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UNIVERSITY OF INDIANAPOLIS

THE COGNITIVE LENS: USING TEXT STRUCTURE & CONNECTIVES TO AID IN CONTENT AREA COMPREHENSION

Presenter:

Jess Daugherty

Literacy Specialist

Center of Excellence in Leadership of Learning (CELL)

**INDIANA EARLY
COLLEGE SUMMIT**

Welcome



Jessica Daugherty, M.Ed.

Literacy Specialist

Center of Excellence in Leadership of Learning
(CELL) at the University of Indianapolis

Let's dive right in...

*Take a moment and assume the role
of a student.*



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Passage A

The Great Lakes contain a massive amount of the world's surface freshwater. Lake Superior is the largest of the group and is known for being very deep and cold, often reaching depths of over 1,300 feet. It is located the furthest north and west. Lake Erie is also part of the system, though it is much shallower. Erie is the southernmost lake and is prone to freezing more quickly than the others. Superior's surface area is roughly 31,700 square miles. Erie's surface area is about 9,900 square miles. Both lakes are vital to the shipping industry and provide habitats for various fish species.

Passage B

While Lake Superior and Lake Erie are both vital components of the Great Lakes system, they are vastly different in their physical characteristics. On one hand, Superior is the "giant" of the north, boasting a massive surface area of 31,700 square miles and depths reaching over 1,300 feet. In contrast, Lake Erie is significantly smaller and shallower, covering only 9,900 square miles. Furthermore, their geographic locations lead to different climates: whereas Superior's northern waters remain deep and cold, Erie's southern, shallower position means it is much more likely to freeze over during the winter months. Despite these differences, both lakes remain essential for regional shipping and local ecosystems.

Square and Share



- Describe your reading experience as you read passage A vs. passage B?
- What differences did you notice between the two passages?
- Share any additional thoughts or questions with your group.

Passage B: Connectives

While Lake Superior and Lake Erie are both vital components of the Great Lakes system, they are **vastly different** in their physical characteristics. **On one hand,** Superior is the "giant" of the north, boasting a massive surface area of 31,700 square miles and depths reaching over 1,300 feet. **In contrast,** Lake Erie is significantly smaller and shallower, covering only 9,900 square miles. **Furthermore,** their geographic locations lead to different climates: **whereas** Superior's northern waters remain deep and cold, Erie's southern, shallower position means it is much more likely to freeze over during the winter months. **Despite** these differences, both lakes remain essential for regional shipping and local ecosystems.

Guiding Questions

How do we help readers move from surface level processing to meaningful comprehension?

How do connectives/signal words support informational text structures?

How can our instruction of text structures, connectives, and disciplinary lenses aid our students' comprehension?



Continuum of Coherence & Cognitive Load

Passage A?
Passage B?



Incoherent- inability to
relate units in the text

Coherent- ability to
relate units in the text

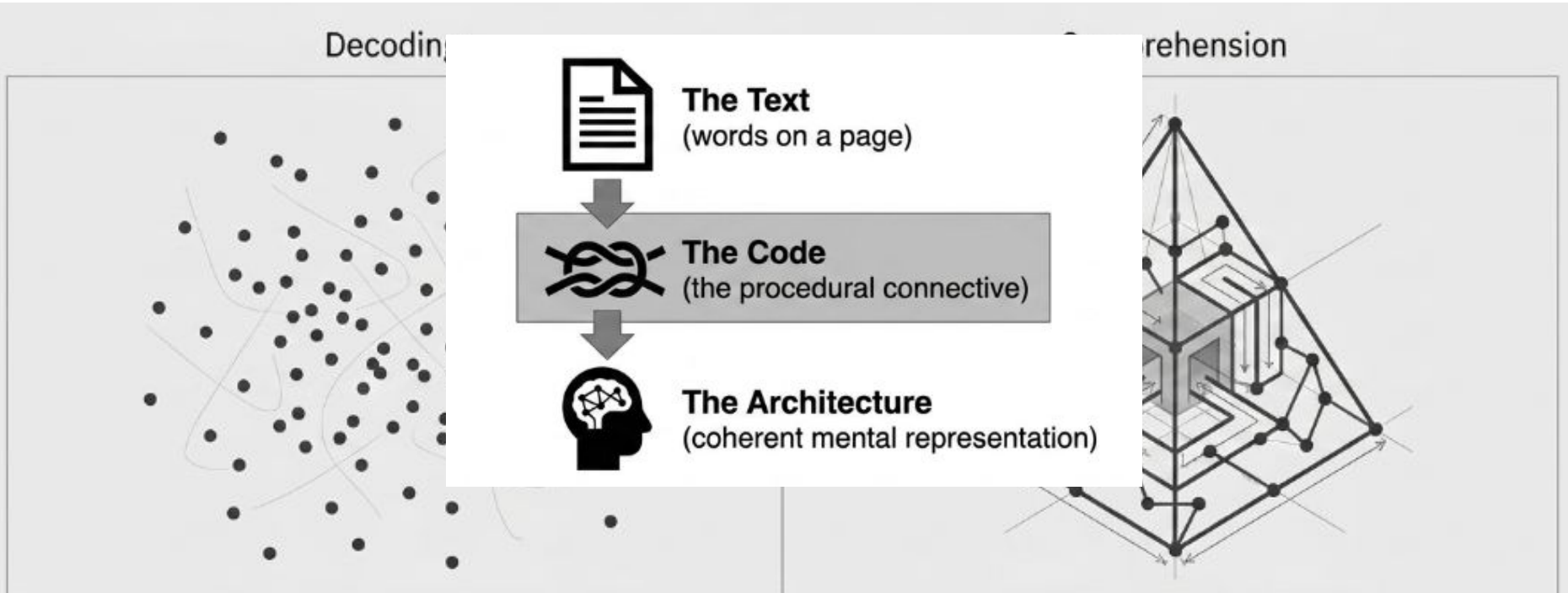
Comprehension: *A Cognitive Perspective*

