The Science of Reading Underlying myView: Vocabulary, Text Complexity, and Reading Volume

Elfrieda H. Hiebert
TextProject
1998
Primarily about Word-Level Information
(although light on Morphology, especially Compounding & Inflected Endings

1985
• Emerging Literacy
• Extending Literacy
• Classroom Practices
• Assessment
• Teacher Ed. & Prof. Deve.

2000
Five Pillars:
• Phonemic Awareness
• Phonics
• Fluency
• Vocabulary
• Comprehension
ESSA emphasizes evidence-based interventions

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>STRONG</td>
<td>Experimental Study (i.e., a randomized controlled trial)</td>
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<tr>
<td>MODERATE</td>
<td>Quasi-experimental Study</td>
</tr>
<tr>
<td>PROMISING</td>
<td>Correlational Study with statistical controls for selection bias</td>
</tr>
<tr>
<td>DEMONSTRATES A RATIONALE</td>
<td>Well-specified logic model informed by research or evaluation</td>
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</table>
QuickReads meets ESSA’s Strong Evidence criteria

<table>
<thead>
<tr>
<th>Strong Evidence Criteria</th>
<th>Alignment to Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental study (e.g., a randomized control trial)</td>
<td>Meets</td>
</tr>
<tr>
<td>Show a statistically significant and positive effect on student outcomes</td>
<td>Meets</td>
</tr>
<tr>
<td>Have a large sample and multi-site sample</td>
<td>Meets</td>
</tr>
</tbody>
</table>

**Evidence Explained**

ESSA emphasizes “evidence-based” approaches that have demonstrated statistically significant positive effects on student outcomes. ESSA identifies four levels of evidence: strong, moderate, promising, and evidence that demonstrates a rationale. The levels are defined by the research study design.

QuickReads meets ESSA’s “Strong” evidence criteria

<table>
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</tr>
</tbody>
</table>

See what EvidenceforESSA.org says about QuickReads. EvidenceforESSA.org has rated QuickReads as having Strong Evidence for both struggling readers and whole class. See their review of QuickReads here.

For more information, visit: pearsonschool.com/evidencebased
Flexible Workshop Resources for the Way You Teach

Print and Digital Resources
- Teacher's Edition
- Small Group Guide
- Leveled Reader
- Leveled Reader Teacher's Guide
- Literature Big Books (Grades K-2)
- myView Intervention Teacher's Guide
- myFocus Reader (Grades 1-5)
- Decodable Reader
- Foundational Skills Kit (Grades K-2)

Intervention
- Assessment Guide
- Progress Check-Ups
- Summative Assessments

Assessment Resources
- Cold Reads for Fluency and Comprehension
- Teacher's Manual with Student Reproducibles

Digital Resources
- Student and teacher print resources are available digitally on Realize.
- Additional digital resources include:
  - ExamView
  - EssayScorer (Grades 3-5)
  - Unit Launch Videos
  - ELL Access Videos
  - Realize Scavenger
  - Practice Games
  - Author Professional Development Videos
  - Reading Spot App

ELL Support
- Language Awareness Handbook
- Intervention Support
- myFocus Reader Online Teacher Support
- Foundational Skills
  - Phonics/Word Study Online
  - Student Resources
  - High-Frequency Word Cards
- Handwriting Support
  - Handwriting Practice
  - Online Student Resources
  - Handwriting Models
- Writing Support
  - Writing Workshop Minilessons
  - Student Practice
  - Student Practice Notes Template Online
  - Student Resources
  - Writing Workshop Drafting Template Online
  - Student Resources
  - Writing Assessments
  - Writing Assessment Rubrics

Additional Digital Resources
- Editing Activities Online
- Language and Conventions Online
- Spelling Online
- Project-Based Inquiry Rubrics
- Leveled Research Articles (Grades 1-5)
- Weekly Standards Practice PowerPoint
- Open Educational Resources
- Dual Language Educators' Implementation Guide
- Student Interactions (Grades 3-5)
- Think About It Interactives (Grades 3-5)

Also Available
- Words Their Way Classroom
- SuccessMaker
Knowledge at the Center:

Topic knowledge strongly predicts comprehension of a passage (Ahmed, Francis, York, Fletcher, Barnes, & Kulesz, 2016).

Vocabulary is an indicator of topic knowledge and even a handful of key words predict comprehension (O’Reilly, Wang, & Sabatini, 2019).
VOCABULARY
READING VOLUME
The Science of Reading informs us about:

• The “What” of Vocabulary

• The “How” of Vocabulary
Focus Vocabulary from a Competitor’s Program: Grade 3.3.3

- examined
- peak
- fondly
- steep
- rugged
- mist
- pausing
- pleaded
Lesson 13

Vocabulary in Context

- Study each Context Card.
- Make up a new context sentence that uses two Vocabulary words.

