

## **Vocabulary Instruction in Fifth Grade and Beyond: Sources of Word Learning and Productive Contexts for Development**

**Evelyn Ford-Connors and Jeanne R. Paratore**  
*Boston University*

*Increasing the vocabulary knowledge of young adolescent and adolescent students has been a focal point of educational research and many teacher professional development initiatives. Yet many teachers continue to use traditional, but generally ineffective, methods of classroom-based vocabulary instruction. Synthesizing the literature around the general topics of vocabulary instruction, classroom discourse, and teacher talk, this review provides a comprehensive and critical examination of instruction that supports vocabulary learning in older students with a particular focus on practices that promote productive discussions of content.*

**KEYWORDS:** vocabulary, classroom instruction, discussion, teacher talk, adolescent

The past decade has seen increased focus on the literacy development of older students, especially adolescents, in the United States, based in large part on students' generally low performance on national and international assessments. Although, according to the latest National Assessment of Educational Progress (NAEP, 2013) report, the percentage of eighth-grade students achieving reading proficiency has increased slightly (from 30% in 2011 to 32% in 2013), the overall result is the same: Only one third of those tested comprehend text proficiently. In addition, although gains are also evident among underperforming groups, a large gap remains between minority and nonminority students (NAEP, 2013). More than a decade ago, Alvermann (2001, p. 4) argued that "basic level literacy is insufficient in today's world where both reading and writing tasks required of adolescents are continuing to increase in complexity and difficulty." If young people are to succeed in a world that is dominated by ever-changing digital technologies, and accordingly new literacies, and ever-growing competition in a global economy, they will need to acquire and maintain high levels of literacy skill and analytical ability.

A complex array of conditions contributes to the problem of poor adolescent reading performance, and solutions are, in turn, equally complex. But there is

substantial evidence that at least part of the solution resides in expanding students' vocabulary knowledge, known to be essential to reading comprehension (Anderson & Freebody, 1981; Beck, McKeown, & Kucan, 2002; Cunningham & Stanovich, 1998; Davis, 1968). Students with large vocabularies demonstrate stronger reading comprehension and score higher on standardized achievement tests than their peers with smaller vocabularies (Stahl & Fairbanks, 1986). Moreover, vocabulary knowledge is closely linked to students' long-term academic achievement (Cunningham & Stanovich, 1997; National Reading Panel, 2000), and limited vocabulary has been linked to the achievement gap for students of color, English language learners, and students with learning disabilities (Biemiller & Slonim, 2001; Proctor, Carlo, August, & Snow, 2005).

Because of vocabulary's significance to students' reading and academic achievement, we set out in this review to determine how vocabulary is effectively taught in the classroom. As we searched the literature, we noted increasing evidence of positive influences of classroom discussion on students' text comprehension and learning (e.g., Murphy, Wilkinson, Soter, Hennessey, & Alexander, 2009; Soter et al., 2008), and we wondered to what extent classroom discussion also exerted an influence on vocabulary learning; therefore, we chose to include this as a factor in our review. We set our sights on students in Grades 5 through 12 for two reasons. First, researchers have identified that literacy learning of young adolescents as an area in need of greater attention (e.g., Biancarosa & Snow, 2004). Second, as students advance through the grades, the texts they are expected to read increase in both concept density and linguistic complexity. As a result, both knowing words and also knowing how to derive meanings of unfamiliar words has more importance in achieving text understanding, thus helping realize a level of reading proficiency that will prepare students for success in and out of school.

To set the context for this review, we first describe what is understood about vocabulary's connection to comprehension. We next examine the nature of word learning, with a focus on *what it means* to know a word. Then, to develop awareness of the current state of practice, we report on evidence related to how vocabulary presently is taught with students in Grade 5 and beyond. Finally, we describe methods, present and discuss findings, and draw conclusions.

### *Background for the Study*

#### *Vocabulary's Connection to Comprehension*

The exact relationship between vocabulary and reading comprehension is not well understood (Harmon, 1998; National Reading Panel, 2000; Pearson, Hiebert, & Kamil, 2007). Although vocabulary is recognized as a predictor of reading comprehension, it also develops as a result of reading (RAND Reading Study Group, 2002). Researchers advance several hypotheses to explain this relationship. One hypothesis suggests a direct, causal relationship between vocabulary and reading ability (e.g., Beck & McKeown, 1991). A second proposes that general knowledge of the world supports both vocabulary and text comprehension, with all three connected through mental schema (e.g., Anderson & Freebody, 1981). A third posits the presence of some common variable that underlies both vocabulary and reading skill such as processing capacity, memory, or general verbal ability (e.g., Cain, Oakhill, & Lemmon, 2004; Daneman, 1988; Nippold,

2002). A fourth suggests that the relationship of vocabulary to reading comprehension is likely bidirectional and reciprocal, with comprehension and vocabulary influencing each other recursively, and with both connected to reading volume (Nagy, 2005).

In undertaking this review, we considered these hypotheses not as competing theories but as evidence of an intricate network of skills, knowledge, and cognitive processes that are multidirectional, reciprocal, and that, at different points in time and in different contexts, exert more or less influence on each other.

### *The Nature of Word Learning*

Word knowledge exists as a rich network of information in which words are connected to mental schema, prior experience, and associations with other words, concepts, and ideas. Knowledge of a word thus extends well beyond its definition to include not only the ability to recognize a word but also to instantly access information *about it* and to create meaning from spoken or written texts. In fact, word knowledge is “primarily procedural rather than declarative, a matter of ‘knowing how’ rather than ‘knowing that’ . . . knowing a word means being able to do things with it,” such that “word knowledge is applied knowledge” (Nagy & Scott, 2000, p. 273).

The complexity of what it means to know a word suggests its development as a gradual process that occurs over time and through an accumulation of experiences and exposures to words and related ideas. Learners must come into contact with a word in a variety of contexts to learn its meaning and use, not only in a single instance but as an array of conceptual associations that accompany full knowledge. Single encounters with words, then, likely are not adequate to provide the depth of meaning, conceptual knowledge, and information about usage that permits full ownership (Graves, 2006).

Dale (1965) represented the multidimensional and incremental nature of word knowledge as four levels or stages of knowing: (a) having no idea of a word’s meaning, (b) having heard it but not knowing its meaning, (c) recognizing it in context as related to a particular category or idea, and (d) understanding its meaning in a variety of contexts. Paribakht and Wesche (1996) added a fifth stage, suggesting that the ability to accurately use the word in speaking and writing is the ultimate marker of mastery of the word’s meaning.

Nagy and Scott (2000) further explained dimensions of word knowledge as *incrementality*, that is, word learning is a process that occurs in small steps; *polysemy*, that is, the same word can have different meanings or similar, but nuanced, meanings; *multidimensionality*, that is, word knowledge includes various forms, including spoken, written, grammatical function, location with other words, relationships to other words, frequency of use, and conceptual meaning (Nation, 1990); *interrelatedness*, that is, connectedness to other words, categories, concepts, and ideas; and *heterogeneity*, that is, those aspects of word knowledge that influence what one knows about the word. Vermeer (2001) likened word knowledge to “nodes in a network” (p. 218), linked across numerous dimensions that include both breadth and depth of knowledge, with denser networks indicating greater knowledge of and about a word. Word knowledge is thus far more than simple labels or definitions but rather a deep network that holds crucial

connections to language development and growth in general knowledge. When viewed together, these multiple dimensions illumine the complexity of word knowledge and suggest not only its influence on reading comprehension but also its fundamental role in general knowledge acquisition.

As researchers have developed understandings about the nature and complexity of vocabulary knowledge and growth, they also have investigated classroom-based instruction that supports children's word learning. This research direction is crucial, given the significant differences in vocabulary knowledge that children bring to the classroom. Disparities in children's vocabulary, evident as early as preschool, persist into students' later elementary and middle school years, with consequences for learning and success in school (e.g., Biemiller & Slonim, 2001; Hart & Risley, 1995; Proctor et al., 2005). Awareness of these disparities underscores the need for classroom-based instruction to address these differences and create a route to improved reading comprehension and greater academic success for all students.

The work of Beck, McKeown, and their colleagues (Beck, Perfetti, & McKeown, 1982; McKeown, Beck, Omanson, & Perfetti, 1983; McKeown, Beck, Omanson, & Pople, 1985), conducted with younger (fourth-grade) students, helped establish an understanding of instructional conditions that improve vocabulary learning. Through their work, we understand that, at least for younger students, deep vocabulary learning is realized when vocabulary instruction (a) develops both definitional knowledge and understanding of a word's broad range of semantic connections and related concepts, (b) provides many exposures to target words in multiple contexts (McKeown et al., 1983), and (c) requires that students justify and explain their reasoning as they make associations among words. Moreover, especially relevant to this review is the understanding that the instructional contexts that contributed to increased word learning (as well as text comprehension) employed in both print- and discussion-based interactions with words. A recent study by Silverman et al. (2013) largely confirmed these findings. In an analysis of the relationship between certain types of vocabulary instruction and the vocabulary learning of monolingual and bilingual students in 33 third-, fourth-, and fifth-grade classrooms, Silverman et al. found that both monolingual and bilingual students benefited when instruction included attention to explicit definitions, word relations, and morphology and syntax.

Despite these well-established insights about the qualities of rich instruction that improve vocabulary learning for younger students, this type of instructional approach is not commonplace in middle or secondary school instruction. In fact, teachers often adopt relatively constricted approaches to vocabulary instruction. For instance, in a descriptive study of vocabulary instruction in 23 upper-elementary classrooms, including 308 hours of observation, Scott, Jamieson-Noel, and Asselin (2003) found that teachers spent little time engaging in discussions of word meanings with their students. Instead, the predominant methods of instruction included teachers mentioning words, providing synonyms, and assigning words to look up in the dictionary. In another study, Hedrick, Harmon, and Linerode (2004) surveyed 70 social studies teachers in intermediate and middle school grades; they found that nearly two thirds of the teachers regularly asked students to look up words and definitions as part of a unit of study or

provided lists of words for children to learn. Similarly, in a 4-month descriptive study of six classrooms with fifth- and sixth-grade students, Watts (1995) observed a predominance of vocabulary instruction focused on dictionary searches and sentence creation based on definitions. Furthermore, Watts found that the nature of individual words had little influence on teachers' instructional approaches, as they tended to use the same two methods consistently across all of their lessons.