At the **word level**, the reader must decode individual words...access meaning of the words they hear or read.

At the **sentence level**, the comprehender needs to work out the syntactic structure and sense of each sentence. Simply deriving the meanings of individual words and sentences is insufficient.

In order to construct a **mental model** of the text, the comprehender needs to integrate information from different sentences to establish local **coherence** and to incorporate background knowledge and ideas (retrieved from long term memory) to make sense of the details that are implicit within the text.

Comprehension (the construction of coherence)

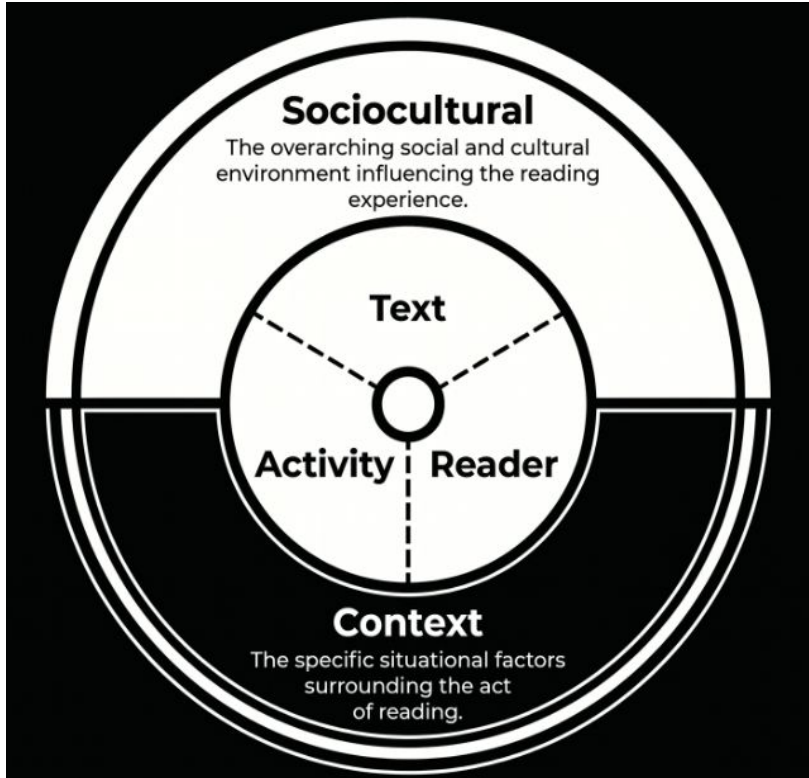


Processing disconnected strings of letters.

Building a coherent mental architecture.

