What Every Teacher Needs to Know about Words and about Teaching Them

Y our students are naturally set up to learn words and to be interested in words. They thrive on learning and using words that are a part of their world—words having to do with their hobbies, popular culture, and niche subcultures. These words are valuable to them and help define their worth in the eyes of their peers and demonstrate their independence in the eyes of adults. Your vocabulary instruction should capitalize on this natural disposition to learn words as you teach your students the vocabulary that will help them become college and career ready.

To get a feel for this type of exploration, let's observe a slice of Tamara Baren's vocabulary instruction in her eighth-grade English/language arts classroom.

Tamara projects the following sentence on the white board:

Hurricane Sandy decimated much of the Northeast coast of the United States.

Pointing to *decimated,* Tamara asks, "Ladies and gentleman, what do you think this word means in this sentence? . . . Yes, Regina?"

"It's like destroying it or like making things really bad."

"That may make sense here, Regina. Let's see . . . any other ideas . . . yes, Cody?"

"Like flooding? Like it flooded a lot of places?"

"That would make sense, too. I'm wondering *why* Regina and Cody are thinking this word might have this type of meaning. . . . Yes, Caitlyn?"

"Well, it's like we know Sandy caused a lot of damage, and we know it was in that area."

"Okay! Good problem solving at work here! Now let's look at the next two sentences."

Hundreds of people died, hundreds of square miles were flooded, and thousands of buildings were blown down. Few storms in the United States have caused such widespread damage.

"Do these sentences help us with our thinking about this word? Cody?"

"Yeah! See? It says 'flooded.' "

Tyrone interjects, "But that's not all it says!"

"Tell us some more Tyrone."

"Well, it also talks about the people who died and about buildings being blown down."

Fadila adds, "And it also talks about 'widespread damage,' which could mean lots of different kinds of damage."

"You have all shown us some pretty perceptive use of the *context*—the sentences and words around this particular word—to try to figure it out. Ahhhh . . . I see Álvero surreptitiously slipping his pocket dictionary out! Okay, Álvero, please tell us what you've found."

Álvero reads the definition aloud, and Tamara asks the class whether that meaning would work in this passage. Brittany replies, "Kind of, but it only talks about 'killing,' and Sandy did more that that."

"Good point. Álvero, was that the only definition listed for *decimate*?"

Álvero reads a second definition that has to do with causing great destruction. "I think *that* fits better!" he suggests.

"Ladies and gentleman, by a show of hands, how many of us concur with Álvero? . . . Well! Apparently most of us! OK, let's read back over these three sentences and see how that definition fits."

Tamara continues: "Let's look just at the word *decimate* itself. Are there any clues in how the word *looks* that might suggest its meaning? Any prefixes, suffixes, word roots that leap out at us?"

After a few seconds, she continues: "I see a lot of scrunched-up and puzzled faces! You know, nothing leapt out at me, either, when I first looked at this word. What if I reminded you about the Latin word root *dec* that all of us have learned about? Think of the words *decimal* and *decade*." (She writes them on the smart board.) "What meaning does the root *dec* have? Yes, Carey?"

"Ten!"

"Right you are! What do you think? . . . Might the *dec* in *decimate* also mean 'ten'? . . . Ah, I see more puzzled faces as you're thinking this one through."

"Let me share a story with you that I found in a book titled *Word Origins* by John Ayto. I learned about this book in a graduate course I took last year. Back during the Roman Empire, when those Roman legions were busy trying to conquer just about everybody else in the known world, from time to time some troops or soldiers would get unhappy about things. Maybe not enough good food, working conditions weren't all that good, they missed their families, whatever. Anyway, if things got bad enough for them they might start talking about a mutiny—about rising up and taking over from their general. Well, if the general became aware of this, he had a very effective way of putting an end to it: Of ten soldiers selected at random, one of them would then be chosen to be put to death. So originally, when you talked about 'decimating the ranks,' it meant 'killing a tenth.' Over time, as we have learned, the meanings of words usually grow and evolve, and this is what happened with *decimate*. It came to have the meanings that Álvero found in the dictionary: the concept of random and indiscriminate killing, but also (as in our Hurricane Sandy example) causing great destruction." ■

Let's reflect on what's happened in this lesson. Tamara draws out the students' thinking about the word *decimate* and encourages more than one contribution. She acknowledges the quality of the students' ideas (e.g., "That would make sense, too"). She good-naturedly teases yet appreciates Álvero checking the dictionary. She asks whether there is a consensus about the meaning but checks to make sure one last time. She also uses a few more "academic" words along the way—*perceptive, surreptitiously,* and *concur.* She then tells a story about the word and, in doing so, reminds students what they know and are learning about Latin word roots like *dec,* a critical aspect of vocabulary development. These stories about words are also a critical aspect of vocabulary learning: They play an important role in developing students' **word consciousness**—their curiosity and "interest in, awareness of, and appreciation of words" (Lubliner & Scott, 2008; Stahl & Nagy, 2006, p. 140).

This type of quality interaction with students, of course, doesn't happen out of the blue. Most students do not spontaneously volunteer information, for example, and check definitions in dictionaries. Most students do not talk about other information in a passage and how it can contribute to figuring out the meaning of an unfamiliar word. Many students would be put off by a teacher's spontaneous use of words such as *surreptitiously* and *concur,* as well as by her talking about Latin word parts. We're talking about changing those student attitudes, because we are teaching vocabulary *their* way.

