers engage with a text for which they have limited background knowledge, the text is much more difficult to understand than one for which they have ample background knowledge. ...research indicates that children continue to spin their wheels when they don't have the background knowledge required to understand much of what they are reading.



The Baseball Study

Recht & Leslie, 1988



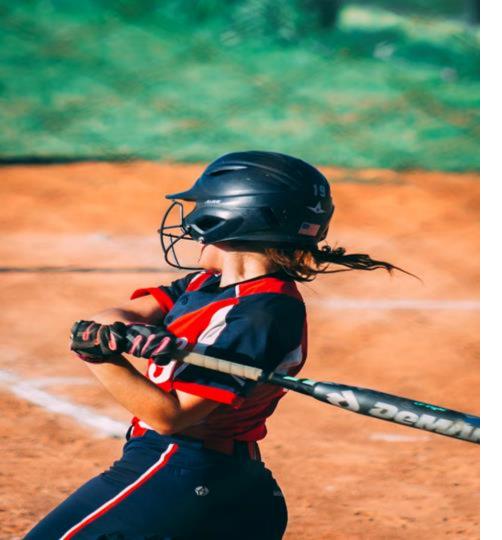


How big of a role does knowledge and the associated vocabulary play in comprehension?

Recht & Leslie (1988) Compared Reading Comprehension for Four Categories of Students

High reading ability High knowledge of baseball	High reading ability LOW knowledge of baseball
Low reading ability High knowledge of baseball	Low reading ability Low knowledge of baseball





Findings of the Baseball Study

- Knowledge of the topic had a MUCH bigger impact on comprehension than generalized reading ability did (p. 18).
- With sufficient prior knowledge, "low ability" students performed similarly to higher ability students (p. 19). The difference in their performance was not statistically significant.

Knowledge of the topic had a much bigger impact on comprehension than generalized reading ability did.

Measure of Comprehension

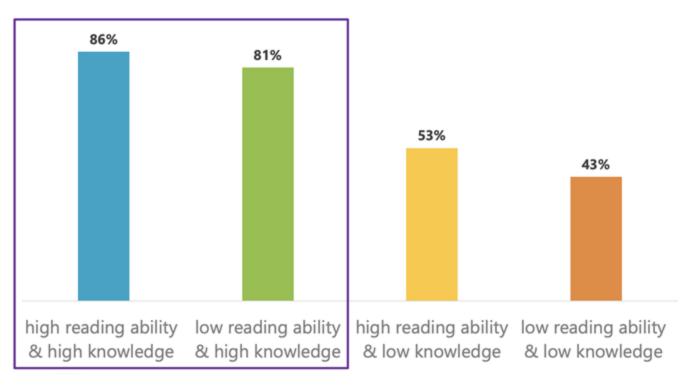




Table Talk: The Role of Knowledge in Reading Comprehension

What do these statements tell us about the role of knowledge in reading comprehension? How do our current literacy practices support these statements? What work might still need to be done?

- Comprehension is knowledge in disguise. ~Susan Neuman
- Knowledge is like velcro. Kids who start out with more knowledge and vocabulary are in a better position to absorb and retain more as they grow. ~Natalie Wexler
- Knowledge is the key to comprehension. If you want to know how much a student reads after they read a passage, you need to know how much they understood before they read the passage. ~Hugh Catts
- We should be striving for double outcomes an improvement in reading ability
 AND an increased knowledge about what was read. ~ Tim Shanahan



If students have a lot of barriers to grade level comprehension, how can we help them read and understand complex text?



Avoid handing any text to struggling readers without deliberate preparation for reading.



Time spent preparing students to comprehend a text is never wasted!

While good readers usually approach a text with a purpose in mind and adjust their reading to accomplish that goal, poor readers are likely to just focus on the surface or literal meanings and turning the book's pages.

Their expectations for learning something new and interesting are often low. They may not even expect the text to make sense. When this is the case, the students are also less likely to expend mental effort striving to understand the text.