The common practices identified by these studies do little to increase students' vocabulary, and an instructional focus on definitional information may actually lead to misinterpretations about word meaning. Miller and Gildea (1985) found that when students in Grades 5 and 6 were asked to create sentences for new words based only on the words' definitions, an overwhelming number of sentences (63%) reflected a general misunderstanding of the words' meanings. In addition, Scott and Nagy (1997) cast doubt that even accessible definitional styles were sufficient. In two experiments, students in the fourth and sixth grades were presented with brief definitions of pseudowords along with sentences using the pseudowords and asked to determine whether the word usage in the sentences accurately represented their definitions.

In the first experiment, students were able to identify sentences in which word use was totally correct or totally incorrect, but they misjudged sentences containing a correct fragment about 50% of the time, a chance performance level. In a second experiment, students persisted in selecting incorrect sentences containing correct fragments more than half the time, whether the definitions were presented in traditional or "user-friendly" (Scott & Nagy, 1997, p. 192) language. Scott and Nagy concluded that "even with high-quality definitions students have limited success" (p. 198) in their understanding of both the semantic and syntactic elements of words. Scott and Nagy postulated that definitions offered little learning support because "the language of definitions is in some sense an extreme version of literate language—even more decontextualized, more terse, and less like oral language than most of the written language to which children have been exposed" (p. 187).

It is not clear whether the limited nature of teachers' vocabulary instruction results from a lack of familiarity with more efficacious approaches, insufficient guidance from the research community, or a combination of the two. The National Reading Panel (2000) acknowledged that although we have a fairly well-developed understanding of the various facets of vocabulary knowledge, little is known about the instructional contexts that support its growth, especially after fifth grade. As a result, there is currently limited understanding about the most productive approaches for teaching words to students as they advance into middle school and beyond, and although recent studies have begun to address this gap (e.g., Kucan, 2007; Lesaux, Kieffer, Faller, & Kelley, 2010), effective vocabulary instruction with older students continues to be understudied.

In sum, despite widely held awareness of the importance of vocabulary knowledge in academic learning, teachers' continued reliance on dictionary searches, definitions, and sentence writing as predominant vocabulary instructional practices fails to get at the heart of vocabulary knowledge, that is, its rich network of semantic and associative connections. Such failure is likely consequential.

Students who enter classrooms with a low store of vocabulary knowledge are unlikely to acquire complex knowledge through simple exposure. Given these considerations, in this review, we sought to understand both the particular practices that support word learning and the contexts in which such practices might be especially productive and beneficial to word learning. Our investigation, then, centered on the question, *What are the instructional practices and classroom contexts that improve the vocabulary knowledge of young adolescent and adolescent students?* In the sections that follow, we present a summary of the literature that we reviewed to answer this question.

### **Method**

To identify related studies, we searched Academic OneFile, Education Full Text, and ERIC databases for investigations related to the vocabulary advancement of older students and the classroom contexts and instructional practices that strengthen vocabulary. Using the key words *vocabulary instruction* and *adolescent*, our search of Academic OneFile yielded 33 results, Education Full Text yielded 288, and ERIC generated 23 results. Because we were interested in understanding the relationship among teacher talk, classroom discourse, and vocabulary learning, we also included each as key words. The terms *classroom discourse* and *vocabulary* yielded a total of 1,141 studies from these databases, but when we added *adolescent* or *middle school* as additional search terms, the results fell closer to 300. A search of the three databases using the key words and phrases *teacher talk*, *vocabulary*, and *adolescent* yielded 146 results. We next searched the same three databases on the terms *vocabulary instruction* and *classroom discourse*. This combination of terms yielded 63 studies. We also searched with a combination of *vocabulary instruction* and *teacher talk*, which resulted in 35 studies.

As we reviewed these entries, we accepted only studies from peer-reviewed journals. To capture the complexity of instruction that supports growth in students' vocabulary knowledge, we included both quantitative and qualitative research designs. Although our focus was on older students, some studies included a range of participants that encompassed both elementary and middle school students. We accepted these studies, explicitly noting participants' ages in the presentation of each study. Since our predominant focus was on classroom vocabulary instruction and discourse, we looked for studies with general education populations and eliminated studies with only special education students or those in which peer tutoring, peer discussions, or technology were primary foci. We also eliminated studies with a focus on teaching English as a foreign language. A number of studies emerged in this search with a primary focus on content knowledge, comprehension, or some aspect of learning other than vocabulary; so although vocabulary growth was mentioned as a positive by-product of instruction, these studies were eliminated from this review. Finally, to contextualize the findings, we included meta-analyses and noted them as such in our review.

With these restrictions applied, 33 studies remained. Among the included studies, 28 focused on vocabulary development and/or vocabulary instruction; of these, 21 were quantitative or mixed-methods designs, 4 were qualitative, and 3 were meta-analyses (Table 1). Of the five studies that focused on classroom

*(Text continues on p. 65.)*

**TABLE 1**

*Studies related to vocabulary development and instruction*

Study	Study aim	Method	Sample	Data sources	Major findings
<i>Studies related to wide reading</i>					
Cunningham and Stanovich (1991)	Assess construct validity of Title Recognition Test	Quantitative	4th grade students (N = 34)	Measures of nonverbal problem-solving skills, phonological coding skills, spelling, reading, vocabulary, verbal fluency, general knowledge, and exposure to print	Print exposure correlated with spelling, vocabulary, verbal fluency, word knowledge, and general information.
	Investigate relationships between exposure to print and other facets of language development and ability		5th grade students (N = 33) 6th grade students (N = 67)		When general ability and phonological ability were controlled, print exposure independently correlated with general development of verbal ability.
Stanovich and Cunningham (1993)	Examine associations between exposure to print and content knowledge acquisition	Quantitative	College (N = 268)	Four indicators of general ability (i.e., high school GPA, Raven Advanced Progressive Matrices, Nelson-Denny Reading Test—comprehension and math ability test), and Measure of reading volume	Print exposure contributes independently to content knowledge acquisition. Differences in exposure to written information contribute to differences in knowledge in individual students.
<i>Studies related to inferring meaning and incidental word learning from context</i>					
Cain, Oakhill, and Lemmon (2004)	Investigate students' ability to use contextual information from stories to infer meaning of new words	Quantitative (comparative)	9 and 10 year olds: Study 1 (N = 25) and Study 2 (N = 36)	Measures of vocabulary inference; vocabulary direct instruction; working memory; short-term memory	Reading comprehension skill correlated with ability to infer vocabulary meanings from context. Poor comprehenders had more difficulty inferring meaning of vocabulary from context and learning word meanings directly taught.
Jimenez, Garcia, and Pearson (1996)	Examine strategic reading processes of bilingual and monolingual students	Qualitative (comparative/descriptive)	6th and 7th grades (N = 14)	Prior knowledge assessment; Think alouds; Retellings; Interviews about reading processes	Successful Anglo readers had general background knowledge and vocabulary knowledge that bilingual readers did not have; bilingual readers engaged in more overt monitoring of word meaning and focused more on vocabulary while reading than monolinguals.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Nagy, Herman, and Anderson (1985)	Determine role of context in supporting students' familiarity with new words	Quantitative	8th grade ( $N = 70$ )	Vocabulary recognition checklist; Story memory task; Multiple choice vocabulary test; Oral definition task	More target vocabulary known by students who read a passage (narrative and expository) than those who had not read the passage (small but statistically significant effect).
Sternberg and Powell (1983)	Investigate whether novel words' meaning can be accessed through reading context	Quantitative	High school ( $N = 123$ )	Written definition of target word (based on use in reading selection)	Students derived meaning of unfamiliar words from reading.
Swanborn and deGlopper (1999)	Investigate incidental word learning during normal reading	Meta-analysis	20 studies; 3rd through 11th grades ( $N = 2,130$ ), including both experimental and control groups	Studies included both experimental and control groups and sufficient information to calculate probability of learning unknown words during reading	Students learned approximately 15% of unknown words encountered in texts during normal reading.
<i>Studies related to instruction using context clues</i>					
Baumann, Edwards, Font, and Tereshinski (2002)	Investigate effects of instruction in morphemic and contextual analysis	Mixed-methods (quantitative and descriptive)	5th grade ( $N = 88$ ); 3 intervention groups and 1 control group	Pretests: Degrees of Word Meaning; Lesson and Transfer words multiple choice test Posttests: Morphemic Production and Recognition; Context Production and Recognition; Vocabulary in Passages; Delayed Morphemic Recognition and Delayed Context Recognition Classroom observations Student Interviews	Treatment group students learned more target words than control group students in both immediate and delayed assessments. Treatment group students applied learned strategy to new words having similar patterns to target words. Students' comprehension of text with "morphemically decipherable" (p. 167) words or words surrounded by rich context did not improve.