What facilitates and sustains Tamara's vocabulary instructional climate? Over the course of the year, she teaches and models

- How to use **context clues** and whatever information is in a text to help determine the meaning of a word, referring to the dictionary from time to time to confirm a challenging word's meaning
- How to look *within* words for structural clues to their meanings
- The use of **academic vocabulary**
- How to find interesting stories about words (If students were not familiar with the meaning of *dec,* they will not now likely forget it. Some stories may be humorous, some astonishing or alarming—but they always give her students insight into where a word came from and how it grew into the meaning it has today.)
- How words work to give language its precision, appropriateness, and impact

When you model this way of thinking about words, you help your students develop a sensitivity to words that applies well beyond the particular word being analyzed. This sensitivity will help your students develop a whole new level and habit of thinking about words in general. Traditionally, most teachers have not talked about words this way. We want to support you in becoming this type of teacher, and a major goal of this book is to provide this foundation for you. Throughout *Vocabulary Their Way,* we will be demonstrating how you can organize and present your vocabulary instruction to best take advantage of your students' predispositions to learn about word meaning and structure. As you help them become attracted to and excited about words—their meanings, associations, sounds, and histories—your instruction will reflect what research has reassured us is effective as well as engaging instruction.

What Does Research Say about Vocabulary Learning and Instruction?

Every teacher is a teacher of language. Regardless of the subject you teach—English, math, history/social studies, chemistry, or another subject—you teach the *language* of that subject or discipline. By providing this language, you are giving your students the keys to accessing the important ideas and concepts of your discipline (Bailey, 2007). Teaching vocabulary is a critical part of teaching this language. As Nagy (2007) observed, it "is more than teaching words, it is teaching *about* words: how they are put together, how they are learned, and how they are used" (p. 71).

In a nutshell, vocabulary knowledge *is* content knowledge. Research reveals that vocabulary knowledge is the single best indicator of students' reading ability, comprehension, and familiarity with academic discourse (Baumann, Kame'enui, & Ash, 2003; Schleppegrell, 2004; Townsend, Collins, & Filippini, 2009). And because of this, vocabulary knowledge is one of the best predictors of student success in school. As a teacher, you are in a position to affect your students' vocabulary development significantly, so you will also widen their worlds.

Knowing a word is not an all-or-nothing phenomenon—either you know it or you don't. Rather, there are *degrees* of knowledge or familiarity about a particular word or **concept** (Dale, 1965; Fisher, Blachowicz, & Watts-Taffe, 2011). Which of the following

words would you say you know a lot about and are comfortable using? Which do you not know at all? Which have you heard or seen, but aren't sure about?

prefix	suffix	root	morphology
connotation	free morpheme	bound morpheme	denotation
etymology	simile	metaphor	idioms
context	academic language	general academic vocabulary	domain-specific vocabulary

You may have a general knowledge of some of these words—**root**, for example—but are wondering whether we will use it in the same way that you do. You may know what **prefixes** are but be uncertain whether a group of letters in a particular word is in fact a prefix. You may know that **etymology** (because it has the suffix *-logy*) has to do with the study of something, but you're not sure exactly what. If you teach the sciences, you know that **morphology** has to do with the form and structure of organisms, and are wondering whether it has a similar meaning in language.

Your self-assessment of these terms probably gives you insight into the challenges of teaching vocabulary to your students. Many are words they may not have heard or seen; others they have partial knowledge about; still others they know well—but in a different context, and they need to learn the meanings relevant to the discipline *you* teach. Helping you assess and teach the vocabulary, or language of your discipline, is the fundamental focus of this text.

Research has revealed that we do not learn words one at a time, like adding beads on a string: Words and the concepts they represent are interconnected in many different ways. In addition, for almost every word we learn, there are potentially many, many more words we could learn at the same time. Research also clearly supports the need for students to be actively involved in vocabulary learning (Townsend & Collins, 2009), and an important effect of this involvement is the development of *word consciousness*— favorable attitudes toward, and a keen curiosity about, words and word learning. In fact, as Figure 1.1 shows, word consciousness is the framework within which your teaching of the following three broad aspects of vocabulary learning and instruction is nested (Stahl & Nagy, 2006):

- Context-based instruction
- Word-specific instruction
- Generative morphology instruction

Although real-world instruction will often blur the boundaries between these aspects, your awareness of them and attention to them will ensure that your students will be immersed in powerful experiences and engagements with words.

Context-Based Instruction

Independent reading and assigned reading provide opportunities for exploring how writers select and use words. This aspect of *word consciousness* reflects the craft of writing and the craft of reading more deeply. *Wide reading* in developmentally appropriate and engaging text is critical. The more your students read, the larger their vocabularies will be and the more extensive their background knowledge. From the intermediate grades on, many other things besides books claim our students' attention, so it is especially important to find ways to keep your students

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PROMOTING WORD CONSCIOUSNESS

Amy Burton describes how she builds word consciousness with the "Words We Treasure" box.