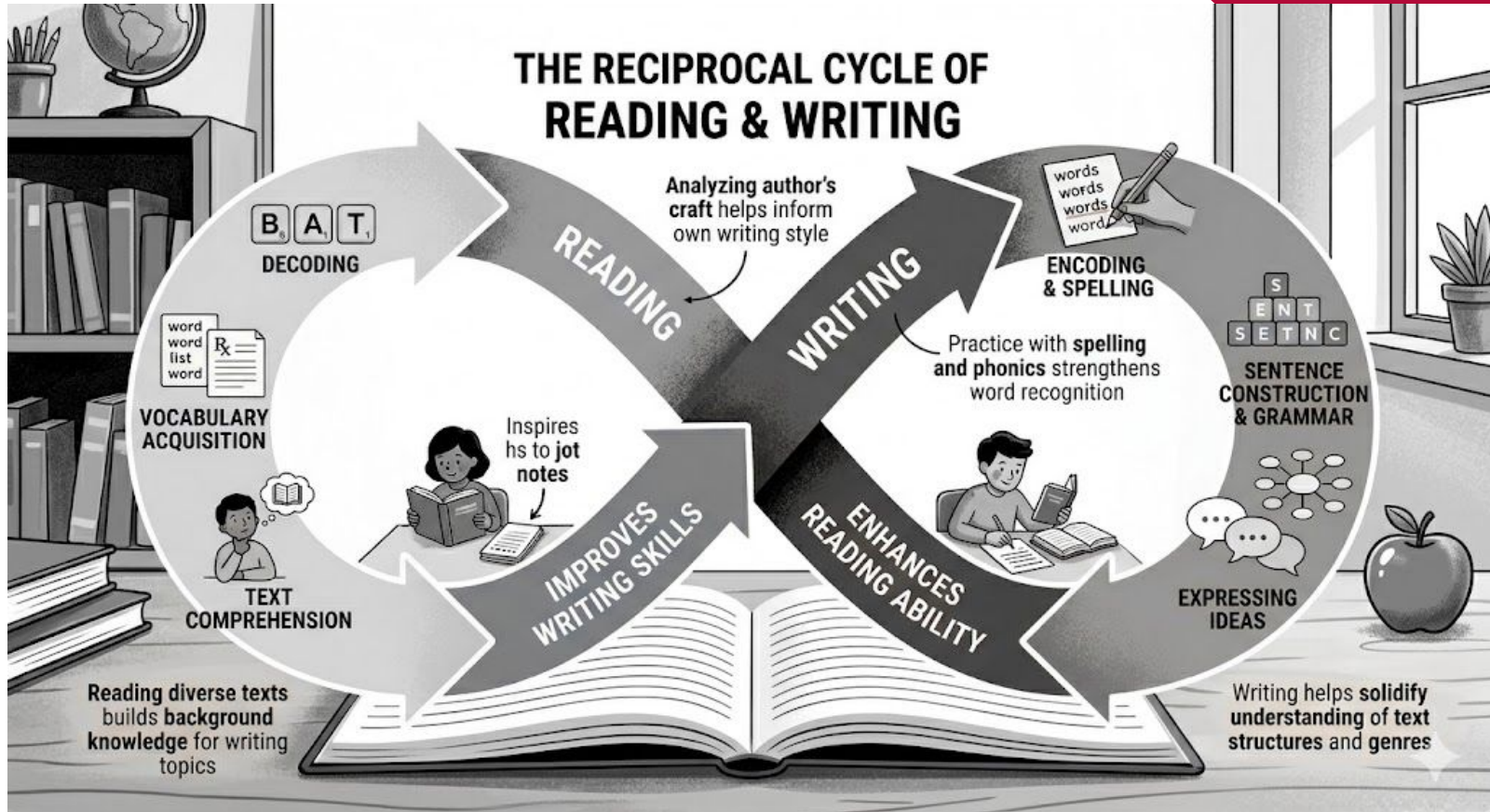
Comprehension

(Snow, 2002)



“Successful comprehension is what occurs when the demands of the text, the challenges of the task, and the skills and proclivities of the reader are well aligned” (Snow, 2010).

