Chapter **2**
Why Vocabulary Instruction Needs to Be Long-Term and Comprehensive

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Of the many benefits of having a large vocabulary, none is more valuable than the positive contribution that vocabulary size makes to reading comprehension. One of the main goals of vocabulary instruction, therefore, is to help students improve their comprehension. This choice of goals is important because of its implications for both the content and the methods of instruction. If the goal were to teach words in a way that would improve students' performance on multiple-choice vocabulary tests, the goal could be achieved through many simple and relatively undemanding methods. However, if the goal is to teach words in a way that will improve students' comprehension of text that contains these words, the methods become more labor- and time-intensive (McKeown, Beck, Omanson, & Pople, 1985).

We already know a fair amount about what kind of vocabulary instruction is most effective for improving reading comprehension (e.g., Stahl, 1986; Stahl & Fairbanks, 1986). However, the relationship between vocabulary knowledge and reading comprehension is complex (e.g., Anderson & Freebody, 1981; RAND Reading Study Group, 2002). If instruction is to further the goal of improved comprehension, we need to take into account the complexities of this relationship. Indeed, every wrinkle in the vocabulary-comprehension relationship suggests something about what might make vocabulary instruction more effective for the purpose of promoting reading comprehension. This chapter discusses specific examples of complexity in the vocabulary-comprehension relationship and explores some of the implications of these complexities for instruction.

WHAT DOES A LONG-TERM COMPREHENSIVE APPROACH TO PROMOTING VOCABULARY GROWTH LOOK LIKE?

I begin with a description of the basic features of long-term, comprehensive instruction, the rationale for which I develop in this chapter. Other chapters in this book provide extensive details about what effective vocabulary instruction

looks like. Only a brief overview is provided here to ensure that the reader understands the type of instruction for which I am developing a rationale.

Effective vocabulary instruction is a long-term proposition. Attention to vocabulary growth has to start early, in preschool, and continue throughout the school years. Although the exact nature of effective instruction changes across grade levels, the focus on and commitment to vocabulary instruction is a sustaining component of schooling. Effective instruction must also be multifaceted, encompassing: teaching individual words; extensive exposure to rich language, both oral and written; and building generative word knowledge.

Teaching Individual Words

Teaching individual words is what commonly comes to mind when we talk about vocabulary instruction. A number of studies have shown that for vocabulary instruction to increase the comprehension of texts that contain the instructed words, it must be fairly intensive (e.g., McKeown et al., 1985; Stahl & Fairbanks, 1986). Intensive or rich vocabulary instruction requires giving students both definitional and contextual information (i.e., information about what a word means and about how it is used), and providing them with opportunities to process this information deeply by applying it in ways that require creativity and connections with their existing knowledge. Furthermore, a number of instructional encounters—somewhere between 7 and 12—are necessary if students are to achieve real ownership of the instructed words (Stahl, 1986).

The kind of vocabulary instruction that can demonstrably increase reading comprehension is thus rather labor intensive. Only a portion of the words that students need to learn can be covered with such instruction. Some words must necessarily be dealt with more superficially, although there is little research that documents under what conditions less intensive instruction would be effective. But to promote the large-scale, long-term vocabulary growth that is necessary for academic success, we need to do more than teach individual words. This brings us to the other two components of effective vocabulary instruction, extensive exposure to rich language and building generative word knowledge.

Exposure to Rich Language

Extensive exposure to both oral and written language is likewise essential to effective instruction. Wide reading, in my opinion, is the primary engine that drives vocabulary growth for older and more able readers. However for younger and for less able readers, experiences with rich oral language are critical for vocabulary growth (Beck & McKeown, 1991; Beck, McKeown, & Kucan, 2002; Biemiller, 1999). Therefore, if they are to have any chance of acquiring sufficient vocabulary knowledge to get meaning from text, their teachers must

make effective use of classroom activities such as reading aloud, storytelling, pretend play, and even routine classroom conversations, to promote oral vocabulary growth.

The need for exposure to rich language is especially acute for older, less able readers—students who tend to have limited vocabularies. It is unlikely that these students will (or can) read widely enough to make a difference to their vocabulary growth. Although increasing such students' ability and motivation to read is essential, teachers must also find ways to use oral language as a means of increasing their vocabularies. Effective use of discussion is perhaps the most important tool, but reading aloud to older students should not be ruled out.

