

CONTENT AREA VOCABULARY LEARNING

Douglas Fisher ■ Nancy Frey

Vocabulary is a significant predictor of overall reading comprehension (Baumann, Kame'enui, & Ash, 2003) and student performance (Stahl & Fairbanks, 1986). When readers know a lot of words, they can read more complex texts. When writers know a lot of words, they can compose more sophisticated documents. For decades, the value of vocabulary was evident in content standards, and most states or provinces typically had a standard related to vocabulary.

This has changed with the Common Core State Standards for English Language Arts. Keep in mind that in elementary school, these standards speak to expectations in all content areas, not only the reading and language arts block. There are a total of 32 English language arts standards, and four of the standards (12.5%) focus explicitly on vocabulary. These include:

- *Reading Standard 4*: Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
- *Language Standard 4*: Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

- *Language Standard 5*: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- *Language Standard 6*: Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Vocabulary appears implicitly in other standards. For instance, the reading foundational skills contain expectations about acquisition of skills related to prefixes and morphology, both of which are driven by meaning. Even the fluency standard's emphasis in grades 3–5 on prosody, expression, and the use of context to confirm or self-correct serves as a reminder of the role of vocabulary in comprehension. And it comes as no surprise that the writing standards call for students to use transitional phrases, linking words, and definitions of terms in their compositions.

The department editors welcome reader comments. Douglas Fisher is a professor at San Diego State University, California, USA; e-mail dfisher@mail.sdsu.edu. Nancy Frey is a professor at San Diego State University, California, USA; e-mail nfrey@mail.sdsu.edu.

The value of vocabulary is not limited to the English language arts standards. Content area standards also emphasize the importance of learning words. For example, the math standards require the following:

- Kindergarten students must “identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres),” and they must “correctly name shapes regardless of their orientations or overall size.”
- Sixth grade students must “identify parts of an expression using mathematical terms (*sum, term, product, factor, quotient, coefficient*).”

To accomplish these standards and a host of others, students will need significant practice with words. In fact, academic language, of which academic vocabulary is a part, has been identified as one of the major shifts with the Common Core State Standards (see http://www.achievethecore.org/content/upload/Shifts%20%20pager_091313.pdf). Clearly, the architects of the standards wanted to ensure that students learn a lot of words and phrases and know how to mobilize this knowledge as they read and write. There is good reason for this—vocabulary is an essential gateway for achieving the ELA standards.

Vocabulary is at the Core of Literacy

Reading, writing, speaking, and listening are grounded in the formulation and understanding of written and verbal messages. Without meaning, words and phrases are nothing more than a nonsensical string of sounds or letters. Vocabulary is not an isolated skill; readers, writers, speakers, and listeners marshal what they know about

words and phrases to understand and convey coherent messages in what Thorndike termed “a cooperation of many forces” (1917, p. 232). Vocabulary researchers have long advocated for instructional approaches that capitalize on these “many forces,” especially through teaching structural, contextual, and morphemic analysis skills (Baumann, Edwards, & Boland, 2003; Brusnighan & Folk, 2012), using oral language channels (Beck & McKeown, 2007), leveraging texts to facilitate discussion and interaction (Lennox, 2013), and teaching for word appreciation and word consciousness (Graves & Watts-Taffe, 2008).

The demand on vocabulary knowledge intensifies throughout the elementary and middle school years, especially in regard to print. Nagy and Anderson (1984) estimated that students entering ninth grade needed to know and understand 88,500 word families, stating that “even the most ruthlessly systematic direct vocabulary instruction could neither account for a significant proportion of all the words children actually learn, nor cover more than a modest proportion of the words they will encounter in school reading materials” (p. 304).