Reading and Writing Reciprocity



Science of Reading Connection

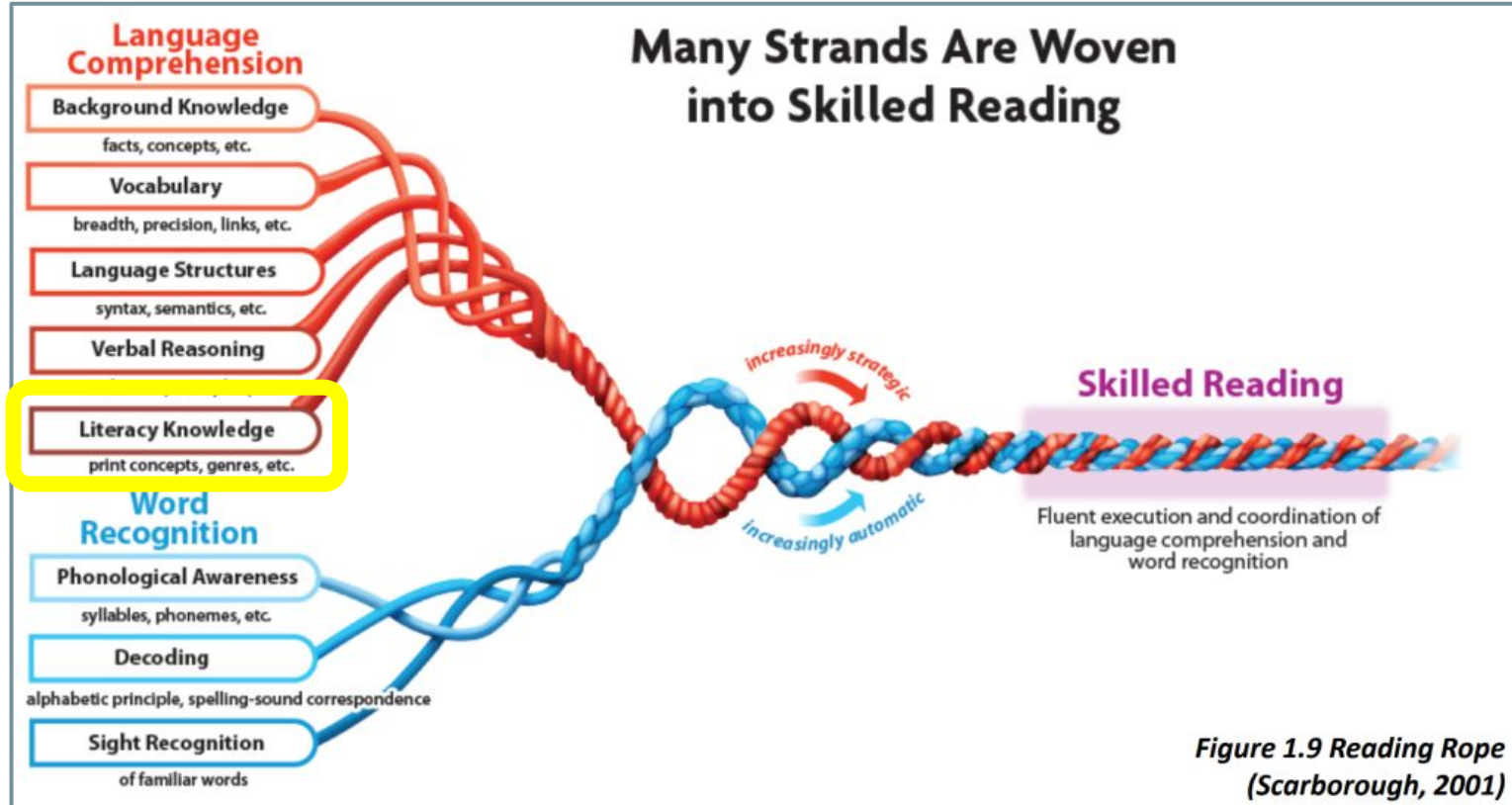
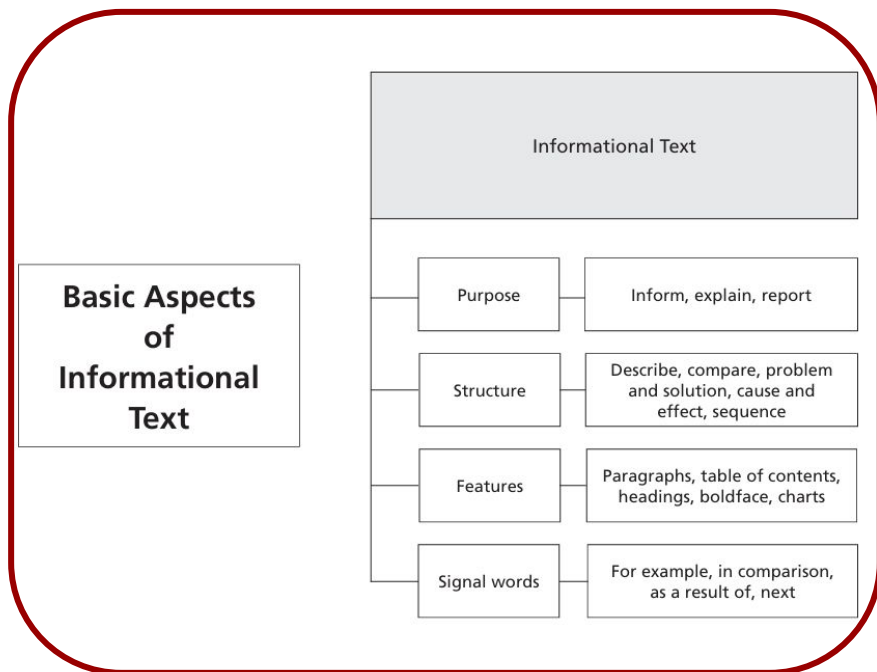
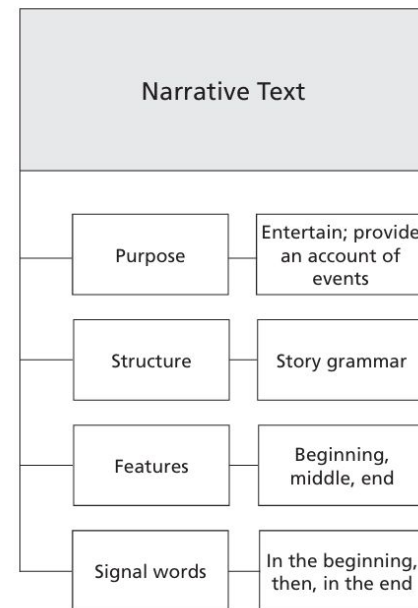


Figure 1.9 Reading Rope
(Scarborough, 2001)

For Today...