Many researchers believe that a substantial proportion of vocabulary growth occurs as children gradually learn the meanings of new words through repeated encounters with the words in text or in conversation. A review of the research on learning words from context indicates that the chances of learning the meaning of a particular word after encountering it once in context are relatively low, somewhere around 15% (Swanborn & de Glopper, 1999). Exposure to rich language is essential for promoting vocabulary growth, but the benefits of such exposure accumulate slowly.

Generative Word Knowledge

Generative word knowledge is vocabulary knowledge that can transfer to the learning of new words. There is a tendency to think of vocabulary knowledge as consisting of isolated, memorized information about the meanings of specific words, but such a conception is clearly inadequate. A variety of types of knowledge about words contributes to word learning. Most obviously, there are word-learning strategies, such as the use of context and word parts, that can be taught to students to make them better word learners (e.g., Edwards, Font, Baumann, & Boland, 2004). Effective word learners also possess knowledge about what constitutes a possible word meaning, which helps them distinguish between relevant and irrelevant information in the context (Nagy & Gentner, 1990; Nagy & Scott, 1990). A number of researchers have argued for the importance of word consciousness in word learning. I interpret the term word consciousness broadly, to include a interest in and awareness of various aspects of words—their meanings, their histories, relationships with other words, word parts, and most importantly, the way writers use words effectively to communicate (Blachowicz & Fisher, 2004; Graves & Watts-Taffe, 2002; Johnson, Johnson, & Schlichting, 2004; Scott & Nagy, 2004).

An effective approach to vocabulary instruction should address all three of these components—teaching individual words, exposure to rich language, and generative word knowledge (Graves, 2000). And in fact there are a number of instructional interventions that attempt to do so. For example, Beck and McKeown's Text Talk is a very promising example of a comprehensive

approach to vocabulary growth for younger students (Beck & McKeown, 2001; McKeown & Beck, 2003; see also Beck, McKeown, & Kucan, chapter 10, this book). Likewise, the Vocabulary Enrichment Program described by Foorman, Seals, Anthony, and Pollard-Duradola (2003) is a comprehensive approach, as is the instructional program described in chapter 7 of this book by Carlo, August, and Snow.

The goal of this chapter, however, is not to describe programs of effective instruction but to provide a rationale for these programs. This rationale is predicated on the idea that when we understand the causal links between vocabulary knowledge and reading comprehension, it changes how we think about vocabulary instruction. A good place to begin is by examining several hypotheses that have been proposed previously about these causal links.

CAUSAL LINKS UNDERLYING THE VOCABULARY-COMPREHENSION RELATIONSHIP

Vocabulary knowledge is correlated with reading comprehension, with the correlations tending to be around .6 to .7 (Anderson & Freebody, 1981). However, the existence of a correlation does not tell us anything specific about the nature, or the direction, of the causal relationships that may underlie it.

The Instrumentalist Hypothesis

The commonsense model of the relationship between vocabulary knowledge and reading comprehension is that knowing more words makes someone a better reader. That is, there is a causal connection between vocabulary size and the ability to comprehend text. Anderson and Freebody (1981) labeled this model the instrumentalist hypothesis.

One might wonder why this is called a hypothesis. It is obviously true—just try to read a text that contains a lot of words that you do not know. Indeed, a number of studies have demonstrated that teaching words can improve comprehension (Beck & McKeown, 1991; Stahl & Fairbanks, 1986).

The instrumentalist hypothesis seems perfectly reasonable until we realize that the correlation between vocabulary and comprehension might be the result of other factors.

The problem with the instrumentalist hypothesis is not that it is wrong, but that it is incomplete (and hence misleading, if one takes it to be the whole picture).