Yet in too many cases, vocabulary instruction is isolated from other aspects of the instructional day, particularly in content area learning. It is far too common to assign students a list of words (usually technical terms) that will be used in a social studies or science unit and then ask them to look up words and write definitions so that

they can then compose solitary sentences. This limited exposure to words and phrases in decontextualized situations has not proven to be effective, nor is it of a sufficient intensity. In an observational study of Canadian upper elementary classrooms, Scott, Jamieson-Noel, and Asselin (2003) found that 39% of vocabulary instructional time was dedicated to definitions, mostly through dictionary and worksheet use. Vocabulary instruction in elementary content area classes was even more limited. The same researchers found that an average of only 1.4% of social studies, mathematics, science, and arts instructional time was devoted to vocabulary development. Whether your goal is to meet the demands of the Common Core State Standards, or for locations not impacted directly by these standards but where vocabulary is a significant concern, we recommend that teachers attend to four significant components of word learning: wide reading, selecting words to teach, modeling word solving, and providing students opportunities through collaborative conversations to actually use their growing vocabularies.

Wide Reading

One of the ways that students build their vocabularies is through reading. If students read 60 minutes per day, five days a week, they will read more than 2,250,000 words per year. Mason, Stahl, Au, and Herman (2003) estimate that this level of reading will result in students learning 2,250 words per year, far more than could ever be taught through direct instruction

“Content area standards also emphasize the importance of learning words.”

“Unfortunately, there is less attention to wide reading as teachers focus their attention on instructional routines such as close reading.”

alone. Unfortunately, there is less attention to wide reading as teachers focus their attention on instructional routines such as close reading. But expert teachers, as noted by Sanden (2012), continue to provide students opportunities to read independently and combine this with “assistance in areas such as monitoring student choices, teaching independent reading behaviors, and maintaining a focus on student growth” (p. 224). In the rush to raise the rigor of students’ reading, teachers should remember that practice does not make perfect, but rather permanent. Students need practice with a lot of texts so that they build their background knowledge and vocabulary. They also need instruction with specific words that will unlock increasingly complex texts. And that starts with selecting the right words for instruction; words that students are not likely to learn while reading.

Selecting Words and Phrases to Teach

As we have noted, students need to learn thousands of words per year, depending on their grade level. Teachers simply cannot directly teach all of the words students need to learn. As we will discuss later in this article, thankfully students learn a lot of words while reading. Those words reserved for instruction should be worthy of the attention. That is to say, for students to develop a depth of knowledge about words and phrases, teachers need to carefully select the words they will teach.

In terms of priorities, the standards suggest that students should learn general academic and domain-specific words and phrases. General academic words, commonly referred to as Tier 2 words, are those that mean different things in different content areas or contexts. For example, the word *set* could be used in everyday conversation (“set your pencil down to show me you are ready”) or in mathematics (the set of numbers in a range from 4 to 13). General academic words have sometimes been neglected because they are seen as less demanding.

In addition to general academic words and phrases, students must be taught domain-specific, or Tier 3, words and phrases. Terms such as

photosynthesis, personification, and odd number are domain-specific because their meaning is fairly well set and consistent.

There are also basic words that students must learn, often referred to as Tier 1 words. These are not included in the English language arts standards but instead are featured in the foundational skills. More specifically, foundational skill standard 3 focuses on word analysis (“Know and apply grade-level phonics and word analysis skills in decoding words”), which requires that students develop their knowledge of high-frequency words and use affixes and morphology.

But understanding these types of words really doesn’t help with selecting words and phrases worthy of instruction. In Figure, we provide questions for consideration when selecting words. We drew on the work of several researchers, including Graves (2006), Hiebert and Kamil (2005), and Nagy (1988) to identify questions that lead to decisions about which words to teach. If the

Figure Considerations for Selecting Vocabulary Words

Topic	Questions to Ask
Representative	<ul style="list-style-type: none"> Is the word representative of a family of words that students should know? Is the concept represented by the word critical to understanding the text? Is the word a label for an idea that students need to know? Does the word represent an idea that is essential for understanding another concept?
Repeatability	<ul style="list-style-type: none"> Will the word be used again in this text? If so, does the word occur often enough to be redundant? Will the word be used again during the school year?
Transportable	<ul style="list-style-type: none"> Will the word be used in group discussions? Will the word be used in writing tasks? Will the word be used in other content or subject areas?
Contextual Analysis	<ul style="list-style-type: none"> Can students use context clues to determine the correct or intended meaning of the word without instruction?
Structural Analysis	<ul style="list-style-type: none"> Can students use structural analysis to determine the correct or intended meaning of the word without instruction?
Cognitive Load	<ul style="list-style-type: none"> Have I identified too many words for students to successfully integrate?

