


The Role of
Background Knowledge
in
Reading Comprehension

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Today's goals

- The Science of Reading framework
- Understanding reading comprehension
- The role of knowledge
 - Background knowledge vs. prior knowledge
 - Vocabulary
- Application

The Science of Reading Framework

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

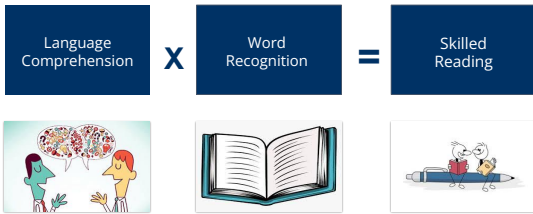
This research has been conducted over the last **five decades across the world**, and it is **derived from thousands of studies** conducted in multiple languages. The science of reading has culminated in a **preponderance of evidence to inform how proficient reading and writing develop**; why some have difficulty; and how we can most effectively assess and teach and, therefore, improve student outcomes through **prevention of and intervention for reading difficulties.**"



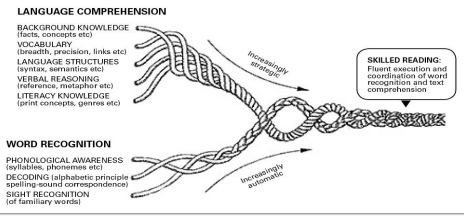
<https://www.thereadingleague.org/what-is-the-science-of-reading/>

The Simple View of Reading

(Gough & Tunmer, 1986)



The Many Strands that are Woven into Skilled Reading (Scarborough 2001)



Understanding Reading Comprehension

Stop and consider...



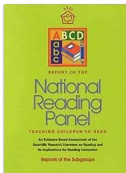
What is reading comprehension?

Why is it important?

When students "have it" they can...

What does the NRP say about comprehension?

Note: Format meta-analysis was not possible in any area of comprehension



Three key themes related to comprehension:

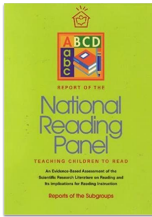
- Complex, integrated process where vocabulary plays a key role
- Involves "active interactive strategic processes" (p.4-1)
- Teacher preparation is critical

Report focuses on:

- Vocabulary instruction
- Text comprehension instruction
- Teacher preparation
- Comprehension strategies instruction

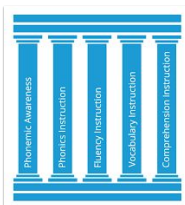
National Institute of Child Health & Human Development
NICHD, 2000

The Big 5



- Phonemic awareness
- Phonics
- Fluency
- Vocabulary
- Comprehension

Unintended consequences: The Pillars



“Whereas such a consideration and depiction are thought to form a useful heuristic, it can give the false impression that comprehension is comparable to these skills in terms of its complexity and the way it is best taught and measured.”

(Catts, 2021)

Reading Systems Framework

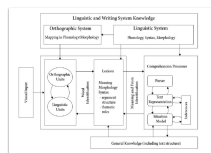
(Perfetti & Stafura, 2014)

Three areas that support reading comprehension:

Knowledge: linguistic, orthographic, academic, general

Processes: decoding, word identification, inference, comprehension monitoring

Cognitive resources: working memory



Assessment Implications

"One lesson from the literature on reading comprehension assessment is that it is not easy to measure: It is not a single entity that can be cleanly and reliably captured by a "gold-standard" test. Indeed, standardized tests that are marketed as reading comprehension assessments can vary enormously"

(Castles et al., 2018, p. 34).

The Role of Knowledge



“Chief among the factors on influencing reading comprehension is background knowledge. Research clearly shows that how much readers understand about the text’s topic before they read is a major factor in how much they understand while and after they read it”

(Catts, 2021, pg. 28)



“Prior 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, p. 8)

What knowledge is needed?

(Cervetti & Hiebert, 2019)

Topic: Lions

“The species’ tan coat blends in among the vegetation of its home, helping it to stalk prey”

Siberian tigers are considered endangered by IUCN’s Red List, and one cause of their dwindling population is loss of habitat due to deforestation

Who’s the better reader?

EDUCATION WEEK

Pride vs. Prejudice in Schools Honoring Segregationists



More about knowledge...