Basic Aspects of Narrative and Instructional Text



“Readers who can identify the structure of a text are better able to locate the information they need for successful comprehension”
(Williams, 2017).



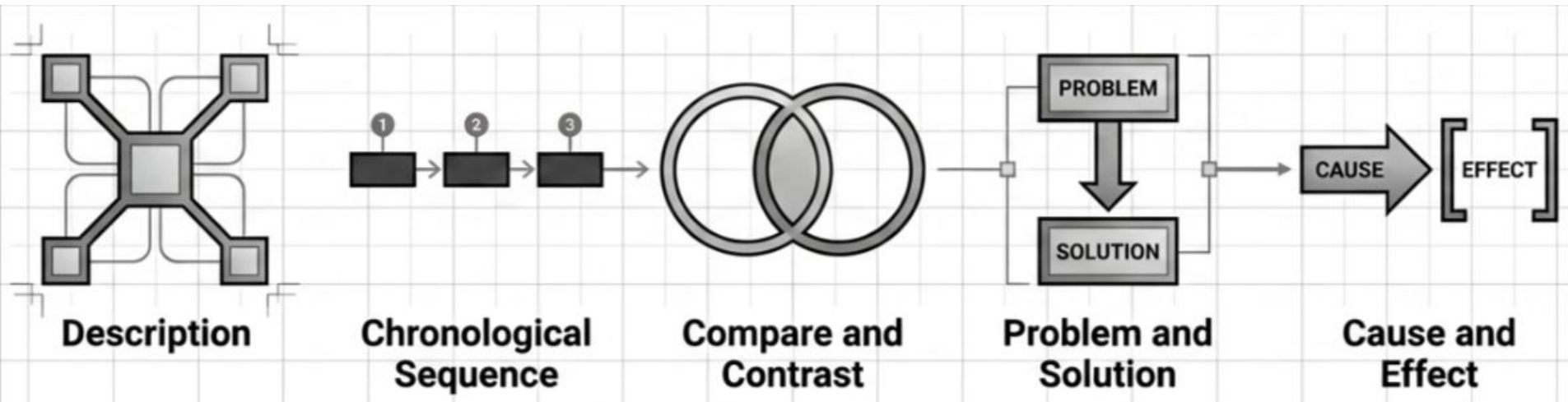
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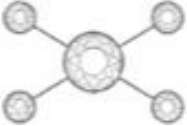
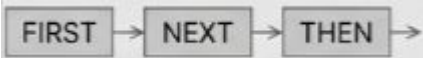
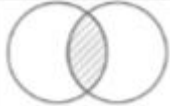
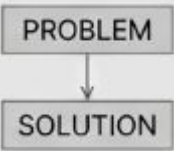

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Text Structure: Foundational Blueprints

Informational text relies on distinct **structures** and linguistic signal words, called **connectives**, to organize thought. Recognizing these structures and connectives is the first step to **cognitive mapping**.



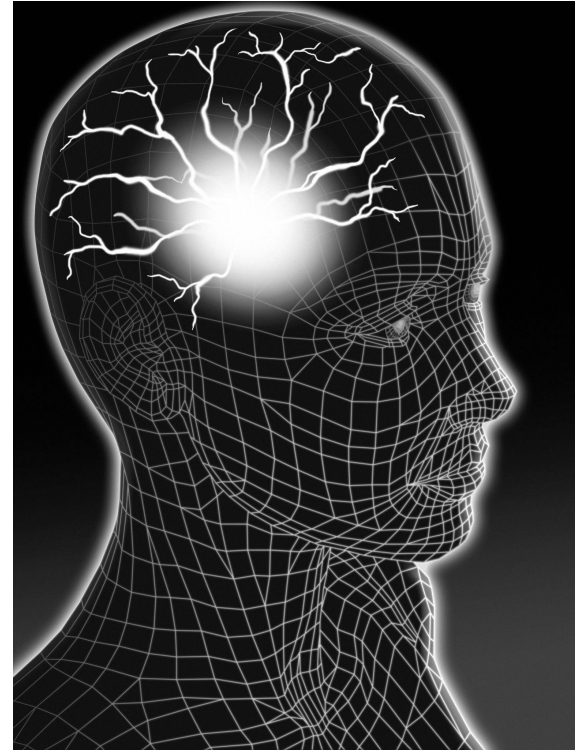
Informational Text Structure Matrix

Structure	Purpose	Signal Words/Connectives	Structural Shape
Description	Attributes/features	for example, such as	
Chronological Sequence	Order of events/steps	before, during, after, first, next	
Compare/Contrast	How things are alike/different	same, similar, although, however	
Problem/Solution	What is wrong and how to fix it	because, resolved, result	
Cause & Effect	Why an event happened and what resulted	since, led to, because, therefor	