FIGURE 1.1 A Comprehensive Approach to Vocabulary Instruction
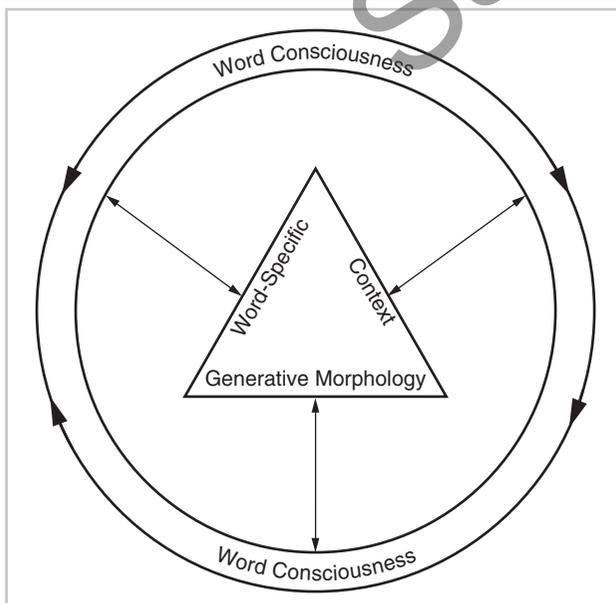
motivated to continue reading independently outside of school. Tapping into their individual interests is one of the best ways of accomplishing this. When your students are reading and encounter an unfamiliar word, using the *context* in which that word occurs to try to figure it out is an important skill.

In addition to being immersed in written texts, rich *oral language* in the classroom also plays a critical role: This includes your use of important **academic language** and **academic vocabulary** the students are learning and have yet to learn, as well as your comments on and observations about words throughout the week. Part of this rich oral language environment includes reading aloud to your students, using both narrative and informational materials. These read-alouds allow you many opportunities to make words interesting and give your students a feel for the language of your discipline. Reading aloud and even providing audio recordings of your literary and informational texts can be particularly powerful for struggling readers, whose listening comprehension abilities are often above their independent reading abilities. Beyond the elementary grades, however, most teachers rarely read to their students. If you teach at the middle or secondary level, it is essential that you plan to read to your students at least once a week from an example of well-crafted writing in your subject area.

Word-Specific Vocabulary Instruction

Word-specific vocabulary instruction refers to the teaching of specific word meanings. This aspect of vocabulary instruction is what most teachers think of when they discuss teaching vocabulary. How you go about teaching your most important or *key* vocabulary words will depend on your purposes and on your students' background knowledge (see Chapter 2). Some words will be merely mentioned, whereas others will be explored deeply, involving many exposures to the words in meaningful contexts, both in and out of texts (Flanigan, Hayes, Templeton, Bear, Invernizzi, & Johnston, 2011). Your students should have, on average, at least 12 to 15 exposures to each of these words. These experiences include attending to the words before reading, during reading, and after reading, as well as in more than one context—in addition to being *read,* they must be *heard, spoken,* and *written.* Some of the words you select may be *technical* (though new, these terms' meanings are so specific that they may not require much time and effort), whereas other words may be *abstract,* which require a significant investment of time and effort.

Generative Morphology Instruction

What if there were a vocabulary system that could help our students crack the meaning of thousands of words? Many students are surprised to learn that there is such a system. It is based on the *structure* of words—their *morphology*. Students' reading and learning words in many different contexts prepares them for the examination of those words: their meaningful parts and how those parts are combined. Becoming aware of and understanding how prefixes (such as *un-, re-, dis-)* and suffixes (such as *-ment, -ous, -al*) combine with roots (many of which come from Greek and Latin) will support a student's ability to *generate* knowledge about thousands of words encountered in his or her instructional and independent reading. In a classic study, Nagy and Anderson (1984) observed that "Knowledge of word-formation processes opens up vast amounts of vocabulary to the reader" (p. 314). For example, knowing that the Latin root *jud* means "judge," and seeing how it combines with different prefixes and suffixes, allows a student to learn and understand more deeply many other words—*pre<u>jud</u>ice, <u>jud</u>iciary, ad<u>jud</u>icate, <u>jud</u>icatory, in<u>jud</u>icious,* and so on.

You will teach these generative morphological processes as they apply to the vocabulary of your discipline, because most students do not discover (much less apply) them on their own. Because of your guidance, when they encounter an unfamiliar word in their reading they will be able to analyze its parts, thinking about the meaning that each word part contributes and how the combined meaning of the parts works in the context

in which they encounter the word. *And* they are more likely to remember and be able to use that word.

....

What Are the Different Types of Vocabulary?

Over the years, researchers and educators have used a number of terms to describe different types of vocabulary. Estimates vary, but children entering kindergarten average a **listening/speaking vocabulary** of approximately 5,000 words. As children progress in their abilities to read and write, they develop their **reading/writing vocabularies**, which over time grow to include most of the words in students' listening/speaking vocabularies and, from the upper elementary grades on, may come to include many more words than their listening/speaking vocabularies. Vocabulary has also traditionally been considered in terms of **receptive vocabulary**, the words students "receive" or take in and understand through listening and reading; and **expressive vocabulary**, the words students are able to use in speaking or writing. The vocabulary many middle school and secondary students draw on when reading and writing is larger than the vocabulary they use in their everyday speech, referred to as their **conversational vocabulary**. This includes the most common and most frequently occurring words in the spoken language, such as *talk, have,* and *under*. Beck, McKeown, and Kucan (2008, 2013) refer to these words as "Tier 1" vocabulary.

Academic Language and Vocabulary: Tools for Thinking and Learning

When we move beyond conversational vocabulary, we enter the much larger category of *academic language,* which encompasses **general academic vocabulary** and **domain-specific vocabulary** (Baumann & Graves, 2010; Nagy & Townsend, 2012). We use academic language in this text as the overarching term for "the specialized language, both oral and written, of academic settings that facilitates communication and thinking about disciplinary content" (Nagy & Townsend, 2012, p. 92). As Table 1.1 illustrates, academic language includes not only words, but also phrases, sentences, and even larger text structures that historians, scientists, and mathematicians use to convey the abstract and nuanced ideas and concepts of their specific disciplines (Townsend, Bear, Smith, Morency, Sweeney, Crawford-Ferre, Wulfing, & Burton, 2013).

