



Teaching and Developing Vocabulary: Key to Long-Term Reading Success

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"Words, so innocent and powerless as they are, standing in a dictionary; how potent for good and evil they become in the hands of one who knows how to choose and combine them."

— Nathaniel Hawthorne

The Central Importance of Vocabulary

It seems almost impossible to overstate the power of words; they literally have changed and will continue to change the course of world history. Perhaps the greatest tools we can give students for succeeding, not only in their education but more generally in life, is a large, rich vocabulary and the skills for using those words. Our ability to function in today's complex social and economic worlds is mightily affected by our language skills and word knowledge.

In addition to the vital importance of vocabulary for success in life, a large vocabulary is more specifically predictive and reflective of high levels of reading achievement. *The Report of the National Reading Panel* (2000), for example, concluded, "The importance of vocabulary knowledge has long been recognized in the development of reading skills. As early as 1924, researchers noted that growth in reading power relies on continuous growth in word knowledge" (pp. 4–15).

Vocabulary or Vocabularies?

In everyday conversation we speak of vocabulary in the singular; we speak of a person's vocabulary. This is actually an oversimplification. *The American Heritage Dictionary* defines vocabulary as "the sum of words used by, understood by, or at the command of a particular person or group." In this paper we are concerned with extending the sum of words that are used by and understood by students.

However, it seems important to point out that in almost all cases there are some differences in the number of words that an individual understands and uses. Even the terms "uses" and "understands" need clarification. For example, the major way in which we "use" vocabulary is when we speak and write; the term *expressive vocabulary* is used to refer to both since these are the vocabularies we use to express ourselves. We "understand" vocabulary when we listen to speech and when we read; the term *receptive vocabulary* is used to refer to listening and reading vocabularies. Finally, to round out the terminology, *meaning or oral vocabulary* refers to the combination of listening and speaking vocabularies, and *literate vocabulary* refers to the combination of our reading and writing vocabularies. Are our listening, speaking, reading, and writing vocabularies all the same? Are they equally large? Is our meaning vocabulary larger or smaller than