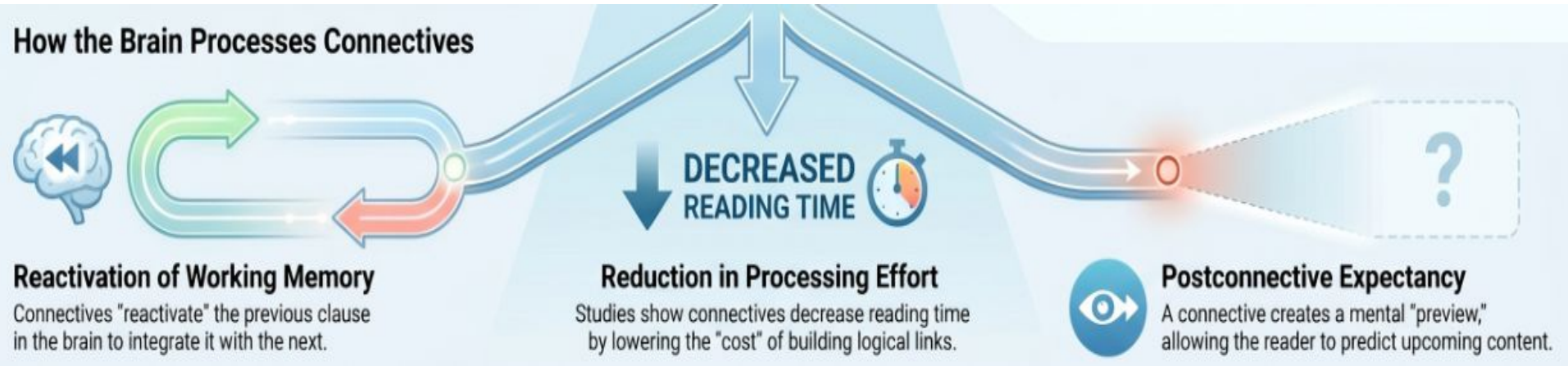
Connectives as Cognitive Tools

Reading comprehension is the active process of building a **coherent mental model** of a text.

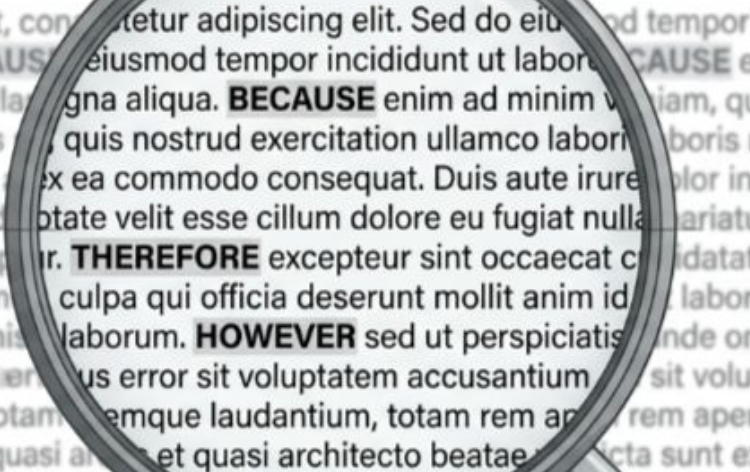
Research indicates that **connectives**-words like because, however, and therefor, are not merely grammatical markers, they are **essential procedural devices** that guide the brain's processing of information.



Connective & Cognitive Load



Applying the Disciplinary Lens



Lorem ipsum dolor sit amet, consetetur adipisicing elit. Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. **BECAUSE** eiusmod tempor incididunt ut labore et dolore magna aliqua. **BECAUSE** enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. **THEREFORE** excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. **HOWEVER** sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.

(Shanahan et al., 2011)