How do all of these parts of academic language fit together? And what does this mean for you as a teacher and for your students? For the remainder of this section, we will take you on a brief tour of the academic language landscape, referring to Table 1.1 along the way. Because our focus is on academic vocabulary, we'll start at the middle of Table 1.1—at the word level—and proceed on up from there.

ACADEMIC LANGUAGE: GENERAL ACADEMIC VOCABULARY AND DOMAIN-SPECIFIC VOCABULARY. As you can see from Table 1.1, within academic language there are two broad categories of vocabulary at the word level: general academic vocabulary and domain-specific vocabulary. *General academic vocabulary* includes those words that may not occur a lot in everyday spoken language but which students may encounter frequently in their reading—for example, *abundant, transmit, energetic,* and *paradox*. They are likely to occur across all subject areas because they are high-utility words and students should also be able to use them in their writing. These words also occur in more formal oral language contexts, such as a lecture format. Beck and her colleagues refer to these

TABLE 1.1   **Academic Language**

Academic Language: The specialized language that facilitates communication and thinking within and across academic disciplines (Nagy & Townsend, 2012).

Text Level	Sample Overarching Text Structures: *Compare/Contrast* *Cause/Effect* *Sequence* *In-Depth Description* *Problem-Solution* *Persuasion*	Text Features: *Charts* *Visuals* *Diagrams* *Models* *Photographs* *Digital Media* *Videos*
Phrase and Sentence Level	Phrases: *in relation to, on the other hand, as a consequence of, as a result of, this led to, along the same lines, for instance* Sentence: *As a result of the passing of the Homestead Act of 1862, cheap land was made abundant to thousands of immigrants, yet another pull factor enticing many to come to the United States.*	
Word Level	Domain-Specific Vocabulary: *Homestead Act, rectilinear, potentate, mercantilism,* **Trans***continental Railroad*	General Academic Vocabulary: *abundant, energetic, paradox, acquire,* **trans***mit, analyze* Signal Words: *therefore, however, furthermore, because*

Generative Morphological Knowledge

Trans—meaning "across"
(from *Transcontinental* and *transmit* above)

Transcontinental Railroad, transmit, transatlantic, transfer, transcendentalist, transcendent, transcend, translate, intransigent, transaction, transcribe, transcript, transient, transfer, transform, transfix, transgression, transplant, transparent, transport

types of words as "Tier 2" vocabulary. Also of high utility are **signal words**—general academic vocabulary words that signal relationships between ideas and information, such as *therefore, however,* and *analyze*. Although the words and phrases of academic language must be learned and applied in the context of the tasks and tests with which students engage across all subject matter areas, it generally falls to the English, reading, or language arts teacher to make sure that students understand academic language.

Domain-specific or "Tier 3" vocabulary refers to words that occur in specific subject matter areas or disciplines such as science, history and social science, mathematics, and the arts—terms such as *Homestead Act, rectilinear, potentate,* and *mercantilism*. These words represent abstract or technical concepts about which students often have little background knowledge. Abstract concepts such as *mercantilism* often take large amounts of instructional time and considerable student effort to grasp. On the other hand, because they are narrower in scope and fairly specific, many technical concepts such as *rectilinear* and *potentate* often do not require quite so much time and effort.

These three categories are not hard and fast. There are many words that blur the boundaries. For example, the word *function*—typically regarded as a general academic word—has a discipline-specific and technical definition in math. When students are first introduced to the word *sanctuary*, it may be a part of the domain-specific vocabulary in science, referring to a reserved and protected area for animals or birds. As time goes on, however, students will learn that the word occurs in other disciplines as well, such as English and social studies, so it becomes a general academic word. However, despite this occasional overlap, when you think about the students, subjects, and grade levels you teach, it will still be useful to keep these distinctions between types of vocabulary in mind.

ACADEMIC LANGUAGE AT THE PHRASE AND SENTENCE LEVEL: PUTTING THE PIECES TOGETHER. Although word-level knowledge is absolutely necessary to your students' academic success, it is not sufficient. Because words live in context, students also need to understand how these words work in combination with other words and common academic phrases to create sentences and complete, complex thoughts. For example, as we move up Table 1.1 from the word level to the phrase level, you can see common phrases used in academic prose to signal relationships between ideas. In addition, you can see how sentences at this level of language combine both general academic and domain-specific vocabulary to create complex thoughts, such as the following: "As a result of the passing of the Homestead Act of 1862, cheap land was made abundant to thousands of immigrants, yet another pull factor enticing many to come to the United States." Notice how densely packed this sentence is with complex ideas and information, including:

- Three domain-specific vocabulary words: *Homestead Act, immigrants,* and *pull factor*
- Four general academic words/phrases: *As a result of, yet another, abundant,* and *enticing*

ACADEMIC LANGUAGE AT THE TEXT LEVEL: OVERARCHING CONCEPTS AND TEXT STRUCTURES. The words and sentences our students read in academic texts are placed within even larger contexts at the text level. Examples of these larger text structures in Table 1.1 include compare/contrast, cause/effect, and persuasion. These underlying text structures are not always apparent to the reader, and often must be inferred through the signal words and phrases the author uses. These signal words and phrases are often referred to as the "mortar" of academic language (Dutro & Helman, 2009; Dutro & Moran, 2003), bonding together the "bricks" in the foundation of the text—the general academic and domain-specific words. A student who is aware that words and phrases such as *gave rise to, as a result of, as a consequence,* and *consequently* can all signal a larger cause/effect relationship has a much better chance of making sense of a larger piece of text than a student who is not aware of how these academic words and phrases work. Students will learn how to attend to and use *text features* such as diagrams and linked videos to complement and elaborate text content.

