



A Focus on

Vocabulary



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A Focus on Vocabulary

Of the many compelling reasons for providing students with instruction to build vocabulary, none is more important than the contribution of vocabulary knowledge to reading comprehension. Indeed, one of the most enduring findings in reading research is the extent to which students' vocabulary knowledge relates to their reading comprehension (e.g., Anderson & Freebody, 1981; Baumann, Kame'enui, & Ash, 2003; Becker, 1977; Davis, 1942; Whipple, 1925). Most recently, the National Reading Panel (2000) concluded that comprehension development cannot be understood without a critical examination of the role played by vocabulary knowledge. Given that students' success in school and beyond depends in great measure upon their ability to read with comprehension, there is an urgency to providing instruction that equips students with the skills and strategies necessary for lifelong vocabulary development.

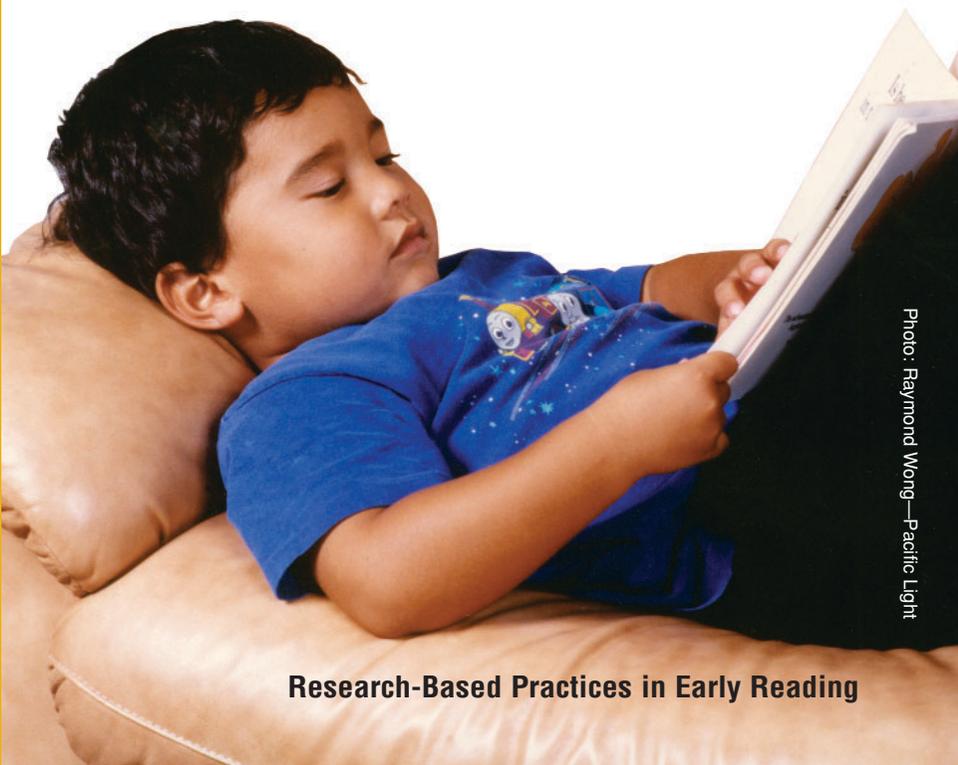


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The focus of this booklet, therefore, is on vocabulary instruction as a component of reading comprehension. The booklet does *not* attempt to address issues related to stand-alone vocabulary-building programs and strategies.

Vocabulary Instruction and English Language Learning Students

Students for whom English is not a first language—particularly native Spanish speakers—make up an increasing proportion of our school-age population (U.S. Census, 2001). Many of these students have difficulty comprehending what they read. A major cause of this difficulty is their lack of understanding of abstract English words, especially those words (e.g., *freedom*, *motive*, *change*) that they see in content area textbooks (García, 1991; Verhoeven, 1990).

The purpose of this booklet is to examine what research tells us about how students acquire vocabulary and about what instruction must do to help students develop the kind of vocabulary knowledge that will contribute to their reading success. We begin by clarifying exactly what we mean by *vocabulary*.

What Is Vocabulary?

Broadly defined, *vocabulary* is knowledge of words and word meanings. However, vocabulary is more complex than this definition suggests. First, words come in two forms: oral and print. Oral vocabulary includes those words that we recognize and use in listening and speaking. Print vocabulary includes those words that we recognize and use in reading and writing. Second, word knowledge also comes in two forms, receptive and productive. Receptive vocabulary includes words that we recognize when we hear or see them. Productive vocabulary includes words that we use when we speak or write. Receptive vocabulary is typically larger than productive vocabulary, and may include many words to which we assign some meaning, even if we don't know their full definitions and connotations—or ever use them ourselves as we speak and write (Kamil & Hiebert, in press).

Adding further complexity, in education, the word *vocabulary* is used with varying meanings. For example, for beginning reading teachers, the word might be synonymous with “sight vocabulary,” by which they mean a set of the most common words in English that young students need to be able to recognize quickly as they see them in print. However, for teachers of upper elementary and secondary school students, *vocabulary* usually means the “hard” words that students encounter in content area textbook and literature selections.

For purposes of this booklet, we define vocabulary as knowledge of words and word meanings in both oral and print language and in productive and receptive forms. More specifically, we use *vocabulary* to refer to the kind of words that students must know to read increasingly demanding text with comprehension. We begin by looking closely at why developing this kind of vocabulary is important to reading comprehension.

The Importance of Vocabulary to Reading Comprehension

One of the most persistent findings in reading research is that the extent of students' vocabulary knowledge relates strongly to their reading comprehension and overall academic success (see Baumann, Kame'enui, & Ash, 2003; Becker, 1977; Davis, 1942; Whipple, 1925). This relationship seems logical; to get meaning from what they read, students need both a great many words in their vocabularies and the ability to use various strategies to establish the meanings of new words when they encounter them. Young students who don't have large vocabularies or effective word-learning strategies often struggle to achieve comprehension. Their bad experiences with reading set in motion a cycle of frustration and failure that continues throughout their schooling (Hart & Risley, 2003; Snow, Barnes, Chandler, Goodman, & Hemphill, 2000; White, Graves, & Slater, 1990). Because these students don't have sufficient word knowledge to understand what they read, they typically avoid reading. Because they don't read very much, they don't have the opportunity to see and learn very many new words. This sets in motion the well known "Matthew Effects," Stanovich's (1986) application of Matthew, 25:29—"the rich get richer and the poor get poorer." In terms of vocabulary development, good readers read more, become better readers, and learn more words; poor readers read less, become poorer readers, and learn fewer words.

This particular relationship between vocabulary knowledge and reading comprehension seems clear. But vocabulary knowledge contributes to reading success in other important ways that are perhaps less obvious. For beginning readers, evidence indicates a link between word knowledge and phonological awareness. Young children who have a large number of words in their oral vocabularies may more easily analyze the representation of the individual sounds of those words (see Goswami, 2001; Metsala & Walley, 1998). In addition, vocabulary knowledge helps beginning readers decode, or map spoken sounds to words in print. If children have the printed words in their oral vocabulary, they can more easily and quickly sound out, read, and understand them, as well as comprehend what they are reading. If the words are not in children's oral vocabulary, they have trouble reading the words and their comprehension is hindered (National Reading Panel, 2000). Thus, an extensive vocabulary is the bridge between the

word-level processes of phonics and the cognitive processes of comprehension (Kamil & Hiebert, in press). The issue to address next, then, is just how many words do students need to know so as to read with comprehension? This is exactly what constitutes an “extensive” vocabulary.

How Many Words Do Students Need to Know?

Over the years, estimates of student vocabulary size have varied greatly, hindered in part by issues such as the types of vocabularies being considered (e.g., receptive/productive or oral/print). Depending on how they approached such issues, early vocabulary researchers reported figures ranging from 2,500 to 26,000 words in the vocabularies of typical grade 1 students and from 19,000 to 200,000 words for college graduate students (Beck & McKeown, 1991). As researchers began to define more clearly what they meant by vocabulary size, the estimates became more precise. At the present time, there is considerable consensus among researchers that students add approximately 2,000 to 3,500 distinct words yearly to their reading vocabularies (Anderson & Nagy, 1992; Anglin, 1993; Beck & McKeown, 1991; White et al., 1990).

Perhaps a more useful way to approach the issue of vocabulary size is to consider the number of different, or unique, words in the typical texts that students read in schools. But this approach also raises questions. For example, what counts as a unique word? Is the possessive form of a word different from the original word and therefore unique? Can it be assumed that a student who knows the word *laugh* also knows the words *laughed*, *laughing*, and *laughter*? Drawing on a database of more than 5 million words taken from a sample of school texts used in grades 3 through 9, Nagy and Anderson (1984) grouped unique words into families. The students' knowledge of the root word would help them determine a related word's meaning when they encounter that word in a text. To be included in a family, the relationship of



Photo: Jennifer Padua

a word had to be “semantically transparent.” That is, the meaning of the related word can be determined by using knowledge of its root word and the context of text. Therefore, words within a family related to the root *laugh* can include *laughed*, *laughing*, and *laughter* but not *laughingstock*. Based on this definition, Nagy and Anderson estimated that school texts from grades 3 through 9 contain approximately 88,500 distinct word families. Clearly, acquiring meanings for this many words is a formidable task.

Yet somehow most students *do* steadily acquire a large number of new words each school year. To understand the magnitude of this accomplishment, consider what learning this number of words would require in terms of instruction. To directly teach students even 3,000 words a year would mean teaching approximately 17 words each school *day* (e.g., 3,000 words/180 school days). Estimates vary, but reviews of classroom intervention studies suggest that, in general, no more than 8 to 10 words can be taught effectively *each week*. This means no more than approximately 400 words can be taught in a year (Stahl & Fairbanks, 1986). Using a simple calculation, $3,000 - 400 = 2,600$, produces the conclusion that students must find ways other than direct classroom instruction to learn words.

So how do students acquire so many new words? An extensive body of research indicates that the answer is through *incidental learning*—that is, through exposure to and interaction with increasingly complex and rich oral language and by encountering lots of new words in text, either through their own reading or by being read to (National Reading Panel, 2000). However, such incidental encounters cannot ensure that students will acquire in-depth meanings of specific words (Fukkink & de Glopper, 1998). For some words, such as those that are crucial for understanding a literature selection or a content area concept, most students need to have *intentional* and *explicit* instruction. We discuss each of these ways to acquire vocabulary in later sections. First, however, we examine what “knowing” a word means.

What Does It Mean to “Know” a Word?

Establishing exactly what it means to know a word is no easy task. Is “knowing” a word being able to recognize what it looks and sounds like? Is it being able to give the word’s dictionary definition? Research suggests that, in general, the answer to these questions is *no*. Knowing a word by sight and sound and knowing its dictionary definition are not the same as knowing how to use the

word correctly and understanding it when it is heard or seen in various contexts (Miller & Gildea, 1987).

Acquiring “Ownership” of Words

Here is how the process of acquiring word knowledge appears to occur, based on the research of Nagy, Anderson, and Herman (1987). Developing understandings of word meanings is a long-term process, one that involves many encounters with both spoken and written words in varying contexts. Here’s how one group of researchers describes this process: On the first encounter with a new word, a student stores in memory some information about how the word fits into what he or she is reading. This information is reinforced each time the student sees or hears the word. With each new encounter, the student picks up more information about the word from its use in various contexts. As a result, the student gradually acquires “ownership” of the word.

Nagy and Scott (2000) identify several dimensions that describe the complexity of what it means to know a word. First, word knowledge is *incremental*, which means that readers need to have many exposures to a word in different contexts before they “know” it. Second, word knowledge is *multidimensional*. This is because many words have multiple meanings (e.g., *sage*: a wise person; an herb) and serve different functions in different sentences, texts, and even conversations. Third, word knowledge is *interrelated* in that knowledge of one word (e.g., *urban*) connects to knowledge of other words (e.g., *suburban*, *urbanite*, *urbane*).

What all of this means is that “knowing” a word is a matter of degree rather than an all-or-nothing proposition (Beck & McKeown, 1991; Nagy & Scott, 2000). The degrees of knowing a word are reflected in the precision with which we use a word, how quickly we understand a word, and how well we understand and use words in different modes (e.g., receptive, productive) and for different purposes (e.g., formal vs. informal occasions).

Knowing a word also implies knowing how that word relates to other knowledge (sometimes called *word schema*). The more we know about a specific concept, for example, the more words we bring to our understanding of that concept. Because we have individual interests and backgrounds, each of us brings different words to shape that understanding.

Finally, knowing a word means being able to appreciate its connotations and subtleties. When we know a word at this level, we can use and recognize it in idioms, jokes, slang, and puns (Johnson, Johnson, & Schlicting, 2004).

What's a Word Schema?

A word *schema* is a network of knowledge related to a word (Nagy & Scott, 1990). Word schemas involve both semantic knowledge about the connections of word meanings to specific concepts and linguistic knowledge about words, such as their roots and their relationships to other words with the same roots. Here is an example:

Ramona is 4 years old. Already she has a fairly large schema for many simple concepts. For example, to her, the word *dog* includes knowledge about the general concept of “dog” as an animal, knowledge of one or two kinds of dogs, such as her Lab, Gus, and her neighbor’s poodle, Misty. It also includes specific information about Gus, such as the sounds he makes, and how he uses his legs when he runs and walks. As a result, the word *dog* can activate many other words for Ramona to use to talk about dogs.

As Ramona grows older, she might add “dog” knowledge that ranges from the names of famous dogs in books, movies, and TV shows to how to train a dog, to the names for parts of a dog’s anatomy. She might also learn that the word *dog* can mean more than an animal and be able to use the word in expressions such as “I’ll dog you until you do what I told you to,” “that was a dog of a movie,” or “I’m dog tired.”

Ramona has also learned that words with similar word parts can have shared meanings, although she is also aware that what seems like a root word may be something altogether different. Thus, when Ramona encounters *dog-eared*, *dogpaddle*, and *doggedly* in texts, she examines the context of their use to see if their meaning is associated with the appearance or actions of dogs.