(continued)



**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Fukkinik and DeGlopper (1998)	Analyze instructional treatments intended to enhance students' ability to use context to derive word meaning during reading	Meta-analysis	12 studies; age range: 9-18.5 year olds (N = 1,278)	Studies included both experimental and control groups, pre- and posttreatment assessment data, and sufficient information to calculate effect size	Context clue and strategy instruction yielded more consistently positive results than other treatment types, with mean effect size of .43.
Goerss, Beck, and McKeown (1999)	Determine whether instructional intervention enhanced students' ability to derive word meaning from context	Qualitative	5th and 6th grades (N = 5)	Word meaning acquisition task administered pre- and postintervention	Students improved ability to monitor comprehension and identify unfamiliar word meanings using context clues.
<i>Studies related to morphology</i>					
Nagy, Berninger, and Abbott (2006)	Understand the contribution of morphology to reading comprehension	Quantitative	4th and 5th grades (N = 183) 6th and 7th grades (N = 218) 8th and 9th grades (N = 207)	Suffix Choice Test; Morphological Relatedness Test; Nonword repetition test; Word attack subtest of Woodcock Reading Mastery Test; Reading vocabulary and comprehension subtests of the Stanford Diagnostic Reading Test; Spelling subtest of Wechsler Individual Achievement Test	Morphological awareness made a significant and unique contribution to students' reading comprehension, reading vocabulary, and spelling. Morphological analysis contributed to decoding rate for 8th and 9th graders and to decoding accuracy for 4th and 5th graders and 8th and 9th graders.
Nippold and Sun (2008)	Investigate students' knowledge of derived nominal and derived adjectives to understand students' comprehension of morphologically complex words found in textbooks	Quantitative	5th grade (N = 46); 8th grade (N = 48)	Word Knowledge Test (WKKT) (morphologically complex words); and a multiple-choice measure of ability to recognize and manipulate derived nominals and adjectives	Older students performed better than younger students. Both groups had greater difficulty with derived nominals than derived adjectives. Word comprehension was related to frequency of words' occurrence in print.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Ram, Marinellie, Benigno, and McCarthy (2013)	Investigate students' ability to use morphological analysis to determine derived word meanings without support of context clues	Quantitative	3rd grade (N = 30); 5th grade (N = 31)	Assessment of 20 words (low-frequency derivatives of high-frequency root words; words presented either in isolation of in the context)	Fifth graders knew more words and required fewer prompts than third graders. Students in both grades performed better on words presented in context than in isolation. Students in both grades used morphological analysis more frequently in isolation than in context. Fifth graders more likely than third graders to use a combination of strategies.
<i>Studies related to instruction in morphological analysis</i>					
Baumann, Edwards, Boland, Olejnik, and Kame'enui (2003)	Compare effects of two types of instruction: morphemic analysis and contextual analysis (MC) versus textbook vocabulary (TV)	Mixed-methods	5th grade (N = 157); 8 classrooms	Pre- and posttest measures of students' vocabulary and social studies learning and comprehension Teacher and student questionnaires and interviews	On immediate assessments, students in TV group scored higher on TV knowledge than students in MC group. On Word Part assessment, students in MC group scored higher on transfer words in isolation and in ability to recognize words with similar structures on delayed measures. No differences between groups in reading comprehension
Harris, Schumaker, and Deshler (2011)	Determine efficacy of a morphemic analysis strategy to analyze and predict word meaning	Quantitative	9th grade (N = 230); 6 classrooms; 3 intervention and 3 comparison	Fidelity checklist to track teacher instruction Pre- and post-intervention assessments with Strategy Use Tests to measure acquisition of taught strategies Word Knowledge Test to measure student knowledge of 20 target words Morphological Analysis Test of word parts in untaught words	Both intervention groups made significant gains on posttests of taught strategy and knowledge of target words. Students in morphological analysis strategy group performed better on morphological analysis posttest using new words than students in other conditions. Students with disabilities demonstrated stronger morphological analysis skill, but at a lower rate than general education students.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Wysocki and Jenkins (1987)	Examine students' ability to use morphological knowledge and context clues to determine meaning of novel words	Quantitative	4th grade (N = 45); 6th grade (N = 45); 8th grade (N = 41)	Postintervention assessments asked students to define morphologically related target words, with words embedded in a sentence to provide some context (ranging from weak to strong)	Students at all grade levels performed better on assessments of taught words than on transfer words. Students' ability to derive meaning of unfamiliar words was affected by prior experience with related words and quality of the surrounding context. Older students (6th and 8th grades) were more skilled at using both context clues and morphological clues than were 4th graders, but students did not combine these skills when trying to determine word meaning.
<i>Studies related to instruction in polsemy</i>					
Nelson and Stage (2007)	Evaluate effects of instruction in polysemous words on students' vocabulary knowledge and reading comprehension	Quantitative	3rd grade (N = 134); 5th grade (N = 149)	Gates MacGinitie Vocabulary and Reading Comprehension Tests (pre and post)	Treatment groups showed significant gains on measures of vocabulary, knowledge and reading comprehension of texts containing focal words. Students who were lower achieving on entry had greater gains than those with average or high achievement, especially among 3rd graders.
<i>Studies related to word consciousness</i>					
Dole, Sloan, and Trathen (1995)	Examine effects of metacognitive approach to understanding word meanings in the context of classroom texts	Mixed-methods Quantitative (quasi-experimental)	10th grade (N = 43); two classrooms: one intervention and one comparison	Pre- and post-classroom-based assessments developed by researchers to measure student vocabulary and comprehension.	Students' ability to accurately define important words, that is, those necessary for understanding focal texts, rose from 11% in the pre-assessment for both groups to 60% for intervention and 39% for comparison group in the postassessment.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Lublimer and Smetana (2005)	Examine effects of instructional intervention in word-analysis strategies that incorporated declarative, procedural, and conditional knowledge about each strategy with clarification of word meaning within text	Qualitative data included analysis of student artifacts, for example, vocabulary notebooks, written surveys, vocabulary workbooks Quantitative (quasi-experimental)	5th grade ( $N = 77$ )	Intervention instruction included teacher modeling and conversation about words' relationships to determine important versus unimportant words in texts. Teacher also integrated vocabulary into discussion (to provide multiple exposures). Traditional instruction did not focus on textual context or discussion of words' relationships to text.  Student vocabulary and comprehension measured before and after two time periods: 12-week "control" and 12-week intervention.	Intervention students more able to accurately use target words in sentences related to focal texts.  Students achieved significantly higher scores on vocabulary and comprehension measures after intervention when compared with their performance after the control period.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
<p><i>Studies related to direct instruction of words</i></p> <p>Stahl and Fairbanks (1986)</p>	<p>Investigate effect of vocabulary instruction on reading comprehension and identify aspects of vocabulary instruction with greater effects on student vocabulary learning</p>	Meta-analysis	52 studies; 4th grade to college	Intervention included word-analysis strategies (e.g., structural analysis, clarifying strategies, context clues, and approaches for accessing classroom aids) with instruction that incorporated declarative, procedural, and conditional information about each strategy and guided practice emphasizing persistence and flexibility in sense-making and clarification of word meaning within context.	Student vocabulary and comprehension before and after intervention were also compared to a control group who did not participate in the intervention. Significant differences between groups on pre-assessment scores were no longer found on postassessments.
				Inclusion required either experimental or quasi-experimental design with sufficient statistical information available to derive effect sizes	More effective programs included both definitional and contextual information, provided multiple exposures to words, and engaged students in activities leading to deeper processing of words. Mnemonic keyword approach also had reliable effects on students' recall of word meaning and sentence comprehension. Mean effect size of .97 for vocabulary instruction on students' comprehension of passages with taught words; mean effect size of .30 for general comprehension, measured by standardized tests.
Townsend and Collins (2009)	Determine effects of "evidence-based" vocabulary instruction with academic words on English language learners	Quantitative	6th to 8th grades (N = 37)	Vocabulary Knowledge Scale (VKS); Vocabulary Levels Test; Peabody Picture Vocabulary Test (all pre and post)	Students' vocabulary growth was significantly greater during treatment than during control condition.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
<i>Studies related to direct instruction of words plus strategies</i>					
Carlo et al. (2004)	Investigate effectiveness of a vocabulary instruction intervention that combined direct instruction of academic vocabulary and word learning strategies	Quantitative	5th grade (N = 254)	Researcher-developed measures of taught-word knowledge and strategy knowledge	Intervention group students (both monolingual and bilingual) achieved significantly higher outcomes on measures of taught-word knowledge and strategy knowledge when compared with control students.
Lesaux, Kieffer, Fallier, and Kelly (2010)	Determine efficacy of a classroom-based vocabulary intervention	Mixed-methods	6th grade: Intervention (N = 296); Control (N = 180)	Gates-MacGinitie Reading Comprehension (pre and post) Teacher implementation logs; classroom observations; teacher surveys and interviews	When compared with control students, intervention students (both monolingual and bilingual) demonstrated greater knowledge of target words, words in context, and greater morphological knowledge.
<i>Studies of discussion-based vocabulary instruction</i>					
Dixon-Krauss (2002)	Understand approaches to improving students' vocabulary learning and conceptual development related to classroom texts during ELA discussions	Qualitative	9th grade (N = 43)	Pre- and postvocabulary assessments; Classroom observations; Response journals	Students' knowledge of target words was greater when new words were introduced during discussion and incorporated into ongoing discussions as compared to having words taught through direct instruction and used in written responses.
Harmon, 2000	Understand how teacher-facilitated peer dialogues promote student awareness of word meanings in text and student application of word-learning strategies	Qualitative	6th and 7th grade (n = 6)	Students worked in pairs; read texts silently, identified unfamiliar words, and employed strategies to negotiate word meaning in the context of teacher-facilitated discussions.	Students consistently used word level analysis (pronunciation and orthography), contextual clues in the surrounding text; writing conventions (i.e., punctuation); and the dictionary. Discussions supported students' sharing of these various strategies and encouraged metacognitive approaches to word meaning, but with varying levels of skill.