Vocabularies

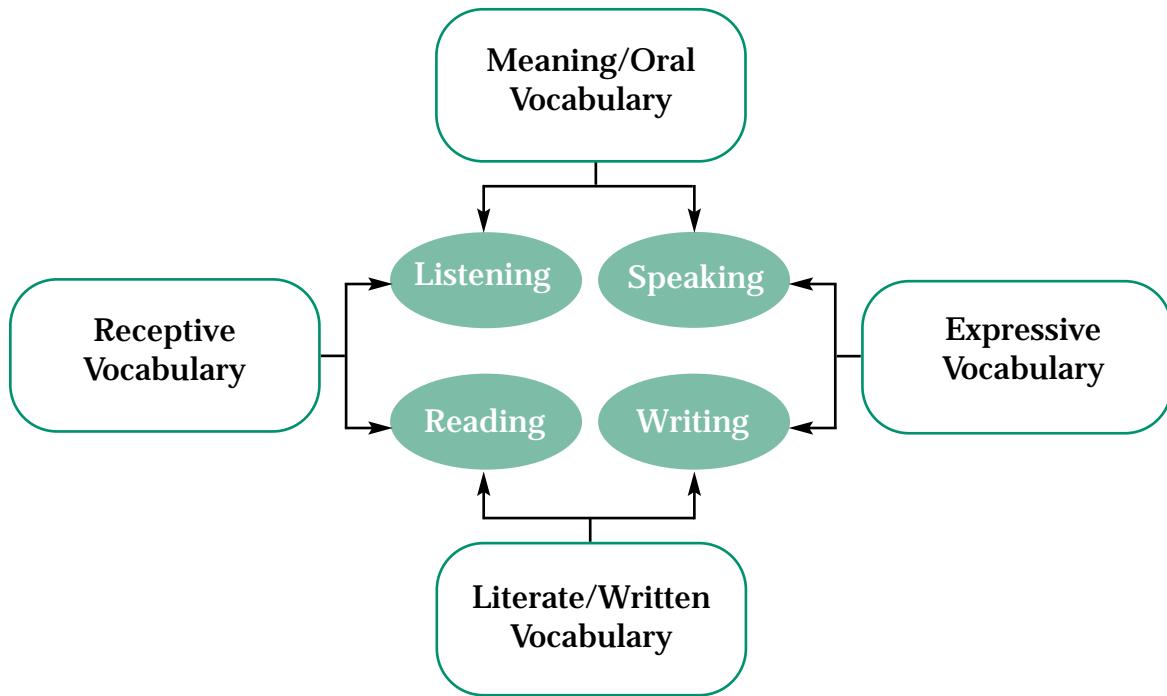


Figure 1

our literate vocabularies? Figure 1 shows the relationship of the eight different terms.

For the first five years or so of their lives, children are involved in the process of acquiring a meaning/oral vocabulary—words that they understand when they hear them and that they can use in their speech. During this period, children have essentially no literate vocabularies. Most children acquire reading and writing skills upon entering school. They need to acquire a basic knowledge of how printed letters relate to the sounds of spoken words and how printed words relate to spoken words. Being able to translate or transcode print into speech allows children to use what they know about meaning/oral vocabulary for their literate vocabulary. So for very young children, their meaning vocabularies are much larger than their literate vocabularies.

The acquisition of decoding skills leads to rapid expansion of literate vocabularies by allowing children to transcode their meaning vocabularies into their literate vocabularies. This is so much the case that for older students and for adults our literate vocabularies are probably larger than our

meaning vocabularies. We tend to have a larger group of words that we use in reading and writing than we use in our own speech. This is because written language is more formal, more complex, and more sophisticated than spoken language.

Reading Vocabulary

Young children naturally learn to communicate through listening and speaking. In order to make the transition to communicating through reading and writing, they need a large meaning vocabulary and effective decoding skills. There is an abundance of research evidence to show that an effective decoding strategy allows students not only to identify printed words accurately but to do so rapidly and automatically (Pikulski and Chard, 2003). Given the focus of this paper, we will not attempt to review the rather complex topic of developing fluency. However, we do feel it is important to briefly address one aspect of decoding that is crucial for beginning readers: high-frequency vocabulary.

High-frequency vocabulary refers to those words that are used over and over again in our communications—they are important to both our meaning and literate vocabularies. A mere 100 words make up about 50% of most English texts; 200 words make up 90% of the running words of materials through third grade; and 500 words make up 90% of the running words in materials through ninth grade. If a reader is to have at least a modicum of fluency, it is critical that these words be taught systematically and effectively.

The research of Ehri (1994, 1998) is particularly informative. Her research strongly suggests that high-frequency words should be introduced without written context so that students focus on their visual composition, that they should be practiced in materials that are at an appropriate level of challenge, and that they should be practiced several times in order to allow developing readers to recognize them instantly or, in other words, at sight. She also makes the important point that although many of these words do not conform completely to phonic generalizations or expectations (e.g. was), they nonetheless very frequently do have elements that are regular. For example, the w in was is regular and the s at the end of that word sometimes does have the /z/ sound. Ehri's research strongly suggests that these phonic regularities are powerful mnemonics for remembering the words and should be pointed out, rather than expecting that students will remember the vague shape of the word, as was the tradition with flash-card instruction for many years.

The High But Less Than Perfect Relationship Among the Vocabularies

There is no question that people who have large speaking vocabularies generally tend to have large listening, reading, and writing vocabularies; likewise people who are limited in one of these aspects are likely limited in other aspects as well. We have seen that this close relationship does not exist in pre-literate children. Also, some children who develop large reading vocabularies may not use that vocabulary in their writing without teacher help and guidance. However, in the years during which children develop as readers and writers, there is an increasingly high relationship among all four aspects of vocabulary—listening, speaking, reading, and writing. Fostering improvement in one aspect has the

potential for fostering improvement in another. Therefore, one responsibility of teachers is to help children transfer vocabulary skills from one form to another.