Target Vocabulary
- examined
- peak
- fondly
- steep
- rugged
- mist
- pleaded

Daily Vocabulary Boost

- Use the Vocabulary in Context Cards to briefly review the new Target Vocabulary and sentences with students.
- Turn and Talk. Distribute each Vocabulary in Context Card to a small group, and have them discuss the Talk It Over activity on the back of the card.

Examples:
- examined: The hiker examined the tree's and saw claw marks left by bears.
- peak: This goat lives near the peak, or top, of a mountain. It likes high, rocky cliffs.
- rugged: Riders on rugged trails go slowly to avoid bumps, rocks, and holes.
- mist: Most animals enjoy a gentle mist but look for shelter in pouring rain.

- fondly: Wolf mothers treat their pups fondly. They are always kind and gentle.
- steep: This mountain is steep. It reaches straight up into the sky!
- pausing: The buffalo in this stream is pausing, or stopping briefly, to drink.
- pleaded: This hungry eaglet pleaded with, or begged, its mother for food.

- examined
- peak
- fondly
- steep
- rugged
- mist
- pleaded
TARGET VOCABULARY

Review with students the Vocabulary in Context Cards on Student Book pp. 466–467. Call on students to read the context sentences and explain how the photograph demonstrates the meaning of the word.

MAKE CONNECTIONS Discuss all of the words using the items below to help students make connections between vocabulary words and their use.

- What would you do if someone pleaded for help?
- How would you describe a mist in the morning?
- Name some things that are radiant.
- What are some traits that you like in a friend?
- What things from second grade do you remember fondly?
- Name three things you are capable of doing.
- Have you ever climbed a steep hill? What was it like?
- What was the toughest test you have ever endured?
- When have you examined something closely?
- What does a rugged mountain peak look like?
- What are some reasons for pausing before walking across a busy street?

The Best Worst Day

Dr. Mary Fernandez would often think back fondly on the eventful day that set her on the path to becoming a doctor.

When Mary was a young girl, she and her friends had gone hiking. They left early, while a mist still covered the peak of the hill they hoped to climb. The trail was rugged with many loose rocks and tree roots, but she was having a wonderful time.

After staying with the group for a long time, Mary and her friend Jamie started falling behind. They kept pausing to look at the amazing view that would unexpectedly open up between the dense pine trees. Jamie couldn’t help but stop to snap pictures of the interesting things growing near the trail. After stopping to look at an enormous mushroom growing on a rotten log, they looked up and saw that the rest of their friends were far ahead. The girls took off running, but the trail was very steep. Suddenly, Jamie slipped and fell hard, she yelled in pain.

Mary examined Jamie’s leg. Her foot was twisted at a funny angle and Jamie pleaded with Mary not to move it. Luckily, their friends had missed them and came back to look for them. Since Jamie could not walk, they decided Mary would stay with her while the others went for help.
Daily Vocabulary Boost

* Ask students the following questions and discuss their answers.

  What would it be like to run on a rugged trail?
  If you examined a painting, would you be likely to miss important details? Why or why not?
  Describe an event that you remember fondly.

  Ask students to explain in their own words the meanings of examined and fondly.

Target Vocabulary

examined  
peak  
fondly  
steep  
rugged  
mist  
pausing  
pledged
• Theme: Why are stories from different cultures important?

• Target texts:
  • *Yonder Mountain: A Cherokee legend*
  • *The Trail of Tears*
CHEROKEE TALES & TRUE STORIES

PLACES/CONTEXT:
PROPER NAMES
- southeast U.S.
  - Georgia
  - Mississippi
  - Oklahoma
- Trail of Tears
  [National Historic Trail]

- yonder mountain
- distance
- mountain peak
- steep trail
- homeland

CHARACTERS:
- chief
- leader
- elders
- enemies
- warriors
- settlers
- survivor
- president
- soldiers

PROPER NAMES
- Cherokee
- Native Americans
- Indian
- U.S. Army
- U.S. national government

EVENTS/FEATURES
- smoke signals
- journey
- treaty
- Indian Removal Act

ACTION/COMMUNICATION:
- declared
- removal
- marching
- stumbled
- pleaded
- bury
Some of the science behind “What Words to Teach” in *myView*

<table>
<thead>
<tr>
<th>Word</th>
<th>Frequency</th>
<th>Word Length</th>
<th>UFunction</th>
<th>Supercluster</th>
<th>Age of Acquisition</th>
<th>Complex Morphological Family U</th>
<th>Mean Concreteness Rating</th>
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<td>15.8756</td>
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</table>
How do plants & animals live together?