(continued)

**TABLE 1 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Snow, Lawrence, and White (2009)	Measure effects of students' participation in vocabulary intervention program on students' word learning and performance on state-wide assessment	Quantitative	6th through 8th grades Intervention group (N = 697): 5 schools Comparison group (N = 319): 3 schools	Researcher-developed vocabulary assessments (pre and post) and statewide assessment scores	Intervention group students learned more target words than Comparison group students. ELLs showed greater improvements in vocabulary learning than English Only students. Posttest scores on vocabulary assessments were strongly related to student performance on state assessment.
Stahl and Clark (1987)	Understand relationship of discussion to vocabulary learning	Quantitative	5th grade (N = 69): 2 intervention classrooms and 2 comparison classrooms	Researcher-developed vocabulary assessments (pre and post)	Students called on to participate in discussion outperformed peers who were told they would be called on but were ignored and peers who were told they would listen only. Students in all treatment groups demonstrated significantly higher concept learning than comparison groups.
Stahl and Vancil (1986)	Understand the relative contributions of semantic mapping versus discussion in students' word learning	Quantitative (quasi-experimental)	6th grade (N = 45): 3 classrooms randomly assigned to semantic map, discussion, or semantic map + discussion	Pretests: Gates-MacGinitie reading and vocabulary checklist assessments Posttests: vocabulary measures included multiple choice test, cloze test, and sentence anomaly test	Results on cloze and synonym posttests significantly higher for both groups that used discussion. Scores of the two discussion groups did not differ significantly from each other; thus, discussion, not the map itself, seemed to be pivotal for word learning. Students' vocabulary learning did not relate significantly to the number of oral contributions made during discussion.

discourse, three were mixed-methods designs, one was qualitative, and one was a meta-analysis (Table 2).

## **Results**

This review is qualitative rather than quantitative. At the outset, we were mindful of Shanahan's (2000) caution that such reviews provide "intuitive description and analysis of research findings, and are more dependent on researchers' judgment and insight" (p. 210) than quantitative reviews. To control for this threat to trustworthiness, we chose to include substantially detailed descriptions of focal studies, thus providing readers sufficient information to contextualize our interpretations and evaluate our conclusions.

The review is organized within two major strands. The first is sources of word learning. These include (a) wide reading as a pathway to vocabulary knowledge; (b) instruction of word learning strategies, including context clues, morphological analysis, awareness of polysemy, and developing word consciousness; (c) direct instruction of individual words; and (d) direct instruction plus strategies. The second is the contexts teachers create to support these sources of word learning. This section includes research related to the focus of the discussion (e.g., conceptual vs. skills-based) and to research related to the ways in which teachers orchestrate the discussion.

### *Sources of Word Learning*

#### *Wide Reading as a Pathway to Vocabulary Knowledge*

Wide reading provides access to rich language, and it has been shown to have a major impact on students' vocabulary growth. Through reading, new words are introduced within meaningful contexts and related networks of general knowledge are built. In studies with students in Grades 4, 5, and 6 ( $N = 134$ ), Cunningham and Stanovich (1991) demonstrated that the quantity of students' reading significantly contributed to growth in both vocabulary and overall knowledge. This finding held true even when researchers controlled for general ability and phonological coding skill as possible contributing factors. Furthermore, this relationship endures over time. In a later study with 268 college students, Stanovich and Cunningham (1993) again found that reading volume was linked to growth in vocabulary and content knowledge.

However, for vocabulary to increase through reading, students must read frequently, in significant quantities, and with texts of sufficient complexity to be exposed to new and sophisticated language (Graves, 2006). But in an NAEP survey conducted with 38,000 13-year-old students, the majority (70%) reported only occasionally reading outside of school and reading for pleasure two or fewer times per week (Perie, Moran, & Lutkus, 2005). Other studies indicate that unmotivated or uncommitted adolescent readers typically do not identify reading as a positive or useful experience, nor do they identify themselves as part of a community of readers (Beers, 1998). Moreover, in a survey of middle school students' attitudes toward reading, many expressed negative attitudes and reported engaging in reading with reluctance (McKenna, Kear, & Ellsworth, 1995). These collective findings suggest that many adolescents do not read in quantities sufficient to have significant impact on their vocabulary growth.



**TABLE 2**  
*Studies related to nature of productive discussions*

Study	Study aim	Method	Sample	Data sources	Major findings
Murphy, Wilkinson, Soter, Hennessey, and Alexander (2009)	Investigate effects of classroom discussion on students' comprehension, critical thinking, and reasoning and characteristics of facilitative teacher talk	Meta-analysis of 42 studies	Age range: 5.5-17 years old ( <i>M</i> age = 10.4)	Sufficient quantitative data to calculate effect size	Most effective discussions were those in which teachers orchestrated explorations of content that engaged students in critically reasoning about ideas.
Nystrand, Wu, Gamoran, Zeiser, and Long (2003)	Examine factors associated with the emergence of dialogic versus monologic discourse patterns	Mixed-methods	8th and 9th grade students in 200 English and Social Studies classrooms	Classroom observations (872 total) Background data on school (Catholic, urban, rural), class (size, grade, subject, track); teacher (gender, years teaching); student (gender, race, ethnicity, achievement within the classroom)	Dialogic discourse correlated with improved student learning outcomes. Shifts from monologic to dialogic episodes were preceded by teachers' authentic, cognitively challenging questions and were characterized by teacher uptake, elaboration, and follow-up questions. Student questions frequently occurred during dialogic episodes. Overall, dialogic episodes were infrequent, and were "virtually absent" (p. 35) in low-track classes.
Sharpe (2008)	Understand the nature of teacher talk during history instruction and its connection to development of students' skills and content knowledge	Qualitative	One teacher, middle school (students: 12-13 years old)	Classroom observations; Videotapes; Lesson transcripts; Teacher interview; End-of-unit assessments	Teacher talk included questions and "low control" moves (e.g., speculating and suggesting); encouragement of multiple ideas and exploratory talk; uptake of student ideas; revoicing; "meta-comments" to summarize and emphasize relationships among ideas. Student learning evident in student engagement, talk about content, appropriation of relevant vocabulary, student projects; end-of-unit assessment.

(continued)

**TABLE 2 (continued)**

Study	Study aim	Method	Sample	Data sources	Major findings
Soter et al. (2008)	Evaluate quality of discussion and students' reasoning and critical analysis abilities in nine discussion-centered approaches to reading literary texts	Mixed-methods	3rd to 9th grades	Classroom discussion transcripts	Most productive discussions framed by teacher and characterized by instances of extended student talk, open-ended teacher questions, and high levels of teacher uptake. Longer periods of student explanation prompted by teacher questions and resulted in greater quantities of student reasoning and critical analysis of content. Richest reasoning occurred during critical-analytic rather than expressive discussions of text.
Wolf, Crosson, and Resnick (2005)	Investigate quality of classroom talk and relation to academic rigor of reading comprehension lessons	Mixed-methods	21 teachers from 10 schools; Grades 1-8	Classroom observations; Audiotaped instruction; Discourse analysis; Correlational analysis	Significant correlations between rigor of teacher talk and level of cognitive challenge and student engagement. Questions engaged students in higher levels of critical analysis and reasoning by pressing for explanations and linking ideas to the text or to peers' talk.

For students who choose to read, a facet of word learning enabled through wide reading is the opportunity to infer meanings of unfamiliar words from the context provided by adjacent text. However, studies that have investigated context as a source for learning new words have found somewhat mixed results regarding its value as a dependable source of word learning. In a study with eighth-grade students ( $N = 70$ ), Nagy et al. (1985) identified target words from classroom-based texts and administered a multiple-choice pretest to determine students' knowledge of these words prior to reading. Students then read passages containing the target words or participated in an assessment where they verbally defined individual words from the passage and took another multiple-choice assessment of target word knowledge. A greater number of target words were known by students who had read the passage than by students who had not read it, indicating that some learning from context took place. This finding was statistically significant and consistent across different texts. In a related study, Sternberg and Powell (1983) found that high school students ( $N = 123$ ) displayed accuracy when asked to make educated guesses about the meanings of new words contained in written passages. Students apparently gathered some knowledge of novel words from the general context presented in the text.

However, readers' skill levels strongly influence their abilities to infer word meaning from context. Cain et al. (2004) found that, when reading passages containing novel words, 9- and 10-year-old students with poor comprehension skills were less able to infer word meaning from context than their peers with higher comprehension skill, resulting in poorer comprehension or misunderstanding of the overall meaning of the passages. Similarly, Jimenez et al. (1996) found that unfamiliar vocabulary proved particularly problematic for sixth- and seventh-grade bilingual readers when compared with monolingual readers. Qualitative analyses suggested that monolingual readers possessed background knowledge, text schema, and language preparation that aided their ability to effectively use context by drawing on funds of knowledge that the bilingual students did not possess.

The conclusion that characteristics of the focal and adjacent words, and of the readers, themselves, may render the text-based context an inconsistent source for acquiring vocabulary is further supported by evidence from Swanborn and deGlopper's (1999) meta-analysis of 20 incidental word learning studies. Participants in these studies ranged in grade from 3 to 11, with the majority of the included studies focused on students in the sixth grade. To be included in the meta-analysis, studies met strict criteria including no previous reader preparation or purposes set for the reading task, no preteaching of vocabulary or inclusion of texts with features that might call attention to words (e.g., underlining), and texts only in participants' first language. The included studies also contained sufficient information to make calculations of probability and effect size possible. The results indicated the probability of learning a particular word's meaning based on a single encounter with it in context to be around 15%, with low-ability and younger readers demonstrating far greater difficulty inferring meaning than high-ability and older readers.

In sum, despite strong evidence that wide reading contributes to vocabulary development and growth, such outcomes are likely to be realized primarily by

students who engage in frequent reading of texts with complex and interesting vocabulary, who have strong English language proficiency, and who are capable readers. Although some students in later elementary, middle, and secondary school classrooms display these characteristics, a large percentage does not. This latter group is largely dependent on the actions teachers take to support vocabulary acquisition and, in turn, knowledge development and overall academic success. In the subsequent sections, we explore studies of instruction and classroom practices that promote vocabulary growth. We have organized these studies in two groups: those that examine instruction of word learning strategies and those that examine direct instruction of target words.

### *Instruction of Word Learning Strategies*

Studies of instruction targeted at word learning strategies suggest four essential practices: the use of context clues, morphological analysis, understanding the polysemous nature of words, and developing metacognitive awareness of word meanings. We explore each of these strategies in turn.