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The Disciplinary Shift

Science

Lens: Precision

Function: Conditional logic / Causality

Signals: If...then, leads to

Goal: Visualize a system

History

Lens: Perspective

Function: Conflicting viewpoints / Nuance

Signals: Nevertheless, alternatively

Goal: Evaluate an argument

Math

Lens: Logical Path

Function: Linguistic operators

Signals: Each, per, remaining

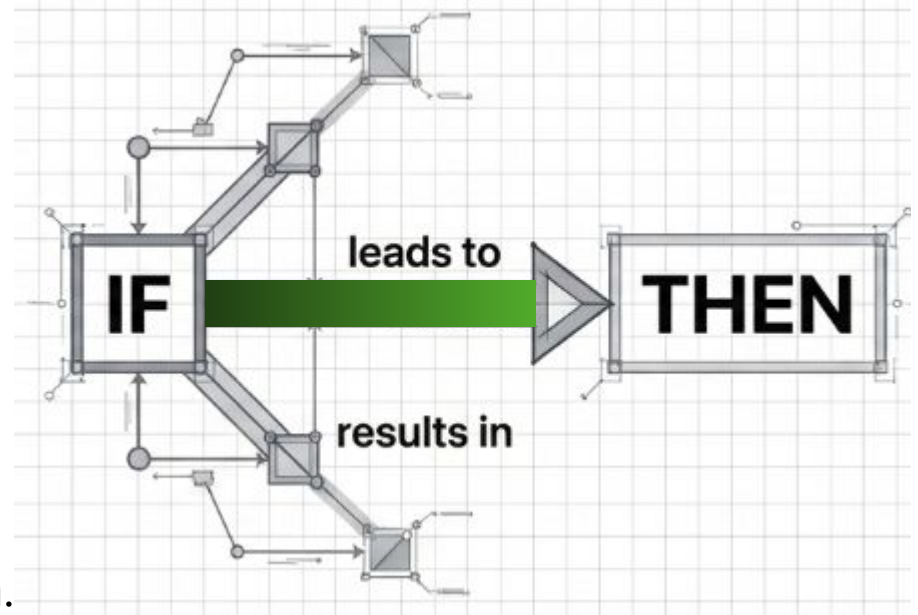
Goal: Build a model

Science: The Precision Lens

Focus Area: Identifying the precise mechanism of change.

The Shift: Students move from merely reading descriptions to visualizing interconnected systems.

Signal Words: If, then, leads to, results in.

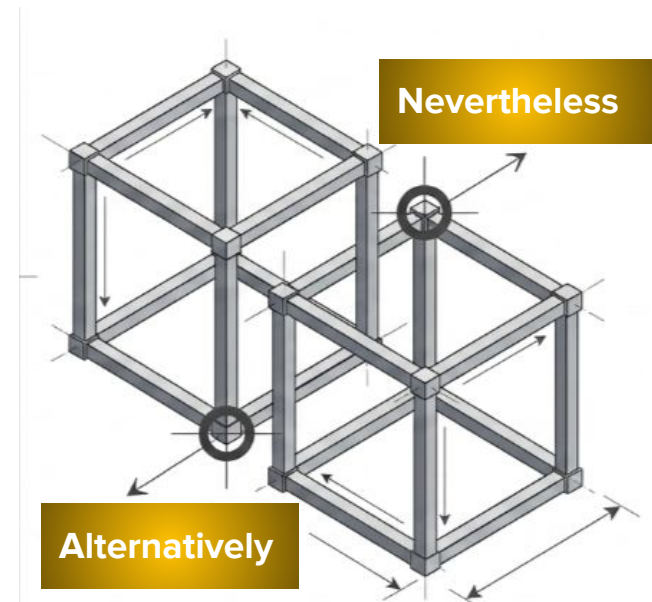


History: The Perspective Lens

Focus Area: Recognizing that history is an interpretation of events built on contrast.

The Shift: Students move from memorizing facts to evaluating arguments.

Signal Words: Nevertheless, alternatively, conversely.

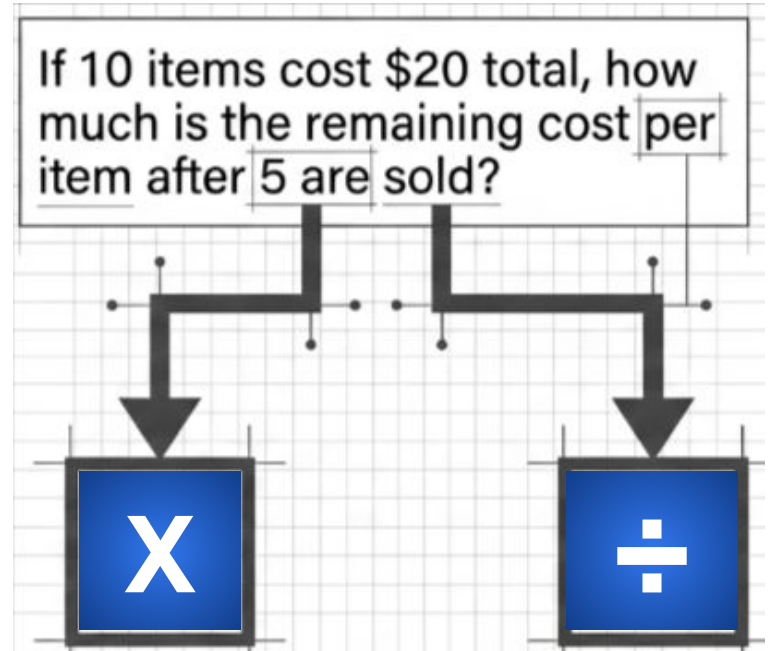


Math : The Logical Lens

Focus Area: Translating linguistic relationships into numerical operations

The Shift: Students treating the text not as a story (word problem), but as a set of instructions for a model