The Need to Improve Vocabulary Instruction

While the dependence of both general achievement and reading achievement on vocabulary growth has been clearly established for decades, those findings do not appear to have been put into practice. In a recent text, Beck et al. (2002) draw the research-based conclusion: “All the available evidence indicates that there is little emphasis on the acquisition of vocabulary in school curricula.” In a classic classroom observational study, Durkin (1979) found that in the 4,469 minutes of reading instruction that were observed, a mere nineteen minutes were devoted to vocabulary instruction and that virtually no vocabulary development instruction took place during content instruction such as social studies.

The effects of the lack of attention to vocabulary instruction, however, may not manifest themselves in the earliest grades where tests of reading achievement tend to contain passages that have simple content and common vocabulary. While most students who succeed in reading in the early grades continue to achieve well, some do not. *The Report of the Rand Reading Study Group* (2002) concluded, “Research has shown that many children who read at the third grade level in grade 3 will not automatically become proficient comprehenders in later grades.”

Indeed, a commonly reported phenomenon in reading test results is for achievement to be good through second or third grade and to falter thereafter. This drop off in achievement seems very likely due to weaknesses in language development and background knowledge, which are increasingly required for reading comprehension beyond the early grades and for reading informational and content-area texts.

The most recently released study of international reading achievement provides some strong evidence that the weakness in U.S. student performance is not the result of decoding problems or inability to comprehend narrative texts. Instead, it seems to be due to weakness in ability to comprehend

informational texts (*Progress in International Reading Literacy Study*, 2003). When compared to students from the 35 participating nations, United States fourth graders ranked fourth on the narrative section of the test but thirteenth on the informational section. This disparity of nine rankings was by far the largest among the nations participating in the study.

Vocabulary and Language Development: The Important Preschool Years

Scarborough (2001) reviews very convincing evidence that children who enter kindergarten with weak language skills are likely to encounter difficulty in learning to read. Hart and Risley (1995) conducted a careful, intensive study of early language development and found huge differences that reflected parents' socioeconomic status. Extraordinary variation was found in the amount of talk that took place between parents and children from family to family. At the extremes, the children from high socioeconomic status had 16 times more language stimulation than children from lower status families. These differences in language experiences directly influenced children's language growth. Children from parents of professionals had a cumulative vocabulary of about 1,100 words, those from working class families had about 650 words, and those from welfare families had just over 400 words. These differences systematically widened between the onset of speech and three years of age when the vocabulary measures were taken.

More recently Farcus (2001) presented similar research data. He found that once children who were falling behind in language growth entered kindergarten, with its greater language stimulation, the language gap no longer widened. Nevertheless, although the gap didn't widen, neither did it narrow.

Research reviews such as that by Barnett (2001) suggest that *it is possible* for children who are behind in early language development to overcome these limitations. However, reviews such as that by Beck et al. (2002) and Juel et al. (2003) clearly show that not enough is being done in our school programs to help children who enter school with weak language and vocabulary development to catch up. Juel et al.

concluded that although these children were exposed to much oral language stimulation in school, it was too incidental and insufficiently direct and intense to have a major impact.

A Comprehensive Approach to Teaching and Developing Vocabulary

The amount of vocabulary that children need to acquire each year is staggering in scope, estimated to be about 3,000 words a year. Therefore, a comprehensive approach consisting of the following components needs to be in place.

- Use "instructional" read-aloud events.
- Provide direct instruction in the meanings of clusters of words and individual words.
- Systematically teach students the meaning of prefixes, suffixes, and root words.
- Link spelling instruction to reading and vocabulary instruction.
- Teach the effective, efficient, realistic use of dictionaries, thesauruses, and other reference works.
- Teach, model, and encourage the application of a word-learning strategy.
- Encourage wide reading.
- Create a keen awareness of and a deep interest in language and words.