*Context clues.* As previously noted, although some studies indicate that context clues may provide a useful source for word learning, not all students are skillful at drawing on such clues. Fukkink and DeGlopper (1998) conducted a meta-analysis of 12 studies focused on improving students' skill in deriving word meaning from context while reading. Sample sizes ranged from 8 to 153, with a range of student ages from 9 to 18.5 years. Selected studies included a treatment group that received instruction targeting improvement of students' skill at using context clues to derive word meaning and a control group that received no instruction. Approaches to instruction varied among five types: (a) teaching students to identify context clues, (b) using cloze tasks to increase students' awareness of related language found in the text and surrounding novel words, (c) teaching strategies to infer word meaning, (d) focusing on definitional approaches to develop a general schema of a word's meaning, (e) and practice-only conditions in which students practiced exercises but without other instruction. Treatments focused on clue and strategy instruction more consistently yielded positive results than the other treatment types, with a mean effect size of .43 for these treatment groups. The more effective instruction included teaching students to examine words and sentences that precede or follow the unknown word and to seek relationships among ideas across sentences or paragraphs to infer a general idea about the new word's meaning.

Researchers have also combined instruction in using context clues with other strategies for word identification. Baumann et al. (2002) investigated the effects of instruction in morphemic and contextual analysis on fifth-grade students' ability to infer meanings of unfamiliar vocabulary and reading comprehension. Students ( $N = 88$ ) were divided into four groups: morphemic analysis only, context only, combined morphemic and contextual analysis, and control (in which students read and responded to a trade book and dealt with vocabulary words only as they came up in the discussion). Each group received 12 lessons targeting their assigned strategy and using 60 low-frequency words (e.g., reconsider and competence). Treatment groups received explicit instruction in the targeted strategies, followed by guided and independent practice. Overall, treatment group students

demonstrated greater knowledge of lesson words than control group students, and this held true for both immediate and delayed knowledge of lesson words. Treatment group students also successfully applied new strategy knowledge to the task of determining transfer words (i.e., those with similar patterns to instructed words), although outcomes were less robust than with lesson words. Furthermore, students in both the individual morphemic and the contextual analysis groups were equally effective at inferring word meanings as those who participated in the combined or hybrid strategy group. However, there were no significant differences between groups in posttreatment measures of reading comprehension.

A small, qualitative study with fifth- and sixth-grade students ( $N = 5$ ) relied on teacher modeling and an interactive approach to help students secure sufficient information from context to make sense of a story (Goerss et al., 1999). Students were encouraged to reread text and engage in discussions to identify potential clues to an unfamiliar word's meaning, create hypotheses about possible meanings, examine the relationship between the word and the larger context, and refine their hypotheses and consolidate information. Students improved their abilities to recognize places in their reading where novel words interfered with comprehension and to use the surrounding context to unravel the meaning. Further study would be needed to understand how this approach might be applied in whole-class instruction or with a wider range of student reading levels and skill.

Combined findings from these studies indicate that explicit instruction in context clues helps readers of all ability levels in defining unfamiliar words (Baumann et al., 2002; Fukkink & DeGlopper, 1998; Goerss et al., 1999). However, students may experience similar success when taught to use other word learning strategies (e.g., morphological analysis) or when taught to pair the use of context clues with morphological analysis (Baumann et al., 2002).

*Morphological analysis.* Students' ability to engage in morphological analysis becomes increasingly important as they advance in school and the morphological complexity of words in grade-level texts increases (Nippold & Sun, 2008). Beyond the primary grades, specialized and discipline-specific language become commonplace in instructional texts; in the upper grades, most new words that students encounter are morphologically complex, and 60% contain meaning-bearing parts that are analyzable to assist in determining meaning (Nagy & Scott, 2000). Skill in morphological analysis thus enables students to derive meaning of novel words during reading and to use more precise vocabulary when writing.

Nagy et al. (2006) analyzed the relationships of students' morphological awareness, phonological memory, and phonological decoding to reading comprehension, vocabulary, spelling, and decoding of complex words. Using structural equation modeling, data were analyzed for students at three grade levels: 4/5 ( $n = 183$ ), 6/7 ( $n = 218$ ), and 8/9 ( $n = 207$ ). Morphological awareness made "a significant unique contribution at all grade levels" (Nagy et al., 2006, p. 140) to reading comprehension, reading vocabulary, and spelling.

In another study (Nippold & Sun, 2008), students in Grades 5 ( $n = 46$ ) and 8 ( $n = 48$ ) participated in a written, multiple-choice task in which they were asked to recognize and manipulate a set of derived nominals and adjectives, all representative of words typically found in the curriculum. Older students performed

better than younger students on both types of words, with derived nominals presenting more challenge than adjectives. Moreover, students' word comprehension was related to the words' frequency of occurrence in print.

Ram et al. (2013) investigated students' employment of morphological analysis to determine meanings of low-frequency, derived words, both with and without the benefit of context. Participants were general education students in the third ( $n = 30$ ) and fifth ( $n = 31$ ) grades. Students were asked to provide definitions for 20 words, both in isolation and in context. Although both groups showed improved performance when context clues were used, older students achieved significantly higher scores than their younger counterparts.

In a quasi-experimental study, Wysocki and Jenkins (1987) trained students in Grades 4 ( $n = 45$ ), 6 ( $n = 45$ ), and 8 ( $n = 41$ ) to use morphological analysis to derive word meanings. Students were matched according to achievement on the California Achievement Test and then randomly assigned to receive training on derivational suffixes using one word from each pair of 12 morphologically related pairs. On testing that occurred 2 weeks posttraining, students at all grade levels performed better with the taught words than on transfer (untaught) words. Students' performance was affected by prior experience with related words and the quality of the surrounding text; older students in both sixth and eighth grades made better use of context and morphological clues than fourth graders, suggesting that skill in applying such strategies in novel situations develops with age and prior classroom experience.

Baumann et al. (2003) investigated effects on student learning from integrating morphemic and contextual analysis instruction into social studies lessons. Fifth graders ( $N = 157$ ) drawn from eight classrooms were divided into two groups: a textbook vocabulary (TV) group and a combined morphemic and contextual (MC) analysis group. Classroom teachers provided instruction embedded in daily social studies lessons using vocabulary from classroom texts. Teachers in TV classrooms used varied activities to directly teach vocabulary based on the textbook selection but without instruction in independent word learning strategies. Teachers in MC classrooms included strategies for both morphemic and contextual analysis. On immediate assessments, students in the TV group scored an average of 7.68 points higher on textbook vocabulary knowledge than did students in the MC group. However, on the Word Part test, students in the MC group scored significantly higher on transfer words presented in isolation than students from the TV classrooms. There were no significant differences between groups on comprehension measures. On delayed assessments, individuals from the MC group scored higher than students in the TV group in recognition of new vocabulary with morphemic structure similar to the taught words.

In a study with ninth-grade students ( $N = 230$ ), Harris et al. (2011) provided a morphological analysis strategy for understanding and predicting word meanings. Participants were enrolled in general education classes and included some students with learning disabilities. Students from three existing classes were randomly assigned to either a morphological analysis strategy condition or a mnemonic strategy condition. Three other classes served as a comparison to establish norms for target word knowledge. Both intervention groups made significant gains on posttests related to their particular strategy and to understanding

the meaning of taught words. In addition, students in the morphological analysis strategy group outperformed others on a morphological analysis posttest. Students with and without disabilities showed significant gains, although students with disabilities scored lower than their peers.

Looking across studies, morphological knowledge aided students in deciphering word meaning, spelling, and comprehension (Nagy et al., 2006), and skill in applying this knowledge increased as students progressed in school (Nippold & Sun, 2008). Morphological analysis provided a valuable tool to help students with and without disabilities unlock word meanings (Harris et al., 2011). When strategies for analysis were taught, students improved both knowledge of words and ability to infer meanings from new words (Baumann et al., 2003). As a whole, these studies also suggest that students can continue to benefit from a focus on morphology, context, and word analysis strategies as they advance in school.

*Awareness of polysemy.* Polysemous words are understood to be “those that have more than one related sense” (Crossley, Salsbury, & McNamara, 2010, p. 575), containing a core meaning, as well as several related senses. Awareness of words’ polysemous nature is a metalinguistic skill that improves students’ ability to derive meaning in academic work. In addition, the ability to make connections across words’ different senses is thought to be related to students’ conceptual organization. In English, multiple-meaning words “are more common than both homonyms and vague words and are more of a rule than an exception” (Crossley et al., 2010, p. 575). Furthermore, common words tend to have more meanings than less common words, as illustrated by Celce-Murcia and Rosensweig (1979, p. 252) for the word *get*:

- To get a job (to obtain a job)
- To get hired (to be hired)
- To get a good grade (to achieve a good grade)
- To get heavy (to become heavy)
- To get the ball (to fetch the ball)
- To get him to walk (to make him walk)
- To get it (to purchase it or to understand it)
- To get there (to be successful, arrive at a destination)

Although polysemous words are known to be problematic for many readers, they are especially difficult for students acquiring English as a second language (Bensoussan & Laufer, 1984; Qian, 1999; Verhallen & Schoonen, 1993). Despite the documented need, we identified only one study that examined effectiveness of instructional interventions at the focal grade levels. In this study with 283 third- and fifth-grade students, Nelson and Stage (2007) measured effects of a multiple-meaning vocabulary intervention on students’ vocabulary knowledge and reading comprehension. The sample included low-income first- and second-language learners and students in special education. Sixteen classrooms (8 third grade and 8 fifth grade) were randomly assigned to treatment or nontreatment conditions, and all students took a pre-intervention reading comprehension test.

Teachers in nontreatment classrooms conducted ELA instruction using the district curriculum. Teachers in treatment classrooms included within their regular instruction a vocabulary intervention incorporating 36 target words, each having multiple meanings. Focused vocabulary instruction occurred on two consecutive days for approximately 20 to 30 minutes each day. Words were presented multiple times in a variety of contexts and included an introductory word-related task, a matching activity, definitional maps, presentation of the word in a short reading passage, and a writing activity using each word. Treatment-group students' significantly outperformed control group peers on measures of vocabulary knowledge and reading comprehension for texts that contained the focal words, with greatest gains seen in students with low initial vocabulary knowledge.