Supporting Comprehension *Before, During & After* Reading a Text

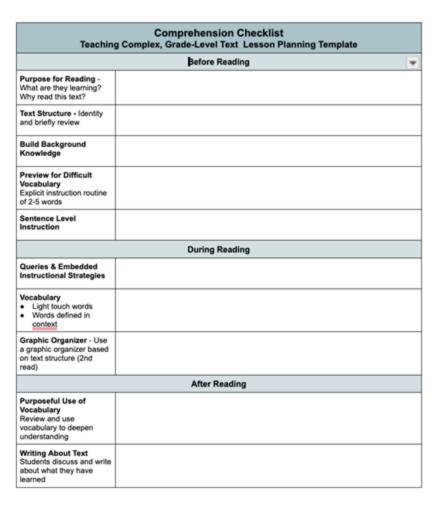
Each phase is crucial for enabling students to construct an accurate and elaborate understanding of a text's meaning.

Just a few things the teacher can do to support comprehension:

- help students build mental frameworks and to make connections between the students and the text
- guide students' attention to specific meanings they otherwise might miss
- facilitate the integration of prior experiences and understandings



Comprehension Checklist: Teaching Complex, **Grade-Level Text** Lesson Planning **Template**





Building Background Knowledge: Where to Start



 What background knowledge is critical to understanding the text?

 How and when will you teach students to access, build their knowledge, and integrate it with the text?



More Questions to Consider when Instructional Planning

- What is necessary for understanding the critical topics and understandings represented in the text?
- What did the author assume readers would bring to the text?
- What are my students bringing to the text?
- Given what my students know, what else might my students need to know?
- What instructional tool (activities and/or strategies) will support the integration and use of background knowledge to understand the text?





ABC's of Background Knowledge

Activate and assess background knowledge	Build background knowledge	Connect to Background Knowledge
Anticipation guides	Multiple topical/themed texts	Anticipation guides
Questions and prompts	Virtual and real-time experiences	Questions and prompts
Charts, webs, maps	Authentic artifacts	Charts, webs, maps
Visual images	Vocabulary connections	Application to other readings



A Activate and Assess Background Knowledge



Anticipation Guides

- Activates prior knowledge
- Builds curiosity about a new topic
- Checks for understanding after reading



Example from a Lesson on The Vietnam War: Politics, Patriotism and Protest

Statement	Agree or disagree?	Explain
"Power corrupts and absolute power corrupts absolutely."		
People should never compromise their ideals or beliefs.		
No cause, political or otherwise, is worth dying for.		
In certain situations, it may be justified for a political leader to bend or break the law for the good of the people.		
"Ask not what your country can do for you, but what you can do for your country."		



Questions & PromptsActivating & Assessing Students' Background Knowledge

- What do you already know about this topic?
- What experiences have you had related to this topic?
- What do you think it would like to live _____(place) during _____(time)?
- Do you know what it is like to be _____ (characteristic or quality)?
- Do you remember reading or learning about _____ (connections to other readings)?
- Based on what you know about _____ (topic), what might ____ (text, passage) be about?
- What type of text is this? Have I seen this type of text before?



Questions & Prompts to Activate & Assess Students' Background Knowledge on the Vietnam War Protests

- What do you already know about the Vietnam War protests?
- What might be a consequence for those that actively protested the war?
- What do you think it would be like to be a soldier fighting in Vietnam knowing that many people were protesting against the war?
- We will be reading a speech by Dr. Martin Luther King, Jr. What do you already know about his philosophies? What do you predict his stance on the war might be?
- What do you know about speeches and how might reading a speech be different than reading an informational text.





Visual Images



- What things do you see in the image?
- Do you notice any words? If so, what do they say?
- What do you already know about the Vietnam War protests?
- Do the images confirm what you already know, or do they offer new information?



B Build background knowledge



Building Text Sets

What is a text set?

- Text sets are grouped sets of texts and media resources focused on specific topics
- They help learners build background knowledge and vocabulary through reading
- Cover science, social studies, and other high-interest topics



Building Text Sets

Why Use a Text Set?

- To build knowledge about the topic of an anchor text (before, during, or after reading) in order to enrich that reading experience.
- To support science and social studies content through reading. Students
 can learn about the world around them including social issues, current
 events, or the past through topically connected texts.
- To support authentic writing and research. Students can keep track of new knowledge and the vocabulary they are learning.



Moving From Leveled Texts



The reason why students learn more from harder than easier texts is that there is more opportunity to learn. When you place students in a book that they are already comfortable reading there is little for them to learn...

Shanahan, 2020

Student Achievement Partners





Let's Do a Reading Simulation

- Read the grade level passage silently.
- Be prepared to defend or refute this statement, using evidence from the text.