The Knowledge Hypothesis

As one alternative to the instrumentalist hypothesis, Anderson and Freebody (1981) also proposed the knowledge hypothesis, which emphasizes the role of readers' background knowledge in comprehension. Simply put, it is not knowing the meanings of words that causes readers to understand what they read; rather, knowing the meanings of words is an indication of the readers' knowledge of a topic or concept. It is this knowledge that helps readers comprehend. This hypothesis can be illustrated by the following scenario:

Imagine that you have students read a passage about baseball and, after the reading, test their comprehension of the passage. Prior to their reading of the text, however, you had also given them a vocabulary test that contains baseball terminology not used in the passage. Think about the relationship between the scores on this vocabulary test and the passage comprehension test. Would you expect them to be correlated? Yes, because students who know more about baseball, and therefore know its special vocabulary, are likely to better understand a passage about baseball. The fact that the exact words from the vocabulary test were not in the comprehension passage does not matter. Knowledge about baseball is essential, and knowledge of specific baseball words is part of, and symptomatic of, that knowledge. But it is not just knowing the words that is essential for comprehension. It is knowing the concepts and their relationships. According to the knowledge hypothesis, then, there is a causal link from knowledge to comprehension, and vocabulary knowledge is only one small part of the knowledge base that contributes to reading comprehension.

The Aptitude Hypothesis

The aptitude hypothesis offers yet another account of the correlation between vocabulary knowledge and reading comprehension. One reason that two variables may be correlated is that some third variable is linked causally to both of them. People who are 5 feet tall tend (in the majority of cases, at least) to know more than people who are 3 feet tall. This is not because being tall makes people knowledgeable, nor because knowing things makes people tall, but because getting older (at least within a certain age range) tends to increase both height and knowledge.

The aptitude hypothesis suggests that people who have large vocabularies are better at understanding what they read because a third factor affects both vocabulary and comprehension, this third factor having something to do with verbal aptitude. For example, because having high verbal IQs makes for better readers and better word learners, people who have high verbal IQs would tend both to understand text better and to have acquired large vocabularies. Furthermore, this relationship could be true, at least in theory, even if no direct causal connection exists between vocabulary and comprehension. Most second

graders, for example, might have acquired all of their vocabulary knowledge through oral language rather than through reading. Yet their vocabulary size would still be correlated with their reading comprehension because the verbal abilities that make some children better word learners would also make them better comprehenders.

Specific versions of the aptitude hypothesis can be formulated, depending on the particular ability or abilities that are thought to make an especially important contribution to the vocabulary-comprehension relationship. Sternberg and Powell (1983), for example, suggest that the ability to make inferences is important both for reading comprehension and for learning the meanings of new words that readers encounter as they read.

I suggest a slightly different spin on the aptitude hypothesis, which could be called the metalinguistic hypothesis. According to this hypothesis, part of the correlation between tests of vocabulary knowledge and reading comprehension is due to the fact that both require metalinguistic awareness—that is, the ability to reflect on and manipulate language. Indeed, vocabulary learning can be a very metalinguistically demanding task (Nagy & Scott, 2000). Vocabulary instruction requires students to think about words and their meanings in relatively abstract ways.

Likewise, reading comprehension, in part, is also a metalinguistically demanding task. Written language is typically decontextualized. Unlike conversation, relatively few clues exist outside the language itself that aid us in constructing meaning. In conversation, we have intonation, gesture, facial expressions, the ability to ask questions when necessary, a shared physical environment, and, most of the time, large amounts of shared knowledge that can be alluded to rather than stated explicitly. To take part in a conversation successfully, we have to attend to all these potential sources of information. When reading, however, we are dependent on the text itself. When comprehension breaks down, we must be able to reflect on the language of the text if we want to make sense of it. Strategies for comprehension monitoring and repair almost invariably require some type of metalinguistic ability. Recognizing that we do not understand a passage because we do not know the meaning of a word, for example, involves metalinguistic as well as metacognitive skill.

The metalinguistic hypothesis, then, explains part of the correlation between vocabulary knowledge and reading comprehension by appealing to the fact that vocabulary tests, like reading comprehension tests, are tests of the ability to deal with decontextualized language, and both are therefore dependent on metalinguistic skill.

The Access Hypothesis

The basic point of the access hypothesis (Mezynski, 1983) is that to be useful in comprehension, the words students are taught must become known well enough that they can be accessed quickly and easily. In other words, comprehension depends on depth of word knowledge as well as breadth. Of course, depth and breadth of word knowledge are correlated; people who know more words tend as well to know more about each of the words they know. As they read, they are able to come up with the correct meanings of words quickly, and it is this fluency that contributes most directly to their reading comprehension.