THE BUILDING BLOCKS OF ACADEMIC LANGUAGE: GENERATIVE MORPHOLOGICAL KNOWLEDGE. Finally, we would like to end with the bottom of Table 1.1 (but by no means the least important type of vocabulary knowledge): generative morphological knowledge. Imagine that a history class was discussing the *Transcontinental Railroad,* the first railroad to connect the Atlantic and Pacific Oceans in the United States. It would be a great help if the students knew that *trans-* was a Latin prefix meaning "across," helping them understand that this railroad literally went "across" the continent. However, knowledge of this one prefix goes beyond this one word. In Table 1.1, notice the 19 other words that have been generated by combining this one prefix with a base word or root. Each of these words shares a core meaning of "across." Knowledge of just one single prefix can help students in understanding the meaning of 20 words; with generative morphological instruction, a little goes a long way.

What Does It Mean to "Know" a Word?

Our knowledge about a word and the concept that it represents falls along a continuum from feeling pretty confident to total unfamiliarity. Dale (1965) popularized this way of thinking about vocabulary knowledge and suggested that it is one of the best ways to assess our students' vocabulary knowledge (see Chapter 3).

The following five types of knowledge underlie every word that you—and your students—in some sense "know" (Perfetti, 2007; Stahl & Nagy, 2006):

- The *range of meanings* of the word, both literal and figurative (For example, the dictionary definition for *effervescent* refers to a carbonated or fermenting liquid in which small bubbles of gas are emitted, but it may also refer to an individual's behavior or personality.)
- The *situations and contexts* to which the word applies, including conversational and academic speech and writing
- The ways in which the *grammatical form* of a word affects its meaning (For example, *effervesce*, a verb, is the action of bubbling up; *effervescence*, a noun, refers to the process of bubbling up; and *effervescent*, an adjective, attributes the nature and qualities of that process to something or someone.)
- Other words that are likely to occur with the word
- The probability of encountering the word

By the middle and secondary years, most students become increasingly able to step back and think about these aspects of word knowledge—what linguists term **metalinguistic awareness**. For example, when students are using their expressive knowledge—speaking or writing—their knowledge of the probability of encountering specific words will affect their sensitivity to their audience and their resulting word choices. The degree to which they are able to think explicitly about words in these ways, however, will largely depend on *your* guidance.

Digging Deeper: Learning about How Words Work

Morphology: What Do Teachers Need to Know?

Morphology refers to the meaningful structure of words. We introduced generative morphology earlier; this section digs deeper by introducing and defining the major related terms. Table 1.2 not only defines these terms, but also illustrates how these related terms fit together under our umbrella term, *generative morphology instruction*.

Morphology is the study of the word parts related to syntax and meaning (Goodwin, Gilbert, & Cho, 2013; Templeton, 2011/2012, 2012). **Morphemes**, the building blocks of a morphological system, are the meaningful chunks in a language. More precisely, linguists define morphemes as the smallest units of meaning in a language. As Table 1.2 illustrates, there are two types of morphemes: free and bound. **Free morphemes** are units of meaning that can stand alone and which cannot be broken down into smaller units of meaning. Examples of free morphemes include the words *bird* and *seven*.

Bound morphemes, in contrast to free morphemes, cannot occur by themselves, but must be *bound* to other words or other bound morphemes. As seen in Table 1.2, bound morphemes include (1) Greek and Latin roots, and (2) **affixes**. Bound morphemes are, in fact, *the content* of your generative vocabulary instruction. For example, *gress* is an example of Latin root that means "go." Notice how *gress* cannot stand alone;

TABLE 1.2 **Generative Morphology Instruction and Related Terms**

Generative Morphology Instruction: Instruction that helps students understand the processes of word formation in English—how prefixes, suffixes, base words, and Greek and Latin word roots combine.

Morphology: The study of word parts related to syntax and meaning

Morphemes: The smallest units of meaning in a language, including base words, affixes, and roots

Free Morphemes	*Bound Morphemes*
Morphemes that **can** occur by themselves	Morphemes that **cannot** occur by themselves
Words that can stand alone (*however, scatter, convection*)	Greek and Latin Roots: Word parts, often of Latin or Greek origin, that can be combined with other word parts to form words (*photo, cred, bio*)
	Affixes: *A word part that can attach to the beginning or end of a base word or root*
	• Prefixes: Affixes that can attach to the beginning of base words or roots (*pre-, re-, un-*)
	• Suffixes: Affixes that can attach to the end of base words or roots (*-ion, -ful, -less, -ible/able*)

something must be added to it. If we add the word part *pro-* (meaning "forward"), to *gress*, we get the resulting word *progress*, which means to go or step forward. This is an example of how we can combine a root with an affix, which is the second type of bound morpheme in Table 1.2. Specifically, an *affix* is a word part that can attach to the beginning or end of a base word or root. There are two types of affixes. (1) *Prefixes* are affixes that can attach to the beginnings of base words or roots (e.g., the prefix *pro-* in *progress*). (2) *Suffixes* are affixes that can attach to the end of a base word or root (e.g., the suffix *-ible* in *incredible*).