Communication between the temporal and occipital lobe leads to fluent word recognition.

Across several methodologies within cognitive neuroscience, evidence consistently points to two cortical areas that exhibit dysfunction in developmental dyslexia, and which, we propose, subserve the normal development of the cognitive achievement of reading. The first region - a left perisylvian area typically involving the superior temporal gyrus (STG) - is involved in phonological processing and demonstrates significant structural and functional differences between dyslexic and nonimpaired individuals. The second region - a portion of the left occipito-temporal extrastriate visual system typically centered on or near the middle portion of the fusiform gyrus—has been associated with the automatic process of visual word form perception in skilled adult readers.



Responsiveness of this region reflects a form of perceptual expertise which normally develops over the course of learning to read, but which has also been shown to develop differently in dyslexic individuals. We suggest below that these two regions interact during the typical development of reading skills. Under this proposal, regions associated with phonology in the preliterate child impact the functional specialization of the left fusiform regions during the first several years of reading development, and the typical development of rapid and automatic word recognition ability is therefore disrupted in children with phonological processing deficits. Finally, it is possible that atypical patterns of activity in these regions might be altered via interventions that stress particular strategic approaches in word recognition processes and provide extensive practice.



How Did You Do?

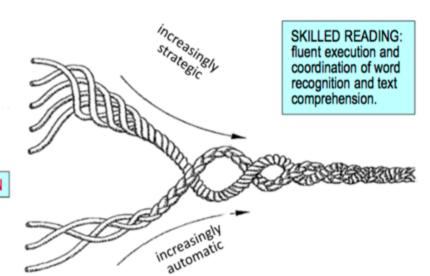
What was challenging?

What components of Scarborough's Rope need to be taught to help you understand this text and accomplish the task?

Scarborough's Reading Rope (2001)

LANGUAGE COMPREHENSION

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



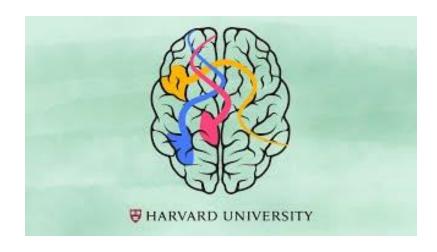
WORD RECOGNITION

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

Building Knowledge Through Texts

What if...

- we asked you to watch this video first?
- and then we read <u>this</u> <u>article</u> together?



How can a text set build comprehension?

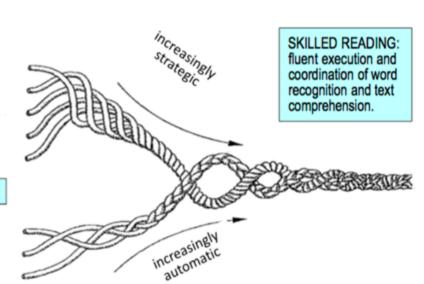
How did the additional resources in the text set help to build these skills?

What Changed?

Scarborough's Reading Rope (2001)

LANGUAGE COMPREHENSION

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



WORD RECOGNITION

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- Decoding (and Spelling)
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Stair Step Texts

- Texts can be hard because students lack sufficient background knowledge and vocabulary.
- If students have multiple texts on the same topic (at different difficulty levels) they can build critical knowledge to aid in comprehension.

Shanahan, 2019, <u>Teaching Students to Read Complex Texts</u>



How do the teachers that you work with identify text complexity?

- A. They trust the recommendations of the core curriculum adopted by the district.
- B. They use levels (A, B, C, D)
- C. They use Lexile Levels
- D. They use a combination of quantitative and qualitative measures as well as professional judgement.



Increasing Reading Volume Through Text Sets

- Systematically builds students' content knowledge
- Accelerates rate of learning new vocabulary times four (Davidson, 2019)
- Scaffolds instruction for struggling readers

Fordham, "Reading & Writing Instruction in America's Schools, 2018



Elements of a Well- Constructed Text Set

Centered on one specific topic

Includes a variety of resources of varying complexity (books, video, articles, infographics, web sites, etc.) to build interest and motivation

Resources are purposefully ordered to support students in building vocabulary and knowledge

Activities for completion
after each resource in order to
demonstrate comprehension
and build knowledge



Quad Text Set Framework

Lupo, Strong, Lewis, Walpole, McKenna, 2017





Implications

- A student doesn't have ONE reading level.
- Each student has MANY LEVELS depending on the topic & their background knowledge.
- Students can read more difficult texts if they have sufficient prior knowledge.