“...the more readers know about the topics of texts, the better their comprehension and learning from texts”
(Cervetti & Hiebert, 2019)

“...despite numerous consensus reports on the extant research on comprehension, we have ignored the factor that most powerfully predicts it: knowledge” (Neuman, 2019)

“The accumulated science of reading clearly points to the necessity of building content knowledge...”
(Cabell & Hwang, 2020)



A False Dichotomy

“Two phrases are often presented as if they represent a sequence in students’ reading development: “learning to read” and “reading to learn.” The assumption underlying these terms is that students need to recognize words before they can begin learning content from texts”

(Cervetti & Hiebert, 2019, pg. 500)

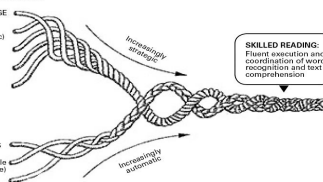
The Many Strands that are Woven into Skilled Reading (Scarborough 2001)

LANGUAGE COMPREHENSION

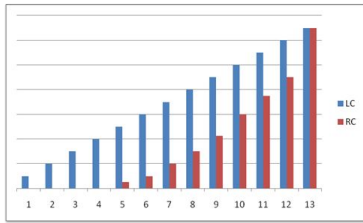
BACKGROUND KNOWLEDGE
(facts, concepts etc)
VOCABULARY
(depth, precision, links etc)
LANGUAGE STRUCTURES
(syntax, semantics etc)
VERBAL REASONING
(inference, metaphor etc)
LITERACY KNOWLEDGE
(print concepts, genres etc)

WORD RECOGNITION

PHONOLOGICAL AWARENESS
(syllables, phonemes etc)
DECODING (alphabetic principle
spelling-sound correspondence)
SIGHT RECOGNITION
(of familiar words)



Listening comprehension



(Sichr, 1974, 1984)

Background vs. prior knowledge

"Given the wealth of evidence about the importance of existing knowledge for reading development, one might expect that using experiences with text to enrich students' background knowledge would be considered an important aspect of reading development. However, with some notable exceptions, more attention has been paid to activating students' existing knowledge than building knowledge..."

(Cervetti et al., 2016)

Developing academic knowledge



What kids read matters



Kids should learn what they read



Extended time in a topic

Hennessy, 2020

Vocabulary

“Vocabulary, the bridge between word level processes and the cognitive processes of comprehension”

(Hiebert & Kamil, 2005, pg.4)

Vocabulary is highly predictive of reading comprehension

(National Institute of Child and Human Development, 2000)

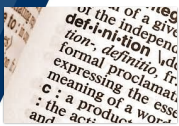
“...it is through words that we build, refine, and modify our knowledge. What makes vocabulary valuable and important is not the words themselves so much as the understandings they afford”

(Adams, 2009, pg. 180)

“Although some might argue that the primary goal of vocabulary instruction should be its influence on comprehension, a broader perspective includes the development of and access to an academic lexicon that allows students to not only listen and read with comprehension but also express understanding and thinking orally and in writing ”

(Hennessy, 2018, pg. 568)

Vocabulary: Breadth, depth, and flexibility



Definitions and contexts are equally important



Deep processing of words that connects to known information



Extended time in (not on) a topic

Hennessy, 2020

Application

Five knowledge-building practices

Knowledge at the Center of English Language Arts Instruction

Guia N. Canetti, Elizabeth C. Hodder

Building students' knowledge is an important way to support their future reading, and this article offers five practices for creating a knowledge-building classroom.

When we think about teaching literacy, we often think about the act of reading itself—the act of decoding letters and words and understanding their meaning. But the process of building knowledge is a more complex and multifaceted endeavor. It involves not only the acquisition of skills and strategies but also the development of a deep, interconnected understanding of the world around us. This understanding is the foundation upon which all other learning is built. In this article, we explore five practices that can help educators create a classroom environment where knowledge is the central focus of instruction.

College-age students need and need more than just content. They need to be able to apply what they have learned to new situations and to think critically about the world around them. This requires a deep understanding of the content and the ability to transfer that knowledge to new contexts. The practices outlined in this article are designed to help educators create a classroom environment where students can develop this deep understanding and transfer it to new contexts.

1. Ensure students read a lot
2. Choose engaging and conceptually and thematically rich texts
3. Teach students to use their knowledge to comprehend text
4. Infuse literacy into content area instruction
5. Give students real reasons to read (and write)

Five research-based principles

Comprehension in Discourse: The Role of Knowledge in Children's Learning

By Susan B. Swanson

A central goal of education is to help children learn to read and understand the world around them. This goal is best achieved when children are able to comprehend the meaning of the text they are reading. Comprehension is a complex process that involves not only the ability to decode words and sentences but also the ability to understand the meaning of the text in relation to the world around them. This understanding is the foundation upon which all other learning is built. In this article, we explore five research-based principles that can help educators create a classroom environment where children can develop this deep understanding and transfer it to new contexts.

Children's learning is a complex process that involves not only the acquisition of skills and strategies but also the development of a deep, interconnected understanding of the world around us. This understanding is the foundation upon which all other learning is built. The principles outlined in this article are designed to help educators create a classroom environment where children can develop this deep understanding and transfer it to new contexts.

1. Big ideas
2. Word knowledge
3. The use of multiple genres
4. Distributed review
5. Intentional opportunities for language engagement

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