As Anderson and Freebody (1981) pointed out, these hypotheses are not mutually exclusive, and all are likely to be at least part of the truth. The problem arises in trying to determine their relative contribution to the vocabulary-comprehension correlation. The situation is further complicated, of course, by the fact that the relative contribution of these three hypotheses may be dependent on the particular combination of reader, text, and purpose for reading. For example, if I am an adult reading an article about a topic with which I am familiar but in a language that I do not know very well, my lack of vocabulary knowledge will be the primary source of my difficulty in understanding the text, thus making the instrumentalist hypothesis the best account of my comprehension problems. However, if I were to learn that language a little better, and then read an article in that language on a topic with which I am very familiar, the knowledge hypothesis might be a good explanation for the fact that my comprehension is much greater than would be expected on the basis of my linguistic competence.

RECIPROCAL LINKS BETWEEN VOCABULARY AND READING COMPREHENSION

Assuming that these hypotheses are all at least partly true, together they form a somewhat complex picture of the causal relationships between vocabulary knowledge and reading comprehension. However, there is yet more potential complexity to the vocabulary-comprehension relationship. Two additional aspects to this complexity to consider are (a) reciprocal links between vocabulary knowledge and reading comprehension and (b) indirect links between the two.

The hypotheses discussed so far involved models in which the causal links between vocabulary and reading comprehension only go in one direction. This is, of course, an oversimplification. There is every reason to believe that the causal relationship between vocabulary knowledge and reading comprehension is reciprocal—it goes in both directions. Having a big vocabulary does contribute to being a better reader. But being a good reader also

contributes to having a bigger vocabulary. One of the main reasons is that better readers do a lot more reading (Anderson, Wilson, & Fielding, 1988), and therefore have many more opportunities to learn new words. Hence, the amount of reading a person does plays an important role in the reciprocal relationship between vocabulary knowledge and reading comprehension (see Fig. 2.1).

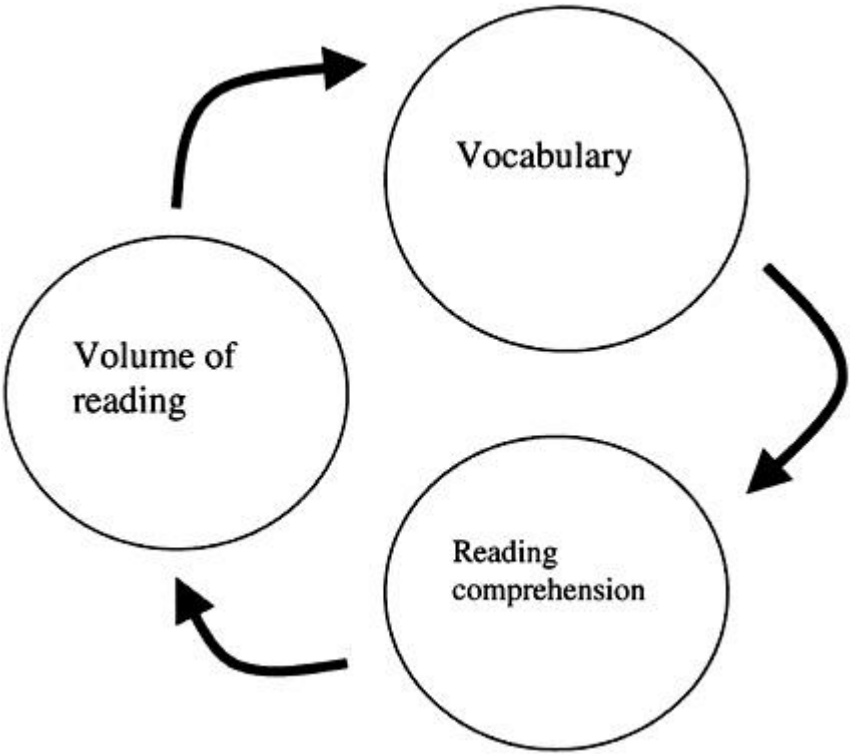

FIG. 2.1. A reciprocal model of vocabulary and reading comprehension.