Use Instructional Read-Aloud Events

The recommendation that parents and teachers read aloud to children is among the most popular recommendations in the field of reading. The prestigious research-based report *Becoming a Nation of Readers* (Anderson et al. 1985) concluded, "The single most important activity for building the knowledge required for eventual success in reading is reading aloud to children." One very obvious way in which reading aloud to children can be expected to be beneficial is to increase their language and vocabulary skills. Indeed there is research to support this position (Elley, 1989; Leong and Pikulski, 1990; Robbins and Ehri, 1994).

The study by Elley (1989) strongly suggested that vocabulary growth was much greater when teachers discussed, even if briefly, the meanings of the words in addition to just reading the books aloud. The recent study by Juel et al. (2003) showed that while teachers in kindergarten and first grade spent considerable time reading and discussing books to children with below average vocabularies, these activities had minimal impact on the progress of the children. Only when teachers spent focused time on the vocabulary did significant growth occur. We apply the term “instructional read aloud” to read-aloud events where, in addition to reading aloud to stimulate an interest in books and reading, there is also a deliberate teaching of skills that will promote independence in reading, such as an increased vocabulary.

Provide Direct Instruction in the Meanings of Words

Which words should be taught? In deciding which words to teach we have found it helpful to think about “levels” of vocabulary, which is similar to what Beck et al. (2002) refer to as “tiers” of vocabulary.

Level I Words These are words that are used over and over in everyday speech. Since they are so frequently used in a variety of contexts, virtually all children learn them. Some examples of these words would be *house, girl, cat, up, umbrella*, etc. Level I words are sometimes referred to as “conversational speech.” Children who are learning English as a second language will sometimes make progress with this level of vocabulary but have difficulty making progress with words at levels beyond this one.

Level II Words These are words that are likely to be learned only through reading or through instruction. They have been referred to as the vocabulary of educated persons, as “academic vocabulary,” and as “instructional vocabulary.” They are words that are necessary for general success in school. Words such as *perspective, generate, initiate, intermediate, calculation*, etc. are possible examples.

Level III Words These are words associated with a particular field of study or profession. These words make up the technical vocabulary or

jargon of a field. Examples of Level III words from the field of reading instruction include the terms *digraph, diphthong, schwa, metacomprehension*, etc. As one might expect, some words such as *calculation* might be classified as either a Level II or Level III word or both.

Level IV Words These are words that are interesting but so rare and esoteric that they are probably not useful even in most educational environments, and they are not associated with a field of study or profession. Examples are words that were but no longer are used: *majuscule* (a capital letter), *xanthodont* (one who has yellow teeth like a rodent), *noctuary* (an account of what happens in a night). Notice, however, that some Level IV words are useful for teaching morphological clues such as *noct* meaning “night” and *dont* or *dent* referring to teeth. Level IV words are also helpful for creating an interest in words and language.

Just by their definitions, it should be apparent that a major responsibility of teachers is to expand the Level II and Level III words of their students. Teachers of content areas have a special responsibility for teaching Level III words.

Purposes For Teaching Vocabulary One reason teachers are concerned about teaching vocabulary is to facilitate the comprehension of a text that students will be assigned to read. If students do not know the meaning of many of the words that they will encounter in a text, their comprehension of that selection is likely to be compromised. When the purpose of vocabulary instruction is to facilitate the comprehension of a selection, it is obvious that this instruction must take place as an introduction before the reading of the selection.

As a rule, new words in narrative selections are not as critical to the overall understanding of the selection as are new words in informational selections. Before guiding students’ reading of a particular narrative, teachers should determine if there are any new words that represent concepts that are critical to understanding the selection and which are not adequately defined in context. If there are, then these words should be presented and discussed before the students read. While a “narrow” or superficial treatment often is sufficient for these, on other occasions it is necessary to develop “deep” understandings.