In combination, studies reviewed thus far suggest three important understandings about words that contribute to discerning word meanings. Direct instruction in context clues is effective for raising students' awareness of the meaning of unfamiliar words, both as an independent strategy and in combination with other strategies. In addition, morphological awareness makes an important contribution to students' vocabulary knowledge and reading comprehension; ability to use morphological analysis seems to develop as students progress in school (Ram et al., 2013; Wysocki & Jenkins, 1987) and, therefore, may be of particular benefit to students beginning in the late elementary and middle grades where texts typically contain longer and more complex words and convey more abstract ideas (e.g., Nagy et al., 2006; Nippold & Sun, 2008). Furthermore, providing instruction in polysemous words may improve word learning and text comprehension (Nelson & Stage, 2007).

*Developing word consciousness.* According to Stahl and Nagy (2006), word consciousness is a "multi-faceted construct" (p. 140) that incorporates students' awareness of differences between oral and written language, understandings about the effect that a word's role in a sentence may have on its meaning (syntactical awareness), knowledge of the effects of word parts on meaning (morphological awareness), and an appreciation of word choice. Although an acknowledged facet of vocabulary development, few studies have isolated the role of word consciousness in word learning. Rather, the literature focuses largely on descriptions of the types of instruction that support word consciousness.

In one such classroom-based study, Dole et al. (1995) examined effects of a metacognitive approach to develop 10th-grade students' ( $N = 43$ ) awareness of the relationships between words' meanings and their comprehension as they read and analyzed narrative texts in two English classrooms. Instruction emphasized declarative, procedural, and conditional knowledge (Paris, Lipson, & Wixon, 1983), as the teacher explained not only *what* the strategies were for understanding word meaning but also *how* and *when* to use them, and *why* they might be beneficial for learning. Students then applied this information to classroom assignments. When compared with a control group that participated in regular instruction using the same texts but without metacognitive instruction, treatment group students showed significantly greater increases in word knowledge; ability to identify words associated with important concepts in the text; and understanding of new words' relationships to characters, themes, and important ideas from



the texts. Treatment group students also significantly outperformed control group peers on reading comprehension of focal texts.

Lublinter and Smetana (2005) implemented a 12-week instructional intervention with fifth-grade, low-income students ( $N = 77$ ). Classroom teachers taught word-analysis strategies (e.g., structural analysis, clarifying strategies, context clues, and approaches for accessing classroom aids). Like Dole et al. (1995), teachers incorporated declarative, procedural, and conditional information about each strategy with guided practice that emphasized persistence and flexibility in clarifying word meaning and deciding whether a word made sense in a particular context. Students' achievement was measured at the end of the intervention and compared with previous learning outcomes from an earlier, 12-week control period during which no intervention had been provided. Students achieved significantly higher scores on vocabulary and reading comprehension measures after the intervention period when compared with performance at the conclusion of the control period. Students' scores before and after the intervention also were compared with the scores of a control group comprising students in a high-performing school who had not participated in the intervention. At the study's outset, intervention students had significantly lower scores on both measures than control group students. At the conclusion of the 12-week intervention, differences in scores between the two groups on both measures were substantially reduced and were no longer statistically significant.

Both studies were conducted in classrooms and with instruction carried out by classroom teachers. As such, they were subject to the naturalistic classroom conditions and potentially variable instruction of the teachers who implemented the interventions. Despite the possible shortcomings that may accompany this approach, results showed that when teachers emphasized comprehension monitoring, developed students' awareness of the importance of word meaning as a source of text comprehension, and provided explicit instruction in the use of word learning strategies, students' reading comprehension improved.

### *Direct Instruction of Individual Words*

In addition to instruction of word learning strategies and approaches that build students' word consciousness, there is widespread agreement that direct instruction of selected, key words improves vocabulary knowledge. Such instruction may be especially important in disciplinary learning, which typically dominates instruction during later elementary, middle, and secondary school. A meta-analysis by Stahl and Fairbanks (1986) provided convincing evidence that direct instruction of key words has immediate benefit and is tied to improved reading comprehension. The included studies employed an experimental or quasi-experimental design and provided sufficient statistical information to allow calculation of an effect size. In all, 52 studies met the criteria and permitted 94 independent method comparisons. Participants in these studies ranged from fourth grade through college. Comprehension measures fell into two categories: global measures, determined through standardized tests, or "word-specific measures" (Stahl & Fairbanks, 1986, p. 79) in which taught words were included in the passages used to measure comprehension. Analyses yielded a robust, mean effect size of .97 for vocabulary instruction's effect on students' comprehension of passages in

which taught words were included. For general comprehension of passages, as measured by standardized tests, the effect size of vocabulary instruction on comprehension was .30, substantially smaller yet still indicative of moderate effects.

Additionally, findings demonstrated the relative value of instructional emphases on students' word learning, with approaches combining definitional and contextual information showing greater effects on students' learning than instruction emphasizing definitional information alone. Furthermore, instruction that provided multiple repetitions of information, as well as multiple exposures to words in different contexts, had larger effects on students' word learning and text comprehension than only one or two exposures. The instructional setting, whether group or individual, showed no significant differences in effect on student learning.

In one of a limited number of intervention studies with middle school students, Townsend and Collins (2009) examined the effectiveness of rich vocabulary instruction of academic vocabulary with English language learners ( $N = 37$ ) participating in an after-school intervention. Students from the sixth, seventh, and eighth grades were divided into two groups, each receiving the intervention during different 5-week sessions. Twelve target words, drawn from the Academic Word List (Coxhead, 2000), were introduced each week through direct instruction and related activities and games. Students' word knowledge was addressed at three points during the intervention using three measures: Vocabulary Knowledge Scale—Measure of Academic Vocabulary, Vocabulary Levels Test, and Peabody Picture Vocabulary Test. Students showed significantly more growth in knowledge of target words after the intervention than after the control period; moreover, less academically successful students who made less growth than their peers during the control period had proportionately greater growth than their peers during the intervention. Inexplicably, participants in one of the groups (but not both) showed significant delayed posttesting gains on the Peabody Picture Vocabulary Test, a measure of general vocabulary. Researchers speculated that the nature of the intervention itself with its brisk pace and interactive activities may have been particularly effective for less academically successful students.

Although there is general support for teaching individual words, there are varied approaches to determining words that merit such focused attention. Among the most familiar is Beck et al.'s (2002) identification of Tier Two words, defined as words regularly used and understood by mature language users and whose knowledge supports comprehension and communicative ability across contexts and subject areas. In this approach, focal words are selected according to the curricular and text content and needs of the students in the classroom.

Others have suggested different criteria for selecting words for focused instruction. Biemiller (2003, p. 331) proposed teaching words that students "commonly encounter, rather than uncommon and complex words." Nagy, Anderson, Schommer, Scott, and Stallman (1989) and Templeton (1992) recommended systematic instruction of words based on morphological characteristics and relatedness across word families. Hiebert (2005) extended this focus on word roots and families to include words that students might know through association with known words, words possessing derivatives that students frequently encounter, and words with multiple meanings. The National Reading Panel (2000, pp. 4–5)

suggested choosing vocabulary words for instruction that are “derived from content learning materials” and, therefore, conceptually related to the material being taught. Finally, recent attention has been placed on selecting words from the Academic Word List (Coxhead, 2000) and providing instruction in those words common to disciplinary literacy and across academic texts (Nagy & Townsend, 2012).

Although with somewhat different emphases, these approaches share a focus on choosing words that are conceptually rich and commonly found in students’ learning environments; and most agree that instructional approaches should build on students’ existing networks of semantic and associative knowledge while transmitting new information about the world.

### *Direct Instruction of Target Words Plus Strategies*

Several recent studies have combined direct teaching of focal words with strategy instruction to increase students’ knowledge of target words and strengthen their abilities to independently determine the meaning of unfamiliar words. Carlo et al. (2004) examined the effects of sustained strategy instruction on the word learning of fifth-grade students ( $N = 254$ ) who were predominantly English language learners. Ten classrooms participated in the intervention and six classrooms served as controls in this quasi-experimental study. The 15-week intervention included a curriculum focused on immigration and incorporated several topical readings. Explicit instruction and related activities focused on 10 to 12 target vocabulary words per week. The intervention incorporated word learning strategies, including use of context clues, morphology, polysemy, and awareness of Spanish–English cognates. Treatment-group students (both monolingual and bilingual) achieved significantly higher learning outcomes on measures of knowledge of taught words and word analysis strategies, when compared with control-group students.

Lesaux et al. (2010) examined the vocabulary learning effects of a multifaceted intervention on sixth graders ( $N = 476$ ) in seven middle schools. Among participants, 346 were language-minority students and 130 were native-English speakers. Twelve teachers comprised the intervention group with 296 students; 7 teachers and 180 students formed the control group. The 18-week program was implemented during the ELA block and featured passages from informational texts about high-interest topics from which researchers selected several (8–9) high-utility academic words. On each day of the 8-day instructional cycle, teachers engaged students in activities that included teaching word learning strategies (i.e., analyzing context or word parts), using target words (e.g., crossword puzzles, answering text-based questions), and writing. When compared with control-group students, intervention-group students (both native and nonnative speaking) displayed significantly greater knowledge of target words, knowledge of word meanings in context, and morphological skills.

Together, these studies demonstrate the effectiveness of multifaceted instruction combining explicit teaching of target words with strategies to promote students’ independence in word recognition and analysis. Furthermore, both the Carlo et al. (2004) and Lesaux et al. (2010) studies took place in authentic classroom settings with teachers as implementers of the word learning programs,

suggesting the *readiness* of teachers to expand students' vocabulary knowledge within the boundaries of their own classrooms. At the same time, in both these large-scale interventions, researchers used curricular materials other than the classroom's curriculum, so that a logical extension for further investigation would carry the instructional principles of strategy use and rich instruction into the standard curriculum.