Not only do we use these terms in this text, but we also advocate using five of these terms with your students: *base word, root, affix, prefix,* and *suffix*. We find that when we explicitly teach these five terms to our students and use them regularly in classroom discussions, we give our students a common language to talk about vocabulary. This common language will provide your students an essential tool they need to do the type of **metacognitive** thinking that will foster deeper and more engaged word learning.

Most words in English have been—and continue to be—created through morphology. Once we move beyond the most frequent words used in the English language, we find that most words are created by combining prefixes, suffixes, bases, and roots: *un-kind, re-play, dis-con-sol-ate-ly, sub-terra-nean* (science), *Re-con-struct-ion* (history), *bi-sect-or* (math). How many words are we talking about? How potentially powerful is this meaning system that pervades the English language? What does it mean for you as a content area teacher? Consider the following:

- Over 60 percent of all of the words in the English language contain Latin or Greek affixes and/or roots (Nagy & Anderson, 1984).
- Over 90 percent of discipline-specific words contain Latin or Greek affixes and/or roots (Flanigan et al., 2011; Green, 2008).

This last point is particularly telling for content teachers at the middle and secondary levels: The vast majority of the vocabulary words you are expected to teach belong to a vocabulary system based on the Latin and Greek origins of English. If most of the words you teach belong to a vocabulary system, wouldn't it make sense to explicitly teach your students about this system? We strongly believe that taking some time to teach the high-utility affixes

and roots that occur in your content area will pay big dividends—not only in your students' current learning and ability to learn independently across the disciplines, but also in their increased motivation. To this end, in each of the content area chapters (Chapters 5–8), we have carefully selected the most common and high-utility affixes and roots found in each discipline.

Throughout the middle and secondary grades and beyond, students' understanding and application of this type of knowledge may generate acquisition of thousands of words. As Figure 1.2 illustrates, knowledge of just one root can be key to unlocking the meanings of many words—both discipline-specific and general academic. Notice that of the 13 words generated from the Latin root *spect* in Figure 1.2, we see vocabulary that could be found in science (*spectrum, spectrogram*), in social studies (a *prospector* during the Gold Rush), and in English/language arts (*introspective, retrospect, circumspect*). All of these words share the core meaning of "look." A prospector is "looking" forward in the hopes of finding something, an introspective person is "looking" inward, and a retrospective stance is one of "looking"

FIGURE 1.2 Generative Power of the Root *spect*

backward. When we teach this way, learning one root leads to learning 10, 20, 30 words, or more. Throughout the remaining chapters, we will show you how to incorporate this generative morphology vocabulary instruction seamlessly into your content area teaching.
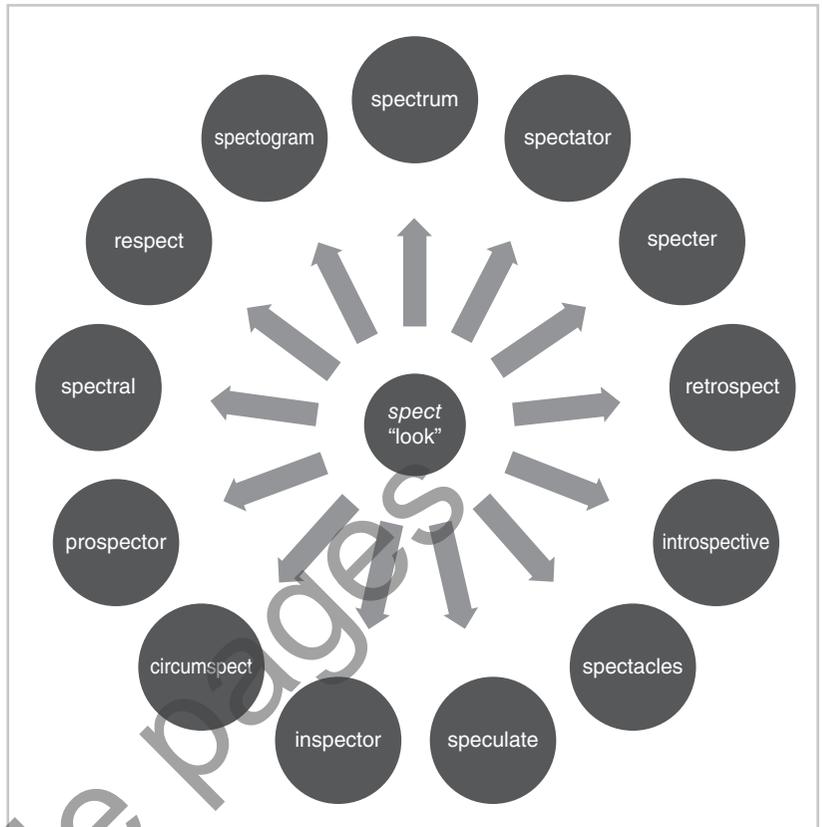
The Spelling–Meaning Connection

The powerful role of morphology in the English language has a surprising but important influence on the way we *spell* words in English. Yes, it is true that spelling does not represent individual sounds as consistently as we might like, but it does a very good job of representing *meaning* more directly. Consider for a moment what words might look like if we spelled them the way they sound; then contrast those spellings with the actual spellings:

kumpeet	*compet*e
kumpetitiv	*compet*itive
komputishun	*compet*ition

The italics in the conventionally spelled words show the effects of morphology: These words *look* similar. This is no coincidence, because these words are related in meaning. Because of the way morphology works in English, the words *competitive* and *competition* are generated from the base word *compete,* and when suffixes are added to *compete,* its pronunciation changes. The spelling of the base, however, changes very little—we drop the *e,* and that's it. Were we to spell these words so that they represent sound more directly, as in the left-hand column, we would lose this *visual* relationship between the words, and the meaning connection would not be as obvious. You will help your students understand that words that are similar in meaning are very often similar in spelling as well, despite changes in sound (Templeton, 1983, 2012). When you demonstrate this for them, writing the derivatives of a base word directly underneath it, you are also providing them with a

very helpful spelling strategy. At the same time, you are showing them how their awareness of morphology can generate their vocabulary growth. We will explore this connection between spelling and meaning in greater depth in Chapter 5.