Source: Frey, N., & Fisher, D. (2009). *Learning words inside and out: Vocabulary instruction that boosts achievement in all subject areas*. Portsmouth, NH: Heinemann.

word is representative of words students should know at that grade level or if it is key to understanding the text, it's probably worth teaching. If the word is going to be used repeatedly, then it might be worth teaching. If the word will be needed for post-reading tasks, such as discussions or writing, then it is probably worth teaching. If the word's meaning can be determined from context or structural clues, then it might not be worth teaching.

Modeling Word Solving

As noted in the standards, it is important that students figure out the meanings of unknown words. Students need to "interpret words and phrases as they are used in text" and they have to determine the "meaning of unknown and multiple-meaning words and phrases." The best way we know how to do that is to model for students so that they experience expert thinking while reading. Modeling word solving should occur across content areas. This requires that teachers select pieces of text that include complex vocabulary terms and that they read the texts aloud, pausing to demonstrate how word solving works. As noted in the standards, word solving occurs through the use of context clues, word parts or morphology, and resources.

- Context clues are those that are included around the unknown word, whether in the same sentence or not, that help the reader understand the target word. These clues do not always work and sometimes are actually distracting. Part of the teacher modeling of word solving should include examples of non-directive or mis-directive clues.
- Word parts or morphology focuses on prefixes, suffixes, roots, bases, word families, cognates—basically

anything inside the word that can help the reader figure out the word. Like context clues, word parts don't always work, and teachers should include non-examples in their modeling.

- Resources are things outside of the text that help a reader determine meaning, such as dictionaries, thesauri, and even asking other people. Teachers can also model these word-solving strategies using technology such as smartphones or computers.

By way of example, consider the modeling David Samson provided for his students. The class was learning about the night sky, and Mr. Samson was modeling with the text *Moon Power* (Evans, 2011), projecting the text on his document camera. Early in the text, they encounter the word *orbit*. Mr. Samson reads the text: "The moon does not stay still. It travels around, or orbits, Earth" (n.p.). In response, he says, "I'm not really sure what the word *orbit* means. The author says that the moon does not stay still and that it travels. So I think that *orbit* has to do with the moon moving, but I don't really know if I can explain it any further. But look, I see that the word is bolded and highlighted. I know, when that happens, the word is probably in the glossary. I'm going to check. [pause] Yep, there it is. It's a path that the moon takes as it travels around. I think I will look at the figure again to see if that works. [returning to original page] Much better. There's an illustration that shows me the orbit of the moon around the Earth. That's the path it takes as it travels around. I think I can explain that a lot better now, so I think I'll continue reading."

Using Words in Discussion

Selecting the right words to teach and modeling word solving approaches

"It is important that students figure out the meanings of unknown words."

are important aspects of instruction necessary to meet the increased expectations in the Common Core State Standards, but they are insufficient in and of themselves. Students need to have time to use the words they are learning with their teacher and with their peers (Wasik & Iannone-Campbell, 2012). Importantly, there is another standard that focuses on student-to-student interactions. In the area of Speaking and Listening, standard 1 indicates that students must "prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010, p. 22). At first glance, this does not appear to be a vocabulary-focused standard. When the details of this standard are explored, however, the role of words becomes more obvious.

At the kindergarten level, students are expected to "continue the conversation through multiple exchanges" (p. 23), whereas fourth grade students are expected to "pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others" (p. 24). In all cases, students are expected to

“Vocabulary lies at the heart of content learning, as it serves as a proxy for students’ understanding of concepts.”

engage in discussions focused on grade-level texts and topics. To do so, to have these types of conversations, students need to know a lot of words. There are a number of ways to facilitate students’ use of vocabulary in the classroom. We’ll just provide a few examples here that allow students to engage with words that they are learning.