Stanovich (1986) used vocabulary growth as an example of his well-known Matthew effects. The rich tend to get richer. Students with larger vocabularies understand text better and so they read more. As they read more, they learn additional words, which makes their vocabularies even larger. Conversely, the poor tend to get poorer. Students with smaller vocabularies do not understand text as well, and as a consequence are likely to read less. The less they read, the less their vocabulary growth. Over time, the gap between less successful and more successful students can widen.

A breakdown anywhere in this cycle affects the entire process and turns it into a truly vicious cycle. For example, if students have trouble decoding, they will read less and gain less vocabulary knowledge. Or if a student can decode well, but does not have access to reading materials, the same negative trend can occur.

Both positive and negative effects of the cycle spread and become generalized over time. Students who read less end up, not just with smaller vocabularies, but with less knowledge on all the topics that better students have been reading about in their spare time. In addition, they fall behind in fluency because they have less practice in reading. Thus, in the graphic shown in Fig. 2.1, the circle containing the word "Vocabulary" should also contain all the other kinds of knowledge that can be gained by reading. By fifth grade, a student with a limited vocabulary has more than just a vocabulary problem. Because of years of less exposure to text, such a student also has acquired less decoding skill, less fluency, and less of the various kinds of knowledge one gains through reading. Teaching this student all the difficult words in a text will not bring her or him to the same point as a student who has a larger vocabulary because the student with the larger vocabulary also has all of the benefits that come from the experiences that accompany vocabulary growth.

INDIRECT CAUSAL LINKS BETWEEN VOCABULARY KNOWLEDGE AND READING COMPREHENSION

Indirect causal links pose another kind of complexity in the vocabulary-comprehension relationship. That is, vocabulary knowledge may have an impact on other abilities, which in turn contribute to reading comprehension. One such possible indirect link involves metalinguistic awareness. Evidence indicates that vocabulary knowledge may contribute to some types of metalinguistic awareness, which, in turn, can contribute to reading comprehension, either directly or indirectly, through the contribution of metalinguistic awareness to word recognition. Another possible indirect link involves the impact of vocabulary knowledge on word recognition.

Figure 2.2 shows a generic schema of how vocabulary knowledge and metalinguistic awareness might be related to each other and to reading comprehension:

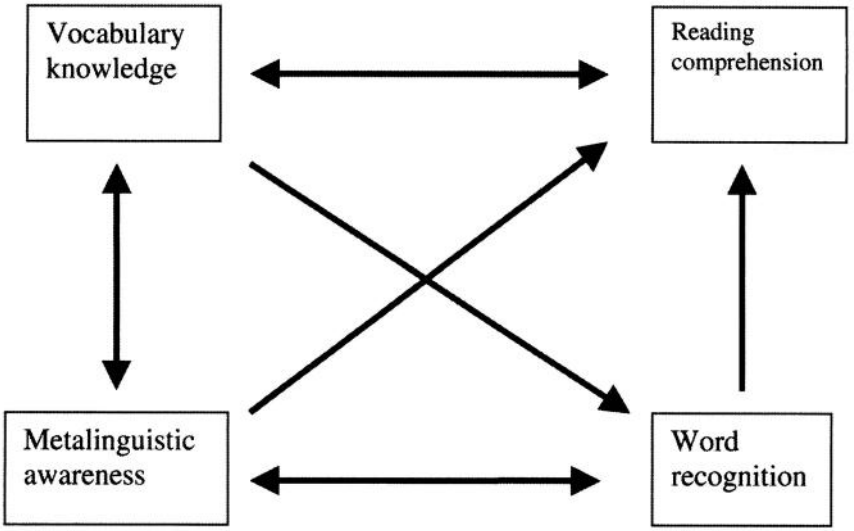

FIG. 2.2. Some hypothesized causal links between metalinguistic awareness, vocabulary knowledge, word recognition, and reading comprehension.

- Vocabulary knowledge contributes to metalinguistic awareness.
- Metalinguistic awareness contributes to word recognition.
- Vocabulary also may contribute to word recognition.
- Metalinguistic awareness may contribute to reading comprehension through means other than enhancing word recognition.
- Most if not all of these relationships may be reciprocal (hence the two-headed arrows).

To the extent that this picture is valid, vocabulary contributes both directly and indirectly to reading comprehension.