Informational selections usually carry a higher load of new words than narratives, and the meanings of these new words are quite often important for understanding the selection. Some authors of informational texts make it a point to use artificially enhanced contexts to facilitate word learning. If new words are defined appropriately in the selection, they may not need to be discussed beforehand. However, it is important to keep in mind the research finding that in naturally occurring contexts, it is more difficult to use contexts for word meanings in informational texts as compared to narrative texts. Thus new words that are critical to an understanding of the major topic or theme should be introduced and discussed prior to reading because the exploration of these prerequisite terms and concepts will establish a strong foundation for subsequent learning.

A second major reason for teaching the meaning of words is to increase the number of words that students know and can use in a variety of educational, social, and eventually work-related areas. These are very likely to be what we have termed Level II words. To increase the number of words the students learn, it is often helpful to teach these words in morphological or semantic clusters.

Morphological clusters refer to what Nagy calls “the word formation process.” These clusters will often build around a base or root word. For example, if a teacher were teaching the word *arm* not as a body part but as a verb meaning “to provide with a weapon,” then it would probably be useful to teach the morphologically related words: *arms* (noun), *armed* (adjective as in *armed guard*), *disarm*, *rearm*, *unarm*, *armor*, *armory*, *armament*, etc.

Semantic clusters refer to words that are related in meaning or relate to the same field of study. Teaching words in semantic clusters is particularly effective since vocabulary expansion involves not just the acquisition of the meaning of individual words but also learning the relationships among words and how these words relate to each other.

A very effective way to present semantically related words is to build word webs around some central concept. For example, after reading the selection *Akiak*, a story about dog sled racing in Alaska, it would be appropriate to build a word web of “cold weather words.”

Systematically Teach the Meaning of Prefixes, Suffixes, and Root Words

The majority of English words have been created through the combination of morphemic elements, that is, prefixes and suffixes with base words and word roots. If learners understand how this combinatorial process works, they possess one of the most powerful understandings necessary for vocabulary growth (Anderson and Freebody, 1981). This understanding of how meaningful elements combine is defined as morphological knowledge because it is based on an understanding of morphemes, the smallest units of meaning in a language. In the intermediate grades and beyond, most new words that students encounter in their reading are morphological derivatives of familiar words (Aronoff, 1994). In recent years research has suggested some promising guidelines for teaching the meanings of prefixes, suffixes, and word roots as well as for the ways in which knowledge of these meaningful word parts may be applied (Templeton, 2004). Word roots such as *dict*, *spect*, and *struct* are meaningful parts of words that remain after all prefixes and suffixes have been removed but that usually do not stand by themselves as words: *prediction*, *inspection*, *contract*.

In the primary grades students begin to explore the effects of prefixes such as *un-*, *re-*, and *dis-* on base words. In the intermediate grades students continue to explore prefixes and an increasing number of suffixes and their effects on base words: *govern* (verb) + *-ment* = *government* (noun). Common Greek and Latin roots begin to be explored, along with the effects of prefixes and suffixes that attach to them (Templeton, 1989). These include, for example, *chron* (“time,” as in *chronology*), *tele* (“distant, far” as in *television*), and *fract* (“break,” as in *fracture*). A large proportion of the vocabulary of specific content areas is built on Greek and Latin elements. As this morphological knowledge develops, teachers can model how it may be applied to determining the meanings of unfamiliar words encountered in print.

Link Spelling Instruction to Reading and Vocabulary Instruction

Spelling knowledge applies not only to the ability to encode words during writing; importantly, it also underlies individuals' ability to *decode* words during the process of reading (Templeton, 2003a, 2003b). Students' spelling knowledge is, therefore, a powerful foundation for their reading and their vocabulary development. This latter aspect is linked to the role that morphological knowledge plays, as discussed in the previous section. Words that are related in meaning are often related in spelling, *despite changes in sound*.