#### *Summary of Sources of Word Learning*

A robust body of research that stretches over three decades sheds light on the multiple ways that words are learned. The complex nature of word knowledge demands a comprehensive approach to vocabulary instruction that acknowledges and develops the various facets of knowledge that words represent. In addition to reading widely, positive learning outcomes result from teaching students to identify and use context-based clues for determining the meanings of unfamiliar words in text (Fukkink & DeGlopper, 1998). In addition, morphological analysis (e.g., Baumann et al., 2002; Nippold & Sun, 2008) and attention to polysemy (Nelson & Stage, 2007) have proved useful for determining meanings of unfamiliar words. Combining strategies (e.g., morphological and contextual analysis) improves students' vocabulary knowledge (e.g., Baumann et al., 2003). As well, strategic approaches that focus on students' metacognition promote self-efficacy for monitoring comprehension and applying word learning strategies in new contexts (Dole et al., 1995; Lubliner & Smetana, 2005).

Studies also affirm the value of direct instruction of target words (Stahl & Fairbanks, 1986; Townsend & Collins, 2009). Rich instruction creates variety in the instructional activities and events where target words are situated, which, in turn, offers students repeated opportunities to hear and use words, authentically. Incorporating direct word instruction with strategic instruction strengthens students' knowledge *about* words as well as *of* words (Carlo et al., 2004; Lesaux et al., 2010). Moreover, these comprehensive instructional approaches are likely to address the multifaceted nature of word knowledge with its related networks of conceptual and semantic associations (Beck et al., 2002).

#### *Productive Contexts for Teaching and Learning Vocabulary*

A related line of research in vocabulary instruction has focused on discussion as a productive context for vocabulary teaching and learning. A discourse-rich approach to instruction is rooted in the work of Vygotsky (1978), who held that language serves as the principal tool for sharing knowledge and creating common understandings. He emphasized the crucial role of language in the development of students' thinking, or inner language, to enable critical thinking and analysis and argued that thinking is facilitated and enhanced through interactions with a more knowledgeable other within a social community (Resnick, Levine, & Teasley, 1991).

With this theoretical orientation as a backdrop, classroom discussion offers a language-rich context in which to explore words' meanings and uses and to tie important vocabulary to texts and content. In this way, discussion serves as a setting for the rich instruction known to support students' word learning. In the following sections, we examine some current understandings about discussion as a

context for vocabulary instruction. We then look at ways that teachers facilitate productive discussions to support student learning. We acknowledge that this latter group of studies explored the ways teachers use classroom discussion to facilitate understanding of content, in general, rather than vocabulary, in particular. Given what we have learned about the development of deep knowledge of word meanings and, in particular, the need for students to explore word meanings within a broad semantic context of the word, we reasoned that an effective discussion about vocabulary, by its very nature, must be situated within a meaningful context.

### *Discussion as a Context for Vocabulary Instruction*

A few researchers have investigated the influence of classroom discussion on students' word learning and concept knowledge. In a study set in three classrooms, Stahl and Vancil (1986) examined semantic mapping with discussion as an instructional approach to increasing sixth-grade students' ( $N = 45$ ) knowledge of lesson-related vocabulary. Classrooms were randomly assigned to three different treatments: students in the first classroom participated in a semantic-mapping activity accompanied by extensive class discussions of the words and relationships among them; students in the second classroom participated in extensive discussion of the words, including relationships among the words, but without semantic mapping; students in the third classroom were provided with a map and instructed to study the words' meanings using the map to guide them, with no additional discussion. Students receiving instruction under the first and second conditions (classroom discussion alone or combined with a semantic map) performed better on several posttests of vocabulary learning, with no significant differences between the two groups, than did students who worked with semantic maps alone.

Stahl and Clark (1987) investigated students' acquisition of science vocabulary in four classrooms of fifth graders ( $N = 69$ ). In this study, two classrooms served as treatment groups and two as comparison groups. Students in treatment classrooms were randomly divided into three subgroups, and over the course of the study, each subgroup participated in all three conditions. Treatment conditions were labeled as *Listening*, *Called-On*, and *Ignored*. Over 3 days, treatment classes were taught six words from each of three 600-word informational passages; instruction combined discussion with semantic mapping. On each day, one group was told they would listen to, but not participate in, the class discussion, while the other two groups believed that they might be called on. During the subsequent, whole-class discussions, however, only students in the Called-On group were asked to participate. Instruction included collaboratively completing semantic maps and discussing target words, followed by silent reading of the text, and then a whole-class discussion of the text with additions to the maps. At the end of each lesson, maps were collected, and a sentence anomaly assessment was administered. At the conclusion of the study, a multiple-choice test measured conceptual learning from all three passages. For each group of students in the Called-On condition, scores on the immediate posttest of vocabulary learning were higher than those of comparison groups; and students in the Listening and Ignored groups scored higher than comparison students on two of the three passages. Treatment

students also demonstrated significantly higher concept learning than comparison students. Students were also compared across treatment groups, with significant differences in word learning found among them, as measured by the sentence anomaly test: both participation in discussion (i.e., Called-On) and anticipation of participation (i.e., Ignored) led to significantly higher levels of word learning when compared with students in the Listening condition.

Snow et al. (2009) studied effects of a 24-week program for middle school students focused on developing students' academic vocabulary through discussions of high-interest topics. Five new focal words, taken from the Academic Word List (Coxhead, 2000), were introduced each week; and teachers within each grade level and across content areas shared responsibility for teaching brief, content-related lessons that engaged students in reading, writing, and discussion of the week's topic with an emphasis on focal word use. In a comparison of word knowledge among students ( $n = 697$ ) who participated in a minimum of 20 weeks of the program with a control group of students ( $n = 319$ ) from demographically similar schools in the same district, target word learning of treatment group students surpassed that of control group students with effect sizes ranging from .33 to .56.

Dixon-Krauss (2002) undertook a "mediation model design" (p. 310) for vocabulary instruction in two ninth-grade English classes ( $N = 43$ ). Instruction took place in 10 sessions over 4 weeks. On a pretest of 52 words from the novel, *Animal Farm*, students wrote a definition, using any prior knowledge of meanings or word parts to help them. From this list, 40 unfamiliar target words were selected. During the first three instructional sessions, 20 words were taught using direct instruction in which students were provided a definition and an additional meaning cue. Students also composed a sentence or found a synonym for each word and were instructed to use vocabulary words as they composed a response to reading. Students then were tested on vocabulary knowledge. For the next series of lessons, the remaining 20 words were introduced during whole-class discussions and within and as the chapters were read, but were not directly taught. Although students composed written responses, the teacher did not prompt them to use target words in their writing. After this series of lessons, students were tested on the vocabulary from the chapters containing the second set of 20 words. Students' knowledge of target words was stronger after the second lesson series in which words were emphasized in context. The number of focal words students used in their writing decreased but their *appropriate* uses of vocabulary words increased.

Teacher-facilitated student dialogues provided the focus of a small, qualitative study by Harmon (2000) with sixth- and seventh-grade students ( $N = 6$ ) enrolled in developmental reading classes. Data included transcripts of audio-recorded sessions, field notes, researcher observation, and postdiscussion student self-analyses. Students worked in pairs and first read silently, then stopped periodically to discuss unfamiliar words each had identified in his/her reading. As students read and responded, the teacher used a combination of open prompts (e.g., "What gives you that idea?" Harmon, 2000, p. 333) and more specific comments to encourage students to talk about the words within the context of the text.

Throughout these teacher-facilitated discussions, students used a variety of strategies to determine the meaning of unfamiliar words or to connect the word to

the text. Working together, some students consulted the immediate textual context or made connections to personal experiences or the more general story line to grapple with possible word meanings. Other students relied more heavily on teacher prompts and guidance to try to explain the word's meaning and to clarify its relationship to the story. Transcripts were coded according to categories of strategies that students used. Results showed that students consistently used word-level analysis (pronunciation and orthography), contextual clues in the surrounding text, writing conventions (i.e., punctuation), and the dictionary. In some cases, students had partial knowledge of word meaning that they shared with others or connected to experience. Harmon concluded that discussions supported students' sharing of these various strategies and encouraged metacognitive approaches to word meaning, but with varying levels of skill.

Combined results indicate that instructional conversations and classroom discussion provide students with opportunities to hear and use target words in appropriate and authentic contexts (Dixon-Krauss, 2002; Snow et al., 2009), and students' interactions with each other during discussions seem to facilitate word learning and conceptual understanding (Dixon-Krauss, 2002; Harmon, 2000; Stahl & Vancil, 1986). Furthermore, students' anticipation of participation in discussion seems to positively affect word learning nearly as much as actual participation (Stahl & Clark, 1987). Common across these studies are focal words drawn from the curriculum, such that students' talk-based explorations of meaning also lead to deepened comprehension of texts and content. Discussion thus offers both a context and a tool for examining the relationships of words to important ideas and holds potential for improving student learning.

### *The Teacher's Role in Productive Discussions*

Despite evidence of their effectiveness, discussions as contexts for word learning are relatively uncommon in the classroom (Scott et al., 2003). In addition, missing from the literature on discussion-based contexts for vocabulary instruction are studies that identify what the teacher does or says to create the contexts in which productive discussions of words can occur. That is, although discussions can serve as valuable sites for word exploration and rich oral instruction, there is limited information to guide teachers in how to engage students or facilitate these conversations about vocabulary in productive ways. We know that discussion has links to learning, and a classroom environment rich in both teacher and student talk has consistently been linked to student achievement at many grade levels and for a diverse range of learners (e.g., Knapp, 1995; Langer, 2001). Increases in amounts of student talk, with corresponding reductions in teacher talk, have also been associated with higher learning outcomes for students (Nystrand et al., 2003).

At the same time, others have noted that quality of the classroom talk trumps quantity; thus, it is not so much *how much* students talk as *what they talk about* that seems to drive the effectiveness of these discursive environments. Discussions deemed most effective are those in which teachers orchestrate open explorations of content that engage students in critically reasoning and engaging with important ideas (Murphy et al., 2009). Overall, across these large or cross-grade level studies, greater student outcomes are associated with teachers who emphasize

rich language, critical thinking, and conceptual understanding; connect content to students' backgrounds and experience; develop students' content *and* strategic knowledge; and emphasize instructional coherence through the links they created among instructional activities and within and across lessons and subject areas.