- Patterns in Nature
  - nature
  - patterns
  - repeat
  - sequence
  - symmetry

- Wolf Island
  - population
  - balance
  - depended
  - available
  - well-being

- Weird Friends
  - species
  - predators
  - protection
  - immune
  - emerges

- Welcome Back, Wolves!
  - habitat
  - solitary
  - multiplied
  - eliminated
  - reintroduced

- Wolves Don’t Belong in Yellowstone
  - biodiversity
  - interdependence
  - food chain
  - adaptations
  - camouflage
Develop Vocabulary

In informational text, authors use specific words to explain a topic. When authors write about scientific topics, such as habitats and nature, they may use scientific words to inform readers about the topic.

My TURN Look at the word at the top of each box. In the box, write a sentence to show how that word relates to habitats.

- **biodiversity**
  A habitat with many different kinds of plants and animals has biodiversity.

- **adaptations**

- **habitats**

- **interdependence**

- **food chain**
Develop Vocabulary
Authors often use synonyms to provide variety in their writing. They also use antonyms to show the opposite of an idea.

**My TURN** Review each vocabulary word in the texts. Identify a synonym and antonym for each word and explain its meaning by writing its definition. Then, work with a partner to use each synonym and antonym in a sentence of your own.

<table>
<thead>
<tr>
<th>Synonym</th>
<th>Vocabulary Word</th>
<th>Antonym</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>solitary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>multiplied</td>
<td></td>
</tr>
<tr>
<td></td>
<td>eliminated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>reintroduced</td>
<td></td>
</tr>
</tbody>
</table>
Develop Vocabulary

In realistic fiction and other forms of fiction, authors choose words that tie ideas together. The author of Wolf Island chose words that describe the connections between the animals and plants that live there.

My TURN With a partner, take turns discussing the meanings of the selection vocabulary words. Listen carefully. Then complete each sentence with the word from the word bank that best fits the meaning and connects the ideas in each box.

Word Bank
available balance depended population well-being

A habitat that is in ________ does not have too many of one kind of animal.

Wolves on the island

on deer for food in order to survive.

When the wolves were gone, the

or number, of deer became too large for the amount of food

on the island.

The

or health and comfort, of all animals improved when the wolves came back to Wolf Island.
**Develop Vocabulary**

In informational text, authors often use specific words that explain the topic. When reading informational texts about nature, notice scientific words that describe living things and how they behave.

**My TURN** Add the vocabulary word from the word bank to tell what the author is describing. Then complete the remaining columns of the chart.

**Word Bank**

<table>
<thead>
<tr>
<th>immune</th>
<th>species</th>
<th>predators</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Vocabulary Word</th>
<th>The author is describing . . .</th>
<th>This word helps me know . . .</th>
<th>Example Sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>animals that live by eating other animals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a group of living things that are the same in most ways.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a living thing unaffected by something, such as an illness.</td>
<td></td>
<td></td>
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TEXT COMPLEXITY
## Competitors’ View of Text Complexity

<table>
<thead>
<tr>
<th></th>
<th>Lexile</th>
<th>Sentence Length</th>
<th>Core Vocabulary (%)</th>
<th>Number of Words</th>
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<td>969</td>
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<td><strong>ON-LEVEL</strong></td>
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<td><strong>BELOW</strong></td>
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<td><em>New School for Chris</em></td>
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<tr>
<td><strong>INTERVENTION</strong></td>
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<tr>
<td><em>Down the Hill</em></td>
<td>250</td>
<td>4.85</td>
<td>93.2</td>
<td>296</td>
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</tbody>
</table>
### Why We Need Plants

Plants are important to our life. Plants give us air to breathe, food to eat, and medicine to take when we get sick.

Plants make and clean the air that we breathe. Plants use their roots to get water. Then, using energy from the sun, they turn this water into air that we can breathe. Plants also take a dangerous gas called carbon dioxide out of the air. By taking this gas out of the air, plants make it easier for us to breathe.

Without plants, humans would not be able to eat fruits, vegetables, roots, or seeds. We would not be able to eat meat, either, because many of the animals that humans eat also need to eat plants to live. One way or another, most of the food that humans eat comes from plants.

### Another Way Plants Benefit Humans

Another way plants benefit humans is by giving us medicine. For example, willow tree bark has been used for thousands of years to treat pain, while aloe vera is used all over the world to treat burns and insect bites.