The Power of Polysemy

Polysemy—at first glance it seems like a word only linguists could love, but *polysemous* words are everywhere in the language. Composed of the Greek word parts *poly* ("many") and *sem* ("meaning"), *polysemous* is a word your students may come to enjoy throwing around—a "big" word that means, simply, that a word has many meanings. People create, use, and combine words in ways that are constantly changing. The longer a word has been in the language, the more opportunities there are for extending its meaning. *Run,* for example, goes back to Old English, has well over a hundred meanings, occurs in 15 phrases containing almost 50 separate meanings (*run across, run on*), and is part of 20 idiomatic expressions (*run at the mouth, run rings around*). In this section, we highlight the most important categories of word use: how words are used "polysemously."

ETYMOLOGY. As we've just noted, an important reason *why* words and phrases take on additional meaning has to do with their histories. *Etymology* is the study of the origin or history of words. Tamara Baren's lesson involving the history behind the word *decimate* is an example of etymology at work. Through sharing these historical narratives with students, we make words more interesting and provide students with a deeper sense of how they work. There are etymological stories to be shared in every discipline, and in later chapters we will be sharing some of these, as well as offering resources for you and your students to discover etymologies on your own.

DENOTATION AND CONNOTATION. Words have both *denotative* meanings that describe what the words literally mean or refer to, as well as *connotative* meanings, which are what the words suggest to us, how they make us feel, and the associations we bring to them beyond their literal meanings. For example, it makes a difference whether we refer to a person as *old* or as *elderly; elderly* has a kinder, more respectful implication than if we were to refer to someone simply as *old*. Both words literally denote an older person, but we select one over the other in most contexts because of its more effective and appropriate connotative meaning.

Let's say you're a history or social studies teacher, and you wish to teach about the origins of the Republican and the Democratic parties. As soon as you display these terms on the smart board, however, you discover you've ignited a debate. "Republicans are spoiled rich people." "Democrats just want to take our money and give it to people who don't want to work." Yes, these are usually attitudes and understandings many students pick up at home, but they are nonetheless real for your students. You want to address the literal or denotative meaning of these terms, but your students are revealing their connotative meanings for these terms; associations very often with affective and emotional overlays that are suggested by the words. The word *republican* literally means or *denotes* "having to do with a republic"; depending on your experiences and attitudes, the term may *connote* "the party of spoiled rich people" or "the party that preserves important values of family, country, and religious faith."

This doesn't apply only to potentially controversial terms like *Republican* and *Democrat.* The word *dog,* while having a literal meaning that most students could agree on, also has a connotative meaning—a meaning not shared in common by all students. If a particular student's experiences with dogs have been pleasant, warm, and fuzzy, the word have a very positive connotative meaning. In contrast, if the student's experiences include being attacked by a dog, the word will have a strongly negative connotation.

FIGURATIVE LANGUAGE. Zwiers (2008) and others have noted that figurative language is a hallmark of academic language across content areas. When we extend beyond the denotative meaning of words, we are in the domain of *figurative language*. *Connotation* is a type of figurative language; *similes, metaphors,* and *idioms* are other important types.

Similes and Metaphors. Similes and metaphors are much more common than we often realize in our language (Bartel, 1983; Nilsen & Nilsen, 2004). Students can learn the straightforward definitions: *Simile* expresses a comparison using the terms *like* or *as.* In *Timothy of the Cay,* Theodore Taylor (1993) writes in the first person of how young Phillip was rescued from the cay on which he had been stranded: "I'd been brought aboard from the rescue boat, naked as a plucked pigeon" (p. 2). Taylor has used a simile, "naked as a plucked chicken," to describe Phillip's condition. In *Gulliver's Travels,* Jonathan Swift describes Gulliver's perception of a crowd of brightly clad women in Lilliput as "spread out like an embroidered petticoat."

Metaphor also expresses a comparison, but without the words *like* or *as.* In *The Brief Wondrous Life of Oscar Wao,* Junot Díaz (2007) enfolds one metaphor after another as he describes, through the adolescent Lola's eyes, the first time she fell in love. From "a sweet morenito named Max Sánchez" came "the bruja feeling that comes singing out of my bones, that takes hold of me the way blood seizes cotton" (p. 72).

We should let students know that our purpose for exploring simile and metaphor is to identify instances when words have been used to express something in a fresh, new, compelling way. We then help them apply this awareness in their writing and in their appreciation of what they read (see also Beck et al., 2008, 2013).

Idioms and Idiomatic Expressions. Phrases such as *flying off the handle, tongue-tied,* and *kick the bucket* may not be understood by putting together the literal meanings of the words. Rather, their meaning is purely figurative. *Idioms* and *idiomatic expressions* work like individual words, although their meanings are hidden in underlying concepts. Idiomatic expressions exist in conversational English but also occur within each academic domain or content area: for example, *get wires crossed* and *reinvent the wheel* in science; *six of one and half dozen of the other* and *in round numbers* in math; *the rest is history* and *history tailgates* in social studies/history. As we will explore in Chapter 4 and throughout this text, we usually need to give focused attention to idiomatic expressions when working with our students who are acquiring English as an additional language.