Yet, despite these important understandings, there is substantial variability in the effectiveness with which teachers facilitate discussions (Adler, Rougle, Kaiser, & Caughlan, 2003/2004; Soter et al., 2008). Thus, to better understand how these contexts can be created, we turned to studies that focused on *what* teachers say to facilitate productive discussions of content. This collection of studies informed our understanding of the teacher's discursive role and the particular ways that teachers orchestrate productive discussions in the teaching of reading and English language arts.

### *Teachers' Orchestration of Discussion*

Researchers who have examined classroom discourse note the repertoires of teachers' instructional talk that contribute to fruitful dialogic interactions. Soter et al. (2008) analyzed a subset of studies (nine approaches) from the Murphy et al. (2009) meta-analysis. Transcripts from four typical discussions were collected for all nine approaches. Based on an analysis of instances of teacher and student questioning, extended explanations, task-related verbal exchanges, and "reasoning words" (Soter et al., 2008, p. 373), the results showed that the most productive teacher- and student-led discussions were framed by the teacher and included extended student talk, open-ended teacher questions, and high levels of teacher uptake. Longer periods of student explanation, prompted through teachers' questions, resulted in more student reasoning and critical analysis of content.

Similar findings are evident in an investigation by Nystrand et al. (2003), in which they examined the relationship among the nature of classroom discourse (e.g., types of questions, presence of uptake, student responses), student variables (e.g., characteristics of students, class size, socioeconomic status), and student learning. Based on an analysis of transcripts from audiotaped whole-class discussions in eighth- and ninth-grade English and Social Studies classrooms ( $N = 200$  classrooms), researchers found that dialogic discourse, that is, the "unprescribed exchange of ideas among students and the teacher" (Nystrand et al., 2003, p. 185), correlated with improved student learning. In addition, shifts from monologic (i.e., an emphasis on lecture and student recitation) to dialogic patterns were often preceded by teachers' authentic questions (i.e., those with several possible answers instead of a single, correct answer). Such questions seemed to open the floor to students' thinking rather than soliciting a recitation of material from lectures or texts. Furthermore, dialogic episodes were characterized by teachers' uptake of students' ideas and "high-level evaluation" (Nystrand et al., 2003, p. 146) in which teachers incorporated students' responses, either through elaboration or a follow-up question. Finally, dialogic discourse included student questions, a characteristic less frequently found in traditional classroom discussion formats.

Working with teachers ( $N = 21$ ) from 10 elementary and middle schools in three urban school districts, Wolf et al. (2005) examined the relationship between teacher talk and the rigor of classroom discussions. They rated rigor on the basis of instruction and discussion that required students to grapple with ideas,



investigate underlying themes, and engage in inferential thinking that moved beyond literal interpretations or simple recall of information. They found significant correlations between the nature of teachers' questions and the level of cognitive challenge and engagement of student responses. For example, teachers' probing questions pressed students for more explanation of their ideas and included "why" questions as well as "what does that tell us about" questions (Wolf et al., 2005, p. 46). Teachers' productive queries further asked students to explicitly link their ideas to the text or to contributions from their peers. Teachers' expectations for text-based evidence also increased cognitive challenge as students sought information to support their opinions.

In a case study, Sharpe (2008) described the kinds of talk used by an experienced middle school teacher to scaffold students' participation in historical inquiry, including examination of various information sources to generate important questions, during a unit on Ancient Egypt. Data included lesson transcripts, observation field notes, and notes from teacher interviews. Transcript analysis indicated that the teacher used questioning and "low control" moves (Wood, 1992), like speculating and suggesting, that encouraged students to generate multiple ideas about the topic and increased "prospectiveness" (i.e., exploratory talk that promoted hypotheses about events and people of that time period; Sharpe, 2008, p. 138). He also periodically inserted meta-comments that summarized important ideas and maintained students' focus on essential elements to guide the inquiry process. The teacher further recast students' ideas using historical terminology, and he repeated key words throughout the lesson to emphasize their relationship to the content. Following instruction over multiple-class periods, students worked together in small, student-led inquiry groups to conduct further investigations into Ancient Egyptian life. Students' developing awareness of historical inquiry processes was evident in their investigative approaches, generation of appropriate questions, and appropriation of vocabulary associated with historical inquiry (e.g., *traditions, inventions, forms of government, currency*).

Taken together, these studies present a picture of effective teachers' talk as diverse, flexible, and consisting of an extensive repertoire and variety of talk (Sharpe, 2008; Soter et al., 2008) that supports constructive, content-related interactions with students throughout lessons. Effective teachers' talk repertoires represent a range of instructional elicitations and responses that build connections for students and help them integrate new information with what is already known (Nystrand et al., 2003; Wolf et al., 2005). In addition, throughout these investigations of content, teachers routinely embed relevant vocabulary, such that students hear words used authentically and in ways related to important content and are presented with opportunities to use relevant words in their talk (Sharpe, 2008). The talk of effective teachers also scaffolds students' learning by stimulating exploratory talk and critical reasoning about content and engaging students with each other in instructional explorations (Sharpe, 2008; Soter et al., 2008).

### *Summary of Productive Contexts for Teaching and Learning Vocabulary*

Talk represents the currency of exchange in the classroom, an essential teaching and learning tool through which to convey ideas and develop understandings. As the primary context for teaching and learning, discussion frames students'

opportunities for learning and access to information; it further affects the ways that students interact with content and engage in academic investigations. The language-rich interactions that occur when students and the teacher productively discuss content and grapple with ideas have proven effective as tools that strengthen students' learning (Nystrand et al., 2003; Soter et al., 2008).

In particular, discussion has proven effective as a context for vocabulary development. Discussion promotes students' knowledge about words and conceptual understanding by creating a productive setting for exploring words and connecting vocabulary to important discipline-specific concepts (Harmon, 2000; Snow et al., 2009; Stahl & Clark, 1987; Stahl & Vancil, 1986). In addition, discussion promotes dialogic interactions through which students not only negotiate meaning but also authentically explore ideas related to important words; this new knowledge then serves as a cognitive resource for students to use in subsequent academic tasks (Dixon-Krauss, 2002; Stahl & Vancil, 1986).

Classroom environments rich in high-quality teacher and student talk promote students' learning and academic achievement. Such discussions feature authentic, teacher-student dialogic exchanges (Nystrand et al., 2003); they emphasize higher-order thinking and reasoning about content; and they include the development of students' strategic knowledge (e.g., Langer, 2001). Productive discursive interactions can be facilitated through a range of instructional talk moves with which effective teachers provide scaffolding that engages students productively with content (Dixon-Krauss, 2002; Sharpe, 2008). A broader repertoire of teacher talk moves, including, for example, questioning, elaborating, or speculating, scaffolds students' participation and offers students models for engaging in academic inquiry (Sharpe, 2008). Variety in teachers' questioning techniques extends and challenges students' thinking while encouraging the exploratory talk that supports critical analysis of content (e.g., Nystrand et al., 2003). Moreover, through uptake and revoicing, teachers extend students' ideas and productively sustain explorations of content (e.g., Wolf et al., 2005).

## **Discussion**

In this literature review, we set out to understand the kinds of instruction that support vocabulary growth in young adolescent and adolescent students. We found a substantive body of information to describe the range of practices and discursive contexts that support word learning. It is clear that vocabulary is a complex construct with connections to many aspects of language development and general knowledge growth. As such, the simplistic view of word learning through dictionary definitions that often predominates in classroom instruction (Blachowicz, Fisher, Ogle, & Watts-Taffe, 2006; Hedrick et al., 2004) is largely ineffective for increasing students' understanding of words. Rather, deep word knowledge emerges over time through productive interactions with authentic texts, tasks, and talk (Beck et al., 2002; Beck, McKeown, & Kucan, 2008; Blachowicz & Fisher, 2000; Graves, 2006; Scott, 2005; Stahl & Nagy, 2006). At the root of deep vocabulary knowledge is wide reading, but wide reading, itself, is precipitated by a certain amount of reading skill; students who have access to highly effective teachers are more likely to gain the requisite abilities that will propel them toward wide reading. Moreover, for the many older students whose

reading proficiency is low (NAEP, 2013), vocabulary instruction can provide the labels and conceptual knowledge that allow them access to grade level content and text.

So what is it that highly expert teachers do to prepare students to acquire vocabulary knowledge through reading? Our review led us to categorize findings within the context of two major teaching actions. The first teaching action relates to the *sources of word learning* teachers lead their students to understand and access. In addition to wide reading, these sources include ability to use context clues, to understand and use the morphological structure of words, to understand and use the polysemous nature of words, and to become conscious of and interested in words all around them.

The second action teachers take relates to the *ways they frame classroom discussions* to prompt productive explorations and provide the “rich oral language” necessary to build networks of semantic and associative information about words (McKeown et al., 1983; McKeown et al., 1985; Stahl & Vancil, 1987). Exploring words and their meanings through discussions of classroom texts and content anchors students’ developing vocabulary in meaningful contexts with authentic applications and opportunities to experience words in ways that support learning. These explorations also contribute to the development of word consciousness and raise students’ appreciation for and awareness of the communicative power of language (Graves, 2006). It is predominantly through this rich use of language in the classroom that vocabulary comes to life as students interact productively with words and concepts.

With the substantive research base that delineates the varied dimensions of vocabulary knowledge, it stands to reason that teachers’ instruction must be similarly varied to address the multidimensionality of what it means to know a word. Instruction that incorporates this multidimensional knowledge about words may be implemented through both oral and print-based approaches, but the rich language of the classroom offers particular potential as a productive context in which to explore words. However, productive explorations of words through classroom discussion do not occur by happenstance. Rather, they emerge through a teacher’s deep knowledge and careful orchestration and use of a repertoire of talk moves that prompt their students to think about, talk about, and use vocabulary to develop deeper understanding of important concepts and ideas