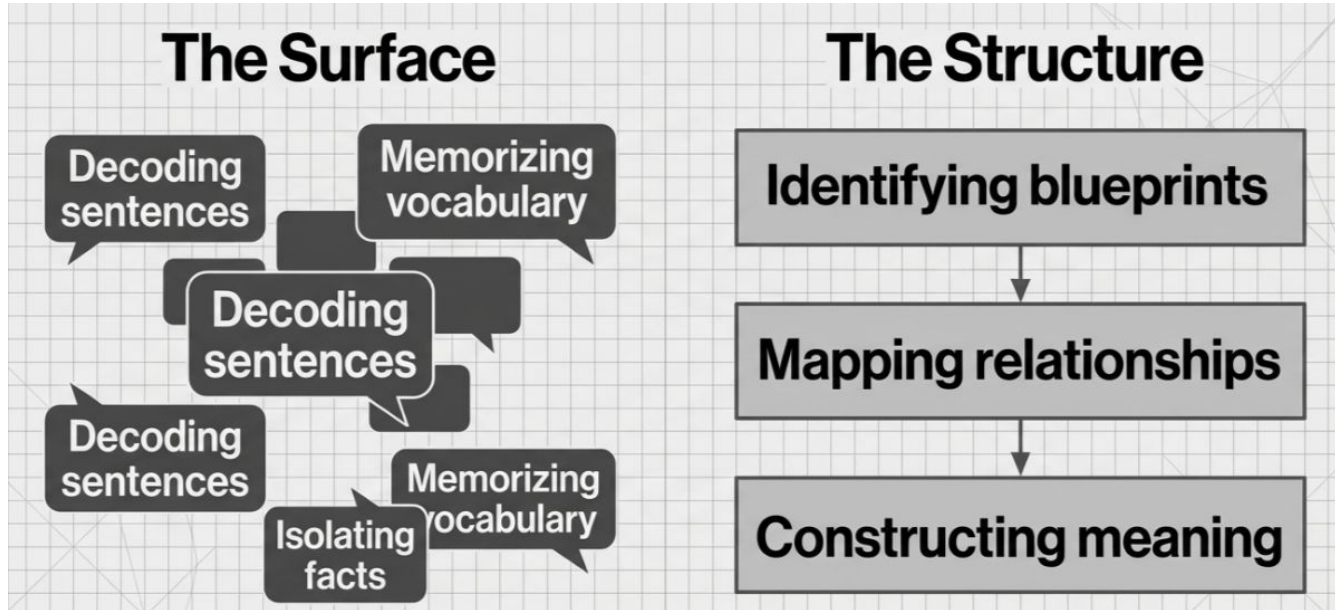
Signal Words: Each, per, total, remaining



Connectives & Cognitive Weight Across Text Structures



How do we help readers move from surface level processing to meaningful comprehension?



“Readers who are familiar with the particular **structure** of the text have several *advantages*: they know what to expect from different parts of the text, where to search for particular types of information and how the different parts of the text are **linked together**” (Oakhill, et.al, 2015).



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Reflecting

- Identify 1 thing you heard today that aligns with your current practices.
- Bring to mind 1 thing that you found interesting or surprising.
- Consider 1 way you'll apply today's learning during the 26-27 school year.



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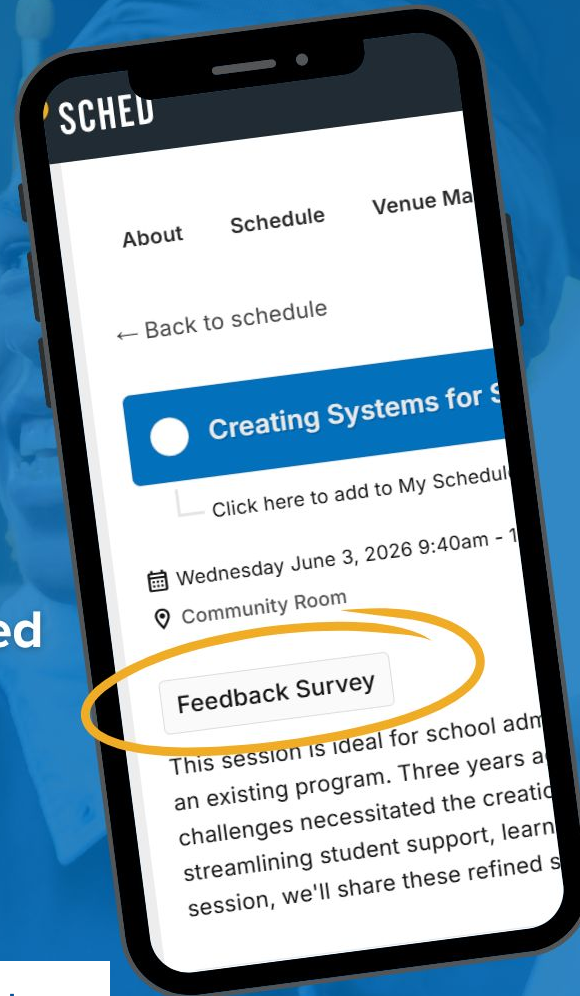
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Jessica Daugherty daughertyjl@uindy.edu