Writers who use words effectively usually have a deep sensitivity to the *nuances* of words—their sounds, structures, meanings, figurative use, and histories. This is why they can select and arrange those words that work most effectively in a particular context. Similarly, readers who read most effectively are alert to sound, structure, meaning, figurative use, and evolving word histories. Our ultimate goal is of course to grow *wordsmiths*—students who know how words are put into play and how writers use them in literature and informational texts to craft images, to engage feelings, and to prompt action.

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Vocabulary Learning in the Digital World

Applications of new technology continue to evolve almost exponentially, and they can support both teachers and students in teaching and learning vocabulary. For example, the publishing companies from which your district has adopted your subject matter texts—science, social studies, English/language arts, and math—usually provide access to a website with an ever-evolving array of resources, including glossaries. Other online sites, including online dictionaries and vocabulary websites, provide you and your students

information and resources about words. We will recommend a number of these throughout this text.

Classroom-based technologies such as interactive whiteboards offer quite exciting opportunities for presenting information and engaging students in the exploration of that information. Interactive whiteboards can be used as chalkboards—saving information you and your students have written from day to day, allowing you to revise whenever you wish. Interactive whiteboards also allow you to use any of your Microsoft- and Mac-based applications more interactively, including vocabulary sorting or categorization activities. Most students love coming up to the interactive whiteboard to add information and re-sort words. This is because the interactive whiteboard screen functions just like a laptop or desktop computer screen—rather than using a mouse, however, students have the appealing "big sweep" engagement in which they may tap the screen, mark text or an image, and then drag and drop this information into different categories. You can save these co-constructed presentations—as well as the chalkboard-type presentations—as PDF files, placing them on your website so that your students may later access them and use them as a basis for extension activities.

Vocabulary: Principles of Differentiation for Diverse Learners

Why do some students find learning academic vocabulary particularly challenging? Among many possible reasons are a mismatch between a student's background knowledge and the level of knowledge assumed by the curriculum or a text; insufficient experience reading, writing, and speaking academic language in a particular discipline or domain; an identified specific learning disability; and the challenge of learning English as a new language. Because the learners in your classroom are diverse in terms of backgrounds and abilities, differentiation is necessary in vocabulary instruction. Effective differentiated instruction

1. *Is developmentally appropriate.* Match your activities and materials to the developmental level of your students and to the background knowledge (including the academic vocabulary knowledge) that they bring to a particular topic of study or text.
2. *Is explicit and systematic.* Model and think aloud, physically demonstrate with concrete objects and experiences, provide multiple opportunities for guided and independent practice with specific feedback, and modify language by clearly articulating and emphasizing key words and with expressive body language.
3. *Is active.* Actively engage students with activities and experiences in which they are constantly reading, writing, thinking, and talking about words. Generally, your students should be talking, reading, and/or writing as much as or more than you talk during any given lesson. We call this the "51 percent rule" to express the ratio of student engagement to teacher talk.
4. *Connects concepts and words across a variety of rich contexts.* Guide students in making connections (1) between words, including from known words and concepts to new words and concepts, (2) between synonyms with nuances of meaning differences, (3) by clustering and categorizing words by semantic or meaning categories, and (4) by connecting the students' own personal lives and experiences to the content. (Flanigan et al., 2011; Helman, Bear, Templeton, Invernizzi, & Johnston, 2012)

This differentiation strand will continue throughout this text, particularly in the modifications to many vocabulary activities throughout Chapters 5–8.

SUMMARY

This chapter has established the foundation for your effective teaching of academic language and vocabulary. Built on a strong research base, your vocabulary instruction will enable your students to access, understand, and apply the core understandings of your discipline. Vocabulary knowledge *is* content knowledge.

A comprehensive approach to vocabulary instruction develops interest in an appreciation of words by addressing three aspects of *word consciousness*. These three aspects are *context-based* instruction, *word-specific* instruction, and *generative morphology* instruction.

There is a common perspective of vocabulary that highlights listening/speaking and reading/writing in the contexts of receptive and expressive language. These distinctions are important, but for instruction in the content areas or disciplines, we have emphasized *academic language* and *academic vocabulary*. Academic language is a specialized language with the important purpose of facilitating learning and communication in specific disciplines, and it includes the academic vocabulary—the important terms and phrases in each discipline. Most of our focus in this text will be on providing you the foundation for teaching the most important words and concepts in your subject area—your specialized, domain-specific vocabulary.

Your instruction should address *generative morphology*. You will demonstrate for your students how an awareness and understanding of the structure of words—the meaningful elements known as affixes, bases, and roots—will support their learning of key vocabulary terms as well as generate an understanding of hundreds of other words they will encounter in their independent reading and study within your discipline. The vast majority of these meaningful elements come from Latin or Greek.

Your instruction should address the nature of words *beyond* their structure—their history or *etymology*, and how words often have several meanings, a characteristic we refer to as *polysemy*. Context is a guide to determining which meaning may apply, as well as whether the word is used denotatively or connotatively. And connotation flows into figurative language, which is found in all disciplines.

Your classes present you with a range of abilities and languages. To support your vocabulary instruction in this context, we have offered guidelines for effectively differentiating your instruction.