- *Interactive read-alouds and shared readings* provide the teacher with an opportunity to foster discussion about content area texts (Fisher, Flood, Lapp, & Frey, 2004; Fisher, Frey, & Lapp, 2008). Using questions that bring students back to the text, the teacher poses questions about the main ideas and key details, text structure and vocabulary, as well as questions that focus on the author’s purpose and inferential and interpretive levels of meaning. Importantly, these discussions should not be constricted by a question-and-answer approach, but instead should incorporate conversational moves that keep the discussion going, such as “Why do you think that?” and “Did everyone hear that important point? Could you say that again, please?” (Michaels, O’Connor, Hall, & Resnick, 2010).
- *Collaborative text-based discussions* encourage students to apply academic vocabulary within the context of co-constructed knowledge while using many of the discussion techniques they have

gained through interactive read-alouds and shared readings. The reciprocal teaching protocol (Palincsar & Brown, 1984) provides students with a frame for discussing informational text in small groups. The discussion focuses on summarizing a passage, questioning the text, asking other group members for clarification, and making predictions about what the author will discuss next, given the information students have read so far.

- *Games* allow academic vocabulary to bubble up naturally in conversation. Place a number of paper plates marked with a number on the floor of a kindergarten classroom and ask students to place a foot on the correct announced number. These small groups (no more than three) can then answer a discussion question you pose to them, such as “What number do you get when you add 3 more? Tell your partners the math sentence.” Older students can construct game questions and answers to be used with the entire class, such as those modeled on *Jeopardy!*, *Who Wants to Be a Millionaire?* and *The \$25,000 Pyramid*.
- *Opinion stations* ready students for the instruction and discussion that will follow and are ideal for topics in social studies, science, and the arts that do not have a clear answer. Label each corner of your classroom with one of

four signs (Strongly Agree, Agree, Disagree, or Strongly Disagree) and post a thought-provoking statement related to your content teaching, such as “The gorillas were the most fun animal to watch on our field trip to the zoo yesterday” or “The best artist we studied was Vincent van Gogh.” Students choose the corner that best reflects their opinion, and they discuss it with like-minded classmates. Importantly, groups then intermingle with those who do not agree with them, which provides them with a reason to use academic language while supporting their opinions with evidence.

Conclusion

Vocabulary lies at the heart of content learning, as it serves as a proxy for students’ understanding of concepts. In other words, it is part of a complex network of knowledge that draws on students’ understanding of the alphabetics, syntax, and semantics of language. But teaching vocabulary as an isolated skill undermines the ways students use language as a tool for learning about the world. All learning is social; vocabulary instruction should leverage interactions between teacher, student, and text such that students are continually growing in their ability to describe, explain, and query.

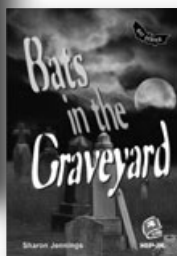
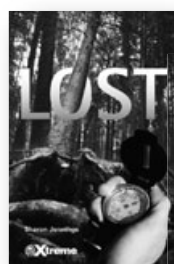
REFERENCES

- Baumann, J.F., Edwards, E., & Boland, E.M. (2003). Vocabulary Tricks: Effects of Instruction in Morphology and Context on Fifth-Grade Students’ Ability to Derive and Infer Word Meanings. *American Educational Research Journal*, 40(2), 447–494.
- Baumann, J.F., Kame’enui, E.J., & Ash, G.E. (2003). Research on vocabulary instruction: Voltaire redux. In J. Flood, D. Lapp, J.R. Squire, & J.M. Jensen (Eds.), *Handbook of Research on Teaching the English Language Arts* (2nd ed., pp. 752–785). Mahwah, NJ: Erlbaum.