Among intermediate students, examination of how spelling patterns reflect *meaning* leads to vocabulary growth. To get a sense of how the connection works between spelling and meaning, examine the following words: *bomb/bombard*; *muscle/muscular*; *compete/competition*. Because the words in each pair are related in meaning, the spelling of the underlined sounds remains constant; although the sound that letters represent may change in related words, the spelling usually remains the same because it preserves the meaning relationship that these words share.

Once students understand the spelling-meaning relationships among words, they can learn how the spelling or structure of familiar words can be clues to the spelling and the meaning of unknown words, and vice-versa. For example, a student who spells *condemn* as *condem* in her spontaneous writing may be shown the word *condemnation*: This not only explains the so-called "silent" n in *condemn* but expands the student's vocabulary at the same time.

Teach the Use of Dictionaries, Thesauruses, and Other Reference Works

Exploring dictionary entries can be one important and effective component of understanding a word deeply. The entries can also help students determine the precise meaning of a word.

Dictionaries can also provide helpful information about the history of a word and reinforce the interrelationships among words in the same meaning "families." For example, a discussion of run-on entries illustrates how one word's entry can

include information about related words—the entry for *entrap* also includes *entraps* and *entrapment*. The usage notes in dictionaries often explain subtle but important differences among words—usually the appropriateness of one word over another in a particular context. Words for which the dictionary is essential may be entered in a student's vocabulary notebook. Dictionaries can also contribute to an interest in and attitudes toward words that teachers and the students explore.

The usage notes in dictionaries reflect a powerful and consistent research finding: every word/concept we know, and the degree to which we really know it, depends on the relationship of that word/concept to other words/concepts. The thesaurus, another resource for word learning, also helps learners make fine distinctions among concepts and words. This *differentiation* of learners' conceptual domains is the essence of vocabulary development and growth.

Teach the Application of a Word Learning Strategy

As noted earlier, written texts contain richer vocabulary and, therefore, more opportunities for expansion of vocabulary through reading as compared to the word challenge in oral language. However, the probability of learning a new word's meaning through encountering it in reading is not high—only about one chance in twenty. There is research that shows that students can be taught strategic behaviors to improve their ability to learn the meaning of words (Kuhn and Stahl, 1998). While skills such as application of morphological clues, reference works, and spelling clues to word meanings are all useful, they become more powerful and functional when combined with the use of context clues in a deliberate strategy.

Based on a review of research and our experience in working with students, we suggest the following sequence:

Step 1: Carefully look at the word; decide how to pronounce it. Carefully processing the letters or chunks of letters of a word and thinking about the sounds for them will leave a memory trace for the word even if it is not a word that the reader knows. At very least, it is likely that if the reader encounters the word again in future readings, there will be at least a modicum of familiarity with it.