Humans need clean air, food, and medicine. By giving us all of these things, plants benefit humans in many ways.

<table>
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<tr>
<th></th>
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<td>195</td>
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</table>

Many plants are medicinal, which means that they can be used as medicine. For example, the gel from aloe vera is used to soothe burns and insect bites. Also, the use of willow tree bark as a pain remedy can be traced back to the ancient Greeks.

Plants benefit humans by giving us air, food, and medicine. Life on Earth could not exist without plants.
What Shorter Texts Mean: A Competitor’s Program

![Bar chart showing the comparison between one week/book and 36 weeks/books for different levels of reading proficiency.]

- **Advanced**
  - One Week/Book: 0
  - 36 Weeks/Books: 35,000

- **On-Level**
  - One Week/Book: 0
  - 36 Weeks/Books: 30,000

- **Below**
  - One Week/Book: 0
  - 36 Weeks/Books: 20,000

- **EL**
  - One Week/Book: 0
  - 36 Weeks/Books: 17,000

- **Intervention**
  - One Week/Book: 0
  - 36 Weeks/Books: 10,000

Source: Elfrieda H. Hiebert www.textproject.org
Swanson, Wanzek, McCulley, Stillman-Spisask, Vaughn, Simmons, Fogarty, & Hairrell, 2015).
Silent Reading

Listening, Following Along to Oral Reading
**Why We Need Plants**

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Humans need clean air, food, and medicine. By giving us all of these things, plants benefit humans in many ways.

**Relationships in Nature**

A symbiotic relationship is between two species of animals or plants. Some relationships are helpful, while other relationships are anything but. All of these need to keep nature in balance and for life to exist.

Sometimes, both partners work together. This kind of relationship can be seen between plants and bees. Bees make pollen, bees eat pollen, but they also bring it back to their hives. As bees search for food, they transfer pollen from one flower to the next. Pollen helps flowers grow into seeds. By moving the pollen around like this, bees make sure that they will have a lot of flowers to visit in the fall. In this relationship, both bees and plants win.

Sometimes, one partner will take advantage of the other. They take something without giving anything back. For example, mosquitos drink our blood to help them make eggs. But the only thing that people get in return are itchy bites. In this relationship between humans and mosquitoes, humans just give.

Symbiotic relationships can be helpful or harmful. However, all of these relationships are important. They are all needed for a balance in nature.

**Coral Reefs: Living Environments**

Coral reefs are living environments made of animals called polyps. A reef forms when many of these animals gather on rocks and hard surfaces on the ocean floor. It grows larger as more of the polyps are born. Coral reefs help to keep the ocean healthy.

Australia, Indonesia, and the United States are just some of the places around the world where you can find coral reefs. Around 4,000 species of fish live in reefs.

Water environments, such as coral reefs, are full of life. They help Earth in many ways. However, pollution and changes in water temperature are putting reefs in danger. Reefs are important. We must do all we can to save them.
Independent Reading

In this unit, you will read informational texts and realistic fiction with your teacher. If you have a favorite topic, you might choose to read about it during your independent reading time.

To self-select an informational text, follow these steps.

**Step 1** To help you set a purpose for reading, before you begin, make a personal connection to the topic by identifying what you already know and what you want to learn. New information is easier to remember when you connect it to your background knowledge. Use support from your peers and teachers to read and respond to these prompts.

- I want to read about ________________.
- What do I already know about this topic?
- What do I want to learn about this topic?
TEXT COMPLEXITY
READING VOLUME
Recycling and Remixing:
Multiple Meanings and Uses of Words

Elfrieda H. Hiebert
TextProject & University of California, Santa Cruz

From E.H. Hiebert (in press). Teaching words and how they work: Small changes for big vocabulary results. New York, NY: Teachers College Press. This chapter has not been copyedited or finalized by the publisher.

Example 1: My problems started when I learned that Mrs. Reno would be my fourth grade teacher. She had a lizard in her classroom, and lizards were on my list of terrifying things. (Lizard problems, Adams, 2009)

Example 2: Wilbur looked at his friend. She looked rather swollen and she seemed listless. "I'm awfully sorry to hear that you’re feeling poorly, Charlotte," he said. "Perhaps if you spin a web and catch a couple of flies you’ll feel better." (Charlotte’s Web, Chapter 8, White, 1952)

For more information about Text Matters, visit www.textproject.org/text-matters

www.textproject.org
Reference List

<table>
<thead>
<tr>
<th>Academic Vocabulary</th>
<th>Word Forms</th>
<th>Synonyms</th>
<th>Antonyms</th>
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