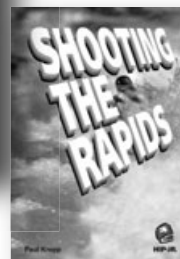
CONTENT AREA VOCABULARY LEARNING

- Beck, I.L., & McKeown, M.G. (2007). Increasing Young Low-Income Children's Oral Vocabulary Repertoires through Rich and Focused Instruction. *Elementary School Journal*, 107(3), 251-271.
- Brusnighan, S., & Folk, J. (2012). Combining Contextual and Morphemic Cues Is Beneficial During Incidental Vocabulary Acquisition: Semantic Transparency in Novel Compound Word Processing. *Reading Research Quarterly*, 47(2), 172-190.
- Evans, L. (2011). *Moon power*. New York: Scholastic.
- Fisher, D., Flood, J., Lapp, D., & Frey, N. (2004). Interactive read-alouds: Is there a common set of implementation practices? *The Reading Teacher*, 58(1), 8-17.
- Fisher, D., Frey, N., & Lapp, D. (2008). Shared readings, modeling comprehension, vocabulary, text structures, and text features for older readers. *The Reading Teacher*, 61(7), 548-556.
- Graves, M.F. (2006). *The vocabulary book: Learning & instruction*. New York: Teachers College.
- Graves, M.F., & Watts-Taffe, S. (2008). For the Love of Words: Fostering Word Consciousness in Young Readers. *The Reading Teacher*, 62(3), 185-193.
- Hiebert, E. H., & Kamil, M. L. (Eds.). (2005). *Teaching and learning vocabulary: Bringing research to practice*. Mahwah, NJ: Erlbaum.
- Lennox, S. (2013). Interactive Read-Alouds—An Avenue for Enhancing Children's Language for Thinking and Understanding: A Review of Recent Research. *Early Childhood Education Journal*, 41(5), 381-389.
- Mason, J.M., Stahl, S.A., Au, K.H., & Herman, P.A. (2003). Reading: Children's developing knowledge of words. In J. Flood, D. Lapp, J.R. Squire, & J.M. Jensen (Eds.), *Handbook of research on teaching the English language arts* (2nd ed., pp. 914-930). Mahwah, NJ: Lawrence Erlbaum Associates.
- Michaels, S., O'Connor, M. C., Hall, M. W., & Resnick, L. B. (2010). *Accountable Talk® Sourcebook: For Classroom Conversation That Works* (v.3.1). University of Pittsburgh Institute for Learning. Retrieved from <http://ifl.lrdc.pitt.edu>
- Nagy, W.E. (1988). *Teaching vocabulary to improve reading comprehension*. Urbana, IL: National Council of Teachers of English.
- Nagy, W. E., & Anderson, R. (1984). How many words are there in printed school English? *Reading Research Quarterly*, 19(3), 304-330.
- National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). *Common Core State Standards for English language arts and literacy in history/social studies, science, and technical subjects*. Washington, DC: Authors.
- Palincsar, A.S., & Brown, A.L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1(2), 117-175.
- Sanden, S. (2012). Independent reading: Perspectives and practices of highly effective teachers. *The Reading Teacher*, 66(3), 222-231.
- Scott, J.A., Jamieson-Noel, D., & Asselin, M. (2003). Vocabulary Instruction throughout the Day in Twenty-Three Canadian Upper-Elementary Classrooms. *Elementary School Journal*, 103(3), 269-286.
- Stahl, S., & Fairbanks, M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research*, 56(1), 72-110.
- Thorndike, E.L. (1917). Reading as reasoning: A study of mistakes in paragraph reading. *Journal of Educational Psychology*, 8(6), 323-332.
- Wasik, B., & Iannone-Campbell, C. (2012). Developing vocabulary through purposeful, strategic conversations. *The Reading Teacher*, 66(4), 321-332.

Novels they **CAN** read all the way through



The Last Dragon



HIP BOOKS

Great novels for reluctant and struggling readers, grades 4-12

High Interest Publishing www.hip-books.com