Strategy for Deriving Word Meanings

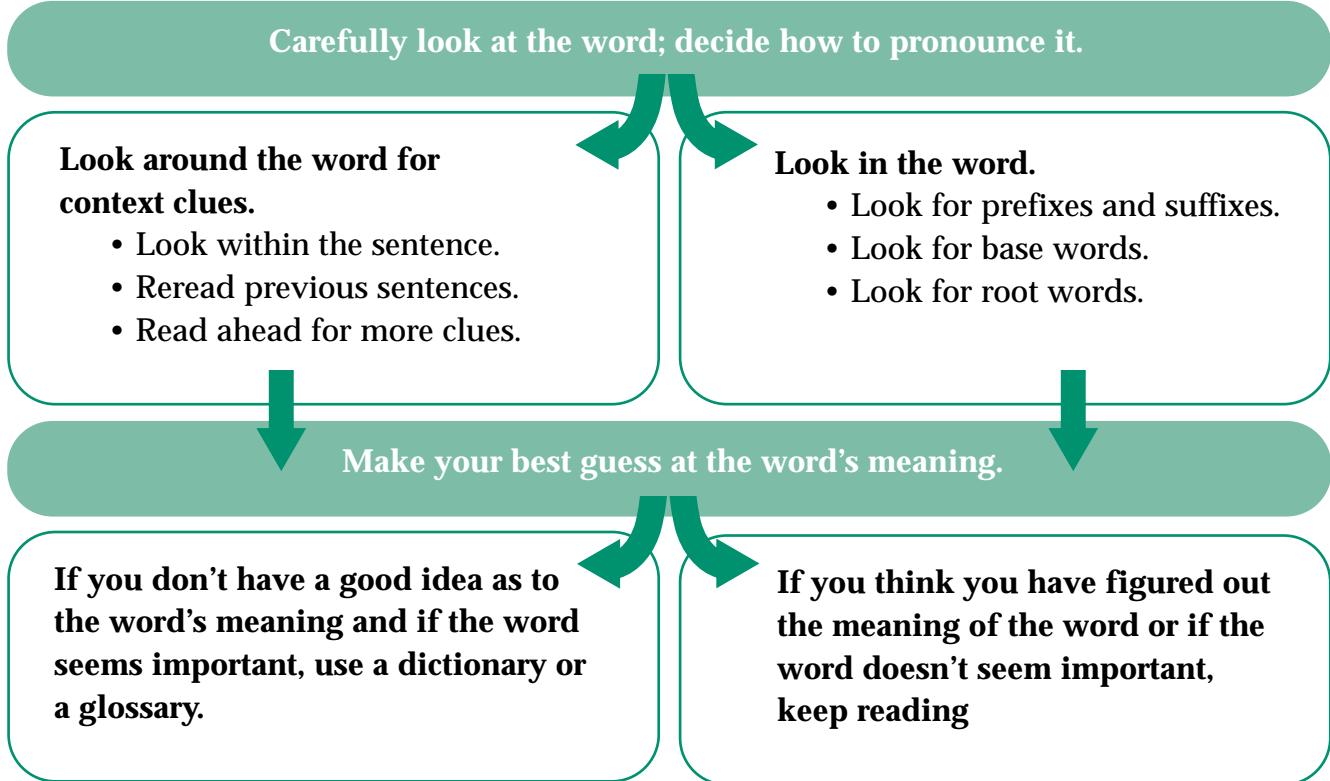


Figure 2

Step 2a: Look around the word for context clues, including:

- **Look within the sentence.**
- **Reread previous sentences.**
- **Read ahead for more context clues.**

Step 2b: Look in the word for prefixes and suffixes, base words, and root words that might offer clues. We have listed this and the previous step as 2a and 2b because with experience students will apply one or the other first depending on the word. For a word with a common prefix such as *un-*, morphological clues would likely be used before the use of context clues. The hallmark of a strategic reader is the flexible application of strategies.

Step 3: Make your best guess at the word's meaning. It is important to stress with students that natural context most often will not lead to a clear understanding of a word's meaning and that some words will not contain recognizable

morphological clues. Nevertheless, it seems useful to take the step of making a best guess at the word's meaning since this further mental activity is likely to make the word more familiar the next time it is encountered—even if the student's understanding of the word has to be revised.

Step 4a: If you don't have a good idea as to the word's meaning and if the word seems important, use a dictionary or glossary. We suggest two touchstones for determining whether or not a word is important. First, if the reader is beginning to have difficulty understanding what he or she is reading, the meaning of the word may contribute to a better understanding of what is being read. It is, therefore, important. Second, if it is a word that the reader has encountered before and still has no good idea as to its meaning, it is probably an important word since it is likely to be encountered again in the future.

Step 4b: If you think you have figured out the meaning of the word or if the word doesn't seem important, keep reading. It would be unrealistic to tell a reader to look up every unknown word in a dictionary; mature readers don't. Therefore, it is legitimate to move on and keep reading if context and morphological clues have been somewhat helpful or if the word doesn't seem to be important for comprehension of what is being read or for adding to one's functional vocabulary.

Teachers need to strategically and flexibly model and teach each of the above steps. Eventually, as students mature in their reading skills, they can and will internalize the steps in this strategy.

Application of these steps then becomes much smoother and more automatic, requiring less attention. In fact, good readers usually "blend" these steps.

Encourage Wide Reading

The importance of wide reading in the growth of students' vocabulary is critical (Nagy and Anderson, 1984). Given the staggering number of new words that children must add to their vocabularies each year, it would be impossible to directly teach all of them; Anderson (1996) estimates that it would require teaching about twenty new words a day each day of the school year!

Through wide independent reading, students come in contact with vocabulary that rarely occurs in spoken language but that is much more likely to be encountered in printed language. Cunningham and Stanovich (1998) present evidence that vocabulary used in oral communication such as television shows or adult conversation is extremely restricted. For example, prime time television shows have less challenging vocabulary than children's books, and college graduates talking with friends and spouses use vocabulary that is less challenging than that in preschool books!

Create a Keen Awareness of and a Deep Interest in Language and Words

Research reviewed earlier in this paper clearly shows that some children enter school with many more language skills than others. It seems reasonable to suggest that they also come with varying degrees of interest in words. Therefore, it is impor-

tant that every teacher attempt to develop such an interest. It seems important that every teacher be interested in words themselves. We highly recommend that each teacher reading this paper go to the website www.wordsmith.org and become a certified "Linguaphile" (one who loves language!). At no cost, it is possible to join over a half million linguaphiles who receive a word a day in their e-mail. Other excellent websites are www.wordcentral.com and <http://pw1.netcom.com/~rleiderer/rllink.htm>.

We also recommend that every teacher develop a "word-a-day" routine wherein there is a focus on an interesting, challenging word. These words should be introduced and discussed; students should be encouraged to look for them and use them in and out of school. If a word a day seems too fast a pace, a word every other day or even a word a week will still be beneficial. Again, the main purpose is to create an interest in words; a secondary but highly important purpose is to teach the meaning of the words themselves. In the beginning of the year the teacher will probably need to select the words, but later students should be encouraged to nominate the words.

As students continue to explore and think about words, they can be encouraged to keep vocabulary notebooks in which they jot down interesting words they come across in their reading (Bear, Invernizzi, Templeton, and Johnston, 2004). As they become comfortable with this technique, they can add information to each word as appropriate—recording the sentence in which it occurred so they gain a sense of the context in which it is used, its word parts and their meaning, and the appropriate dictionary definition.

Students' interest and curiosity about words are also stimulated when they learn the logic behind word origins and the many stories that underlie how words came about and came to mean what they do. And it is also important to realize that learning these aspects about words reveals that words are not only *interesting*—words are also *fun!* For example, most intermediate students love the *Sniglets* by Rich Hall (1984). A sniglet is "any word that doesn't appear in the dictionary, but should." For example, **detruncus** (de trunk' us): The embarrassing phenomenon of losing one's bathing shorts while diving into a swimming pool.

Conclusions

It does seem hard to overstate the importance of vocabulary—not only for reading achievement but also for general social and economic success. The early years of a child's life have a profound influence on that child's language and vocabulary development, which in turn greatly influences school success. Children who live in poverty in their early years have much less verbal interaction with their parents and consequently begin school with far less vocabulary development than their more privileged peers. While the language gap doesn't widen once children from lower socioeconomic backgrounds enter the stimulating environment of school, that gap does not narrow. Research suggests that it may not narrow because the vocabulary instruction offered is not sufficiently intense or effective.

Research is clear regarding implications for instruction that will ensure the development of large, useful vocabularies: wide reading plays a critical role in developing knowledge, and teachers facilitate this process by teaching strategies for learning words independently, including teaching morphological units, the use of dictionaries and other reference works, and exploring the link between spelling and learning words. Teachers should also directly teach important specific words, and they should develop and sustain students' interest in and curiosity about words.

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