Some evidence indicates, for example, that vocabulary knowledge contributes to phonological awareness. The more words children know, the more likely they are to be analytic in their representation of the sounds of those words. This relationship is supported by several studies (e.g., Fowler, 1991; Gathercole, Hitch, Service, & Martin, 1997; Goswami, 2001; Metsala, 1999; Metsala & Walley, 1998). Phonemic awareness, in turn, has an impact on word recognition (Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh, & Shanahan, 2001), which ultimately contributes to reading fluency and comprehension.

It also appears that vocabulary may contribute to knowledge about print, and hence to word recognition. Dickinson, McCabe, Anastopoulos, Peisner-Feinberg, and Poe (2003) examined the emerging literacy knowledge of Head

Start children, using an instrument called the Emergent Literacy Profile. This profile primarily reflects knowledge about print, a precursor to word recognition. The researchers were particularly interested in the effects of two independent variables: phonological awareness (as measured by the Early Phonological Awareness profile) and receptive vocabulary (as measured by the PPVT). A key finding of the study is that both vocabulary and phonological awareness made significant independent contributions to the literacy measure. Thus, vocabulary knowledge appears to make a direct contribution to word recognition, above and beyond any effect it may have via phonemic awareness.

Dickinson et al. (2003) report another very interesting finding concerning the relationship of vocabulary knowledge and phonological awareness: For students who had limited phonological awareness, vocabulary was not related to early literacy. For students who had normal phonological awareness, vocabulary was linked to early literacy. Conversely, for students who had small vocabularies, phonological awareness was not related to early literacy. For students with more normal vocabularies, phonological awareness was linked to early literacy.

This may be a bit hard to visualize, so let me say it another way: If students' vocabularies are too small, phonological awareness does not contribute to their knowledge about print. If students' levels of phonological awareness are too low, vocabulary does not contribute to their knowledge about print. In other words, the extent to which phonological awareness contributes to knowledge about print depends on vocabulary and vice versa.

The point is that each of these variables functions as a necessary but not sufficient condition. Students need to have a certain level of vocabulary knowledge for phonological awareness to be of any benefit to them in learning to read, and they need to have a certain level of phonological awareness for vocabulary knowledge to be of any benefit in learning to read. Each element makes a contribution, but it may be a necessary ingredient for the others to function as well.

In a study conducted with colleagues at the University of Washington (Nagy, Berninger, Abbott, Vaughn, & Vermeulen, 2003), we likewise found that for second graders at risk for failure in reading, oral vocabulary made a significant, unique contribution to word recognition, even when orthographic, phonological, and morphological factors had been statistically controlled for. We also found that morphological awareness made a significant, unique contribution to reading comprehension, above and beyond that of vocabulary. These findings and those of Dickinson et al. (2003) thus provide evidence for the two diagonal lines in Fig. 2.2.

It should be noted that the indirect links between vocabulary knowledge and reading comprehension just discussed are also likely to involve reciprocal relationships. In particular, the relationship between vocabulary and morphological awareness is likely to go both ways: Knowing more words gives us more opportunities to become aware of relationships among words that share

meaningful parts, and awareness of morphology should facilitate our learning of words that are related to others by prefixation, suffixation, or compounding.

IMPLICATIONS FOR INSTRUCTION

As the preceding discussion was intended to demonstrate, the causal links underlying the vocabulary-comprehension relationship are relatively complex. The instrumentalist, knowledge, aptitude, and access hypotheses each focus on a different aspect of this complexity. The possibility of reciprocal and indirect links between vocabulary knowledge and reading comprehension further complicates the picture. As already noted, these hypotheses are not mutually exclusive. All have at least some plausibility, and in some cases, empirical support.

To the extent that vocabulary instruction is motivated by the causal relationship between vocabulary and reading comprehension, we have to take the complexity of this relationship into account when we think about what constitutes effective vocabulary instruction. In the remainder of this chapter, I briefly sketch some implications of the picture of the vocabulary-comprehension relationship that I outlined.

The Instrumentalist Hypothesis

According to instrumentalist hypothesis, word knowledge contributes directly to reading comprehension; therefore, to improve comprehension, vocabulary should be taught. However, the fact that the instrumentalist hypothesis is only one causal connection in a complex network of causal links also has important implications. Vocabulary interventions are usually carried out with the expectation that a successful intervention will impact comprehension. Despite some successes, however, the impact of vocabulary interventions on standardized measures of reading comprehension has been sporadic, and even when there is an effect, it is generally not sizeable.