Building Background Knowledge & Vocabulary



Preview for Difficult Vocabulary

- Previewing vocabulary helps activate prior knowledge, clear up misconceptions, and clarify the meaning of words in context.
- Background knowledge is important for comprehension, and word meanings are part of it.
- Vocabulary knowledge helps students connect their background knowledge to what they read.
- Previewing unfamiliar words before reading improves comprehension.

Keys to Literacy

The most important goal is to provide some familiarity with unknown words so students can make sense of the text when they read.



More than a definition...

Words are not just words. They are the nexus—the interface—between communication and thought. When we read, it is through words that we build, refine, and modify our knowledge. What makes vocabulary valuable and important is not the words themselves so much as the understandings they afford.

Adams, 2011



Goal of Previewing

- Activate prior knowledge
- Clear up student misconceptions about word meaning
- Clarify the meaning of known words in relation to the current context, especially for words with multiple meanings
- Provide some initial familiarity with unknown words so students can make sense of the text

Previewing is about attaching some meaning to new words, rather than deeply learning these words.



Preview for Difficult Vocabulary

Depending on the text, pre-teach tier 2 and possibly Tier 3 words.

- What words should be pretaught?
 - Identify 3–5 vocabulary words from text with high utility in other contexts (Tier 2 words).
 - Identify Tier 3 words necessary for understanding text.
 - Identify multiple-meaning words.



Previewing Vocabulary

- Bring student attention to vocabulary defined in the text.
- Provide a light touch for words that are not defined, but you can define easily, with a one word definition or synonym.
 - But his brother, Mark, knows the crackle of an extraterrestrial signal in his ear. Mark is a former astronaut who has been to space four times. Mark is also known for being married to former congresswoman Gabrielle Giffords, who was hurt in an assassination attempt in 2011.





Choosing Vocabulary

Excerpts from "Beyond Vietnam: A Time To Break Silence" Delivered at Riverside Church, New York, April 4, 1967

Since I am a preacher by trade, I suppose it is not surprising that I have seven major reasons for bringing Vietnam into the field of my moral vision. There is at the outset a very obvious and almost facile connection between the war in Vietnam and the struggle I, and others, have been waging in America. A few years ago there was a shining moment in that struggle. It seemed as if there was a real promise of hope for the poor — both black and white — through the poverty program. There were experiments, hopes, new beginnings. Then came the buildup in Vietnam and I watched the program broken and eviscerated as if it were some idle political plaything of a society gone mad on war, and I knew that America would never invest the necessary funds or energies in rehabilitation of its poor so long as adventures like Vietnam continued to draw men and skills and money like some demonic destructive suction tube. So I was increasingly compelled to see the war as an enemy of the poor and to attack it as such...





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Previewing Vocabulary Strategy - Student Rating of Word Knowledge

- Provide or help students create a visual of the word.
- Use real-life examples of how a word can be used when possible.
- Provide student-friendly examples.
- Provide synonyms and antonyms.



Previewing Vocabulary Strategy - Word Knowledge Checklists

- Know it well, can explain it, use it
- Know something about it, can relate it to a situation
- Have seen or heard the word
- Do not know the word

A Few Options

- Checklist
- Sorting Cards into categories
- Use fingers to rate knowledge

Vocabulary Knowledge Rating Checklists

Vocabulary Word	Can define	Have seen/heard	Don't know

Blachowicz, 1986

Word	Know it well, can explain it, use it	Know something about it, can relate it to a situation	Have seen or heard the word	Do not know the word

Beck, McKeown, Kucan, 2002

C Connect to Background Knowledge



Example from a Lesson on The Vietnam War: Politics, Patriotism and Protest

Before Reading Agree or Disagree	Statement	After Reading Agree or Disagree
	"Power corrupts and absolute power corrupts absolutely."	
	People should never compromise their ideals or beliefs.	
	No cause, political or otherwise, is worth dying for.	
	In certain situations, it may be justified for a political leader to bend or break the law for the good of the people.	
	"Ask not what your country can do for you, but what you can do for your country."	



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