Shell Education

Greek & Latin Roots
Keys to Building Vocabulary

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Greek and Latin Roots: Keys to Building Vocabulary

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Chapter 1

Teaching Vocabulary: What Does the Research Say?

Have you ever visited the National World War II Museum in New Orleans? It is a fascinating place. Among the documents available for viewing is the first draft of President Franklin Delano Roosevelt's famous speech that begins, "Yesterday, December 7, 1941—a date which will live in *infamy*.…" These powerful words helped the nation prepare for war. But they were not the first words FDR wrote. The first draft of the beginning of the speech reads, "a date which will live in *world history.*" Which do you think is more memorable, "infamy" or "world history"?

Word choice really does make a difference. Samuel Clemens (Mark Twain) once observed that "the difference between the almost right word and the right word is really a large matter—it's the difference between the lightning bug and the lightning." This book is all about helping students find the right word.

As every teacher knows, this is no small task. The English language has between 1,200,000 and 2,000,000 words! And every year, technological advances bring us new modes of communication—and new words. One estimate is that technology is contributing about 20,000 words per year to our language. How can we—and our students—ever catch up? Luckily, there is a way.

Consider this: 90 percent of English words with more than one syllable are Latin based. Most of the remaining 10 percent are Greek based. A single Latin root generates 5–20 English words.

According to Graves and Fitzgerald (2006), school texts and reading materials include more than 180,000 different words. Since most of the words found in these texts come to English from Latin and Greek roots, knowledge of these word parts is a powerful tool in unlocking the complex vocabulary of math, science, literature, and social studies. In addition, most of those 20,000 new "technology" words we mentioned are derived from Latin or Greek. Did you know, for example, that a computer *cursor* and a race *course* both come from the Latin verb *curro,* "to run"?

Today many students come to our classrooms speaking first languages—like Spanish—that are largely derived from Latin. In fact, about 75 percent of the Spanish language is descended from Latin (Chandler and Schwartz 1961). Students who come to school with Spanish as a first language can easily make connections between Spanish and English because the two languages share many cognate words (i.e., words with a common origin). Building vocabulary by learning how to apply the meaning of Latin and Greek word roots can help students who are learning English, as well as others.

Moreover, using roots to unlock word meanings will do more than expand students' vocabularies. Each word built from roots has taken a unique path into our language. Did

you know, for example, that the words *vocabulary* and *vowel* come from the Latin root *voc*, which means “voice”? In ancient Rome, students were required to recite lists of new words orally, or using their “voices.” And, of course, we need our “voices” to say “a, e, i, o, u.” Studying word roots may start your students on a fascinating exploration of word histories. Just as important, it will help students grasp an essential linguistic principle: English words have a discernible logic because their meanings are historically grounded. This knowledge, used in conjunction with word analysis skills, empowers students as learners.

Although no single approach to vocabulary development has been found conclusively to be more successful than another, researchers agree that a focus on Greek and Latin derivatives offers a powerful tool for teachers to nurture students’ vocabulary development (Bear, Invernizzi, Templeton, and Johnston 2000; Blachowicz and Fisher 2002, 2006; Newton and Newton 2005; Newton, Padak, and Rasinski 2008; Rasinski and Padak 2001; Stahl 1986, 1992). This is what this book is all about. In this first chapter, we begin our study of roots by addressing two broad and critical issues: why vocabulary is important and what we know about effective instruction. We will then offer some insights into vocabulary instruction for English language learners.

Importance of Vocabulary in Literacy Development

Vocabulary is knowledge of word meanings. The simplicity of this definition does not quite convey what it means to “know” a word. For example, *Merriam-Webster’s Collegiate Dictionary* lists 18 definitions (several of them with subdefinitions) for the word *place*. Although we rarely stop to think about it, the issue of knowing words is complex.

Nagy and Scott (2000) have helped us understand the complexity of what it means to know a word. They argue that word knowledge has at least five different components or aspects:

- **Incrementality**—Each time we encounter a new word, our knowledge of its definition(s) and possible uses becomes a bit more precise. Think about how your own understanding of familiar words like *love* or *free* has deepened over time. As Pearson, Hiebert, and Kamil note, “Knowing a word is not an all-or-nothing matter” (2007, 286).
- **Multidimensionality**—Word knowledge extends beyond simple definitions. It can include subtle conceptual differences between synonyms. For example, both *allege* and *believe* share a core meaning of “certainty” or “conviction.” Yet they are conceptually distinct. I may “believe” I saw a flying saucer in the sky, but if I report it to the police, they will probably call my sighting an “alleged” event. Why? How are the two words different? Collocation, or the frequent placing together of words, is also a part of word knowledge. We can talk about a *storm front*, but not a *storm back* (Pearson et al. 2007). Similarly, we can have a *storm door* and a *storm window*, but not a *storm ceiling* or a *storm floor*.
- **Polysemy**—Many words, especially common ones, have multiple meanings. Knowing those multiple meanings is part of knowing the words. Think about the

different contexts and ways in which the word *place* can be used. An outdoor grocery store can be called a *marketplace*, while a horse who *places* comes in second in a race. And remember Dorothy in *The Wizard of* Oz? She reminded us that "there's no *place* like home."

- **Interrelatedness**—Knowing a word often involves knowing its attributes and how it is related to other words or concepts. Think of all the things you know about even a simple concept like *cat*, and you will quickly see this aspect of interrelatedness in action.
- **Heterogeneity**—A word's meaning is dependent on its context, both semantic and syntactic. Again using *place* as an example, consider:
    - ♦ Her ideas were all over the place.
    - ♦ In gym we had to run in place.
    - ♦ This weekend we will go to our summer place.

There is nothing simple about knowing a word. As Pearson et al. note, "Words may seem like simple entities, but they are not. Their surface simplicity belies a deeper complexity" (2007, 286).

Thinking about the word knowledge that students bring to the classroom adds another layer of complexity. For example, each of us has an active vocabulary and a passive vocabulary. An active vocabulary includes words we can quickly generate for speaking or writing because we know them well. We can recognize words in our passive vocabulary when we encounter them, but we don't regularly use them. Think back to FDR's speech. Chances are we understood what FDR meant by "infamy" because we have seen it in other contexts. Yet, when is the last time you used this word in a sentence? One goal of vocabulary instruction is to increase both active and passive vocabularies. This goal is critical because research has shown that students who begin school with smaller vocabularies remain at an academic disadvantage throughout their schooling (Hart and Risley 1995, 2003).

The social context in which words are encountered provides yet another layer of complexity. We use oral vocabulary to listen and speak, and print vocabulary to read and write. Spoken language is socially contextualized. In conversation, for example, we use gestures to help convey meaning. The participants in a conversation can ask for clarification. Written language, on the other hand, tends to be socially decontextualized, so precision of word choice is very important. No one is easily available to clarify a text's meaning. Most of the new vocabulary students encounter in school is through reading written texts, and much of it is decontextualized.

Decades of research have consistently found a deep connection between vocabulary knowledge, reading comprehension, and academic success (Baumann, Kameenui, and Ash 2003). Kamil and Hiebert describe vocabulary as a bridge between the "word-level processes of phonics and the cognitive processes of comprehension" (2005, 4). This is a useful way to visualize the importance of vocabulary for young readers. A solid bank of conceptual knowledge is essential for reading because it facilitates word identification and enables comprehension. But meaning does not automatically follow successful decoding.

If a word is not in a child's oral vocabulary, the child cannot apply word recognition strategies effectively, and reading comprehension is hindered (National Reading Panel [NRP] 2000). Wide conceptual knowledge supports decoding. An extensive vocabulary helps students read fluently, comprehend, discuss what they have read, and learn. Another goal of vocabulary instruction, then, is to expand students' conceptual knowledge.

The decontextualized language of school texts contains richer vocabulary and more unfamiliar words than spoken language (Cunningham 2005). In addition to enhancing students' oral and written vocabularies for general conversation or writing, students also need to learn the infrequently used words that will help them comprehend their increasingly complex school texts. Thus, students need multiple opportunities to experience words in both oral and written contexts to expand their conceptual knowledge. You may agree with us that this is a daunting task. For example, although most researchers believe that students naturally add between 2,000 and 3,000 new words each year, Nagy and Anderson (1984) estimate that fifth graders encounter 10,000 new words each year in their reading alone.

Fortunately, 4,000 of the 10,000 new words that fifth graders encounter are derivatives of familiar words, most of them of Latin or Greek origin (usually compound words and words with prefixes and suffixes). In fact, well over half of English words—nearly 75 percent according to some estimates—are derived from Greek or Latin. This is why a focus on word parts makes sense as part of a vocabulary program.

The "Roots Advantage"

Latin and Greek prefixes, bases, and suffixes are fairly consistent in their meanings and spelling patterns. Consequently, students can figure out the pronunciation and meaning of many new words by looking at their roots. They will understand the logic in the spelling pattern. A student who knows that the root *spec* means "look," for example, has a head start in figuring out what *speculate*, *spectacular*, and *spectacle* mean when encountering them in a text. The student can then use context to determine whether the *spectacle* in question is a "big event" or, when used in the plural form, a "pair of glasses." This clear link among pronunciation, meaning, and spelling is especially useful for young readers because they are able to coordinate sound and sense when they encounter new and challenging words (Bear et al. 2000; Rasinski and Padak 2001).

Through each passing year, students encounter more and more words of classical origin. As they move from grade to grade, students face an increased number of "new words, new concepts, and multiple meanings" (Blachowicz and Fisher 2002, 511). Most new school vocabulary is found in content-area textbooks, which adds unique challenges because learning new words in content areas often requires learning new concepts as well. Most content-area words are "low-frequency" and "do not appear in other contexts" (Harmon, Hedrick, and Wood 2005, 263). Furthermore, the same words may represent dissimilar concepts in different content areas: consider a *revolution* in history, for example, and the *revolution* of Earth around the sun. In addition, key content-area vocabulary is often a building block for more advanced conceptual knowledge. Unlike primary-level students who can use context to determine the general meaning of a word, older students must learn new conceptual vocabulary with enough precision to scaffold other concepts.

We hope that this brief research review has convinced you that effective vocabulary instruction with Latin and Greek roots has the potential to foster students' literacy learning. Unfortunately, at present there is little classroom-based research that provides descriptions of effective vocabulary instruction in practice. Sweet and Snow (2003), reporting on results from the RAND Reading Study Group's examination of comprehension, note that the number of studies examining the effect of vocabulary instruction on reading comprehension has been small. Similarly, the NRP noted that research on vocabulary acquisition greatly "exceeds current knowledge of pedagogy" and cited a "great need" for research on this topic "in authentic school contexts, with real teachers, under real conditions" (2000, 4–4).

Despite the current lack of research, however, the need for comprehensive vocabulary curricula is apparent (Blachowicz, Fisher, Ogle, and Watts-Taffe 2006). In the next section, we offer general principles for designing vocabulary instruction.

Five Principles for Word Learning

Until recently, most formal vocabulary instruction has been limited to the introduction of key words before reading a new text. Yet the NRP (2000) found that vocabulary is learned both indirectly and directly, and that dependence on only one instructional method does not result in optimal vocabulary growth. The NRP report also affirmed early research that identified readers' vocabularies as a powerful predictor of successful reading (Davis 1944).

Although researchers agree on the curricular importance of vocabulary instruction, guidance about instructional methodology is still in early stages. Kamil and Hiebert (2005) identify four core unresolved instructional issues that have serious implications for lesson planning: 1) how many words should be taught; 2) which words should be taught; 3) how we should teach students for whom reading is difficult and/or English is a second language; and 4) how independent reading supports vocabulary learning.

Despite these ongoing issues, researchers are beginning to provide instructional guidance in vocabulary acquisition. For example, Biemiller argues that even different student populations learn words "largely in the same order" and calls for teaching a corpus of common word roots, even in primary grades (2005, 225). Blachowicz and Fisher believe that two decades of research on vocabulary acquisition can be summarized into four broad instructional principles: Students should 1) engender an "understanding of words and ways to learn them" through active engagement; 2) "personalize" word learning; 3) be "immersed" in words; and 4) experience "repeated exposures" by accessing words through "multiple sources of information" (2002, 504).

Researchers also agree that no single instructional method is sufficient to enhance students' vocabularies. Teachers need a variety of methods that teach word meanings while increasing the depth of word knowledge (Blachowicz et al. 2006; Lehr, Osborn, and Hiebert 2007). The following principles can be used to select, evaluate, or create effective vocabulary instruction:

1. Instruction should include *planned teaching* of selected words with multiple kinds of information provided (e.g., semantic, structural) (Blachowicz et al. 2006).

Research tells us that students can only learn 8–10 new words each week through direct instruction (Stahl and Fairbanks 1986). Some direct instruction is useful.

2. Vocabulary instruction should be *integrative* (Nagy 1988). To learn new words—really learn them—requires students to connect new and existing knowledge. Words are best learned when presented meaningfully with attention to definitions (Nagy 1988; Stahl 1986). Students need to use new words in meaningful contexts and think about them in meaningful ways. Attention to definitions adds power to this word learning (Stahl and Fairbanks 1986). Teachers must find ways to focus on connections between what students already know and words they are going to learn. Activities that ask students to explore similarities and differences among concepts, activate background knowledge, and generate and test hypotheses seem particularly beneficial (Blachowicz and Fisher 2002; Marzano, Pickering, and Pollock 2001).

3. Vocabulary instruction needs to include repetition (Blachowicz and Fisher 2002; Nagy 1988; Stahl 1986). Students should be *immersed* in words, with frequent opportunities to use new words in diverse oral and print contexts in order to learn them on a deep level. Research tells us that we learn more new words incidentally, when they occur in our reading or listening, than we do through direct instruction (Lehr et al. 2007). In other words, looking up words in a dictionary and learning definitions are not enough to ensure word learning. We need to do more.

Teacher read-alouds can help students develop vocabulary, especially if read-aloud books have wonderful words and powerful language. If students will be tackling a new or difficult concept in the content areas, read-alouds could include picture books or other texts that address the topic. Related to this principle is another: the importance of students' wide reading. The more students read, the better. Using new words in discussion and writing also facilitates their learning. In fact, we recommend that you challenge students to use new words in as many ways as possible.

4. Word learning is a procedural activity—a matter of knowing *how*. Therefore, *students need strategies* for determining word meaning (Nagy and Scott 2000). Students need to understand and know how to manipulate the structural features of language. Most vocabulary-related school tasks naively presume this kind of knowledge. Classroom-based studies have demonstrated the effectiveness of two strategies that are particularly important for vocabulary development: teaching context clues and word parts (Baumann, Font, Edwards, and Boland 2005).

Context clues are frequently used as a reading strategy for determining the meaning of an unknown word. Although context in reading has many dimensions, it most often refers to figuring out the meaning of an unknown word by getting help (or clues) from the words, phrases, sentences, or illustrations surrounding it (Harris and Hodges 1995). The help that context provides may be semantic, based on the meaning of the surrounding words or sentences. It may also be structural, based on grammatical or syntactic markers within a word or sentence.

Using context clues is an especially important strategy for vocabulary development because, as we noted earlier, many English words have multiple meanings. Since context is crucial in identifying which meaning to use, learning how to use the surrounding

context helps students expand their vocabularies.

Morphological analysis, another important strategy, allows students to make connections among semantically related words or word families (Nagy and Scott 2000). By separating and analyzing the meaning of a prefix, suffix, or other word root, students can often unlock the meaning of an unknown word. If we teach students that *bi-* means “two,” for example, they can use that information to figure out *biannual* or *biaxial*. When introducing the concept of *photosynthesis*, we can easily point out its roots: *photo* means “light,” and *syn* means “with.” As students grapple with the complex process of how light (*photo*) is combined with (*syn*) carbon dioxide and water to make sugar, knowledge of these word roots will support their efforts.

Knowing that words can be broken down into units of meaning is a powerful strategy for vocabulary development. Until recently, teaching word roots was a strategy reserved for upper-grade or content-area classrooms. But a growing body of research tells us that this strategy should be introduced early. In fact, by the second grade, students should be adept at using word roots as a vocabulary strategy (Biemiller 2005). Learning key word parts will enable students to understand new words that are semantically connected. In this way, instruction becomes efficient—by learning one word part, students have clues to the meaning of all the words that contain it.

5. Vocabulary instruction must foster *word consciousness*, an awareness of and interest in words (Graves and Watts-Taffe 2002). Activities like word exploration (e.g., etymology) and word play (e.g., puns and riddles) are central to vocabulary development. Moreover, they provide pleasant ways to accomplish the repetition necessary for students to learn new words.

Dictionaries and other reference works can add interest to a vocabulary program. Although most students begin to learn about reference tools in the primary grades, they may not know the enormous variety of electronic and print dictionaries now available. They may know the concepts of synonym and antonym, but they may not know how to use a thesaurus. (Some of the electronic ones available are really fun to use! The last chapter of this book contains Web addresses for some of our favorite online reference sites.) Practice with reference tools will help students learn to use them automatically. A vocabulary program should encourage students to become word sleuths, a habit that they may well carry with them throughout (and beyond) their school years.

You can also share your own love of words. Each of us has favorite texts that we turn to because the words move us to laughter or tears. Reading these texts aloud to students and talking about the power of words is an effective practice. You can also whet students’ appetites by sharing interesting word histories and then showing students how to explore the origins of words themselves. Posting lists of websites or print resources for students to investigate can help make word learning and word play a priority in the classroom as well.

Words themselves are just plain interesting, and our ultimate goal is to create lifelong word lovers. Crossword puzzles, word scrambles, riddles, and tongue twisters are fun, but they’re also good vocabulary practice. Make time for students to play and explore word games on their own or with others.

Vocabulary Development for English Language Learners

Students learning English as a second (or additional) language have unique advantages as well as unique challenges. Their rich background experiences can be tapped to enhance everyone's learning. They know how to move between two languages, integrating sounds and meanings into new words and grammatical structures. Their natural manipulation of two languages promotes higher-level thinking. Yet they sometimes feel lost in the unfamiliar linguistic and academic world in which they find themselves. And research has shown us that learning English vocabulary is a crucial task for English language learners (Nation 2001).

Becoming literate in a second language can take five to seven years, depending on the speaker's proficiency with his or her first language, the type of second-language instruction, and how much English the student knows at the time instruction begins (Perez 2004). The beginning of this process can be worrisome for teachers: "Most new English language learners will go through a silent period during which they are unable or unwilling to communicate orally in the new language" (Haynes 2007, 9). Yet at every stage of learning English, instruction can support students' learning.

Fortunately, everything we know about how to teach vocabulary applies to both first- and second-language learners: English language learners need to focus on meaning by using research-based strategies to learn new words. They need frequent opportunities to try out new words in varied learning contexts. The major difference is that English language learners generally require more distinctive scaffolding. Two ideas will help you plan vocabulary instruction for English language learners:

- Use discussion to support word learning. Discussion opportunities benefit English language learners by supporting their growth in conversational English, as well as by promoting word learning. Students don't simply "soak up" language. They need comprehensible input—slightly above their current language level—that builds on prior knowledge. They also need lots of opportunities to practice, especially in small-group settings (Haynes 2007; Perez 2004).
- Use students' native languages (or references to their native languages) whenever possible. Many English words have cognates in other languages. Spanishspeaking students can easily relate many new English words to Spanish because they share Latin derivatives. In teaching *aqueduct*, for example, students may already have the concept of "water" from the Spanish word *agua*. Encourage students to draw such connections between their first and second languages.

Summary

We have presented a research-based rationale for addressing vocabulary in your classroom, five guiding principles that you can use to develop an instructional curriculum, and a few ideas about adaptations that may support English language learners. We wish you success in your word journeys. In the end, we hope you and your students will agree with British novelist Evelyn Waugh:

"One forgets words as one forgets names. One's vocabulary needs constant fertilizing or it will die."

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