The fact that the instrumentalist hypothesis is only one part of a larger, more complex picture should lead us to have more modest expectations about what a vocabulary intervention can produce in terms of gains in comprehension. The expectation that a short-term vocabulary intervention, whatever its quality, will produce large improvements in reading comprehension is simply not realistic.

This is not to say that vocabulary interventions are not worthwhile, or that they should not be expected to impact comprehension positively. But, as I hope the following sections make clearer, the complexity and reciprocal nature of the vocabulary-comprehension connection makes it much more likely that effects of vocabulary instruction will tend to be long-term and cumulative, rather than

short-term and dramatic. The remaining hypotheses also tell us more specifically what effective vocabulary instruction should look like.

The Knowledge Hypothesis

The knowledge hypothesis implies that word meanings do not exist in isolation; rather, they are part of larger knowledge structures. As a result, it is not just word knowledge alone, but word knowledge combined with world knowledge that enables improved comprehension. For instruction to affect comprehension, therefore, vocabulary should be taught in conjunction with concepts and content. One of the attributes of effective vocabulary instruction identified by Stahl (1986), and exemplified in the rich vocabulary instruction developed by Beck and her colleagues (e.g., Beck et al., 2002), is making connections between the instructed words and students' prior knowledge and experiences.

The Aptitude Hypothesis

The instructional implications of the aptitude hypothesis vary, depending on the specific version that is used. In the version proposed by Sternberg and Powell (1983), the implication is that students should receive instruction that helps them infer the meanings of new words.

Two recent reviews of research on teaching students to infer the meanings of new words (Fukkink & de Glopper, 1998; Kuhn & Stahl, 1998) have indicated that such instruction, in fact, can help students learn the meanings of new words. An impact on comprehension of such instruction has not been demonstrated (Baumann, Edwards, Boland, Olejnik, & Kame'enui, 2003). I suggest, however, that the implication of the aptitude hypothesis is that strategies for word learning and strategies for comprehension should not be taught separately. Some successful comprehension strategy packages have a component that addresses unknown words—for example, the "clarification" component of reciprocal teaching (Palincsar & Brown, 1984), or the "clunk" component of Collaborative Strategic Reading (Klinger & Vaughn, 1999).

The implication from the metalinguistic hypothesis is that having a large vocabulary and doing well on vocabulary tests is associated with being able to talk and think about language and, in particular, about word meanings. The implication for vocabulary instruction is that such instruction should aim not just at teaching new words, but at helping students learn to talk and think about language. That is, effective vocabulary instruction should promote word consciousness (Graves & Watts-Taffe, 2002; Scott & Nagy, 2004). Likewise, vocabulary instruction, especially for younger children, should aim at increasing children's facility with decontextualized language (McKeown & Beck, 2003), which depends heavily on metalinguistic awareness.

The Access Hypothesis

The instructional implication of the hypothesis is that words (some words, at least) need to be taught thoroughly. McKeown et al. (1985) indicate that students need to encounter a word as many as 12 times before they know it well enough to improve their comprehension. This suggests that for vocabulary instruction to be most effective, it must not only introduce important vocabulary words, but provide ways for students to solidify their understanding of the words by seeing and using them multiple times.

The Reciprocal Hypothesis

What are the instructional implications of a reciprocal relationship between vocabulary knowledge and reading comprehension? One obvious implication is to start some form of vocabulary instruction as early as possible. The causal relationship between vocabulary knowledge and reading comprehension starts early, before children are reading connected text. Thus, the correlation between vocabulary and reading comprehension for fifth graders is not just a matter of how much these students know about the meanings of the words in the text they are tested on. It reflects a long history of mutual facilitation between vocabulary knowledge, reading comprehension, and a variety of other literacy-related abilities. If the goal is to increase children's reading comprehension by teaching them vocabulary, it helps to start working on their vocabularies when they are in preschool.

The overriding implication of the reciprocal hypothesis, however, is the need to develop comprehensive literacy programs. "Balanced" is too weak a word because it implies that there are only two sides to be balanced. But in the cycle of learning that leads to vocabulary and comprehension growth, it is crucial to support students at each point in the cycle. Figure 2.3 illustrates some of the ways to make sure that each part of the cycle is functioning.

Indirect Links Between Vocabulary and Comprehension

I have argued that vocabulary knowledge also may have an indirect impact on reading comprehension through its relationship with morphological awareness, phonological awareness, and word recognition. One instructional implication of such links is that the impact of vocabulary knowledge on literacy begins very early. Hence there is all the more reason for early attention to vocabulary instruction. The indirect links via morphological awareness also provide evidence for the importance of instruction on prefixes, roots, and suffixes (e.g., Graves, 2004).

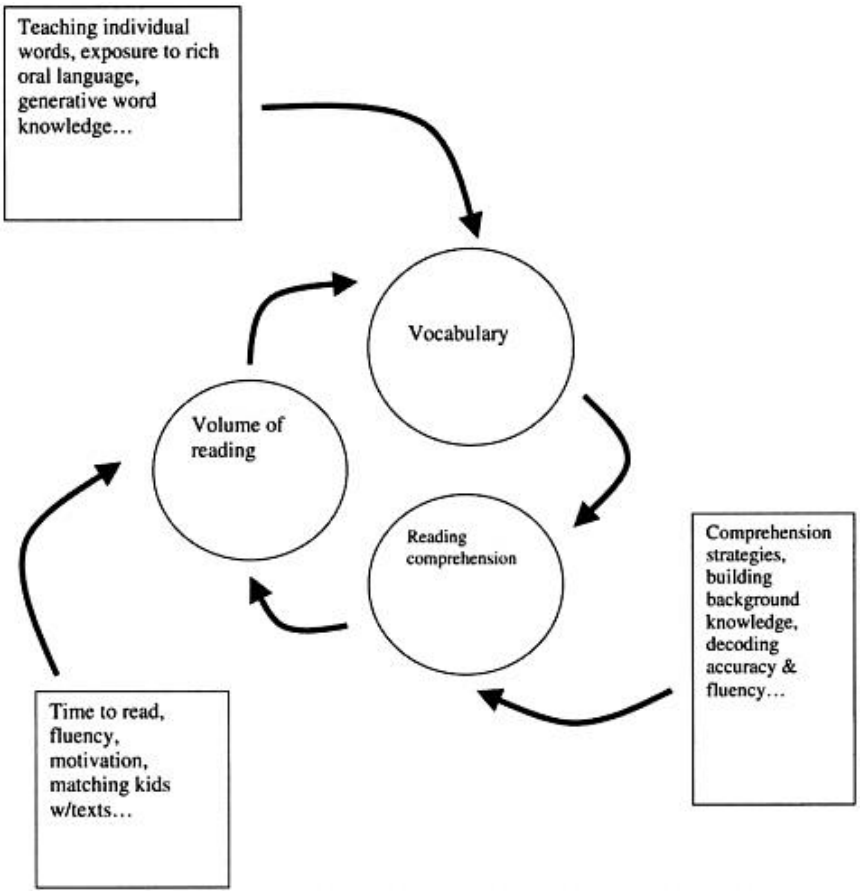

FIG. 2.3. Some instructional implications of a reciprocal model of vocabulary and reading comprehension.

CONCLUSION

In this chapter, I have tried to illustrate some of the complexity of the causal links between vocabulary knowledge and reading comprehension. My main purpose has been to argue that this complexity constitutes a powerful rationale for rich and multifaceted vocabulary instruction. Such instruction has to start early and must be kept up over the years, although what constitutes effective instruction changes with grade level. It must increase students' generative word knowledge, as well as their knowledge of individual words. It must include

increased exposure to rich oral language as well as wide reading, and it must be part of, and integrated into, a comprehensive literacy curriculum

Effective vocabulary instruction includes components that might look like frills to some: spending valuable instructional time on building word consciousness, helping students to identify morphological and semantic relationships among words, increasing their sensitivity to words with multiple meanings and to contextual variations in meanings.

My intent has been to give some reasons why these things are not frills; they are essential components of effective instruction. No one component is sufficient by itself, but each is important. We still need to figure out exactly how to combine the components in ways that create the most engaging and cognitively challenging instruction for all our students. However, we already know enough to do better than we are often doing, especially for our youngest and our most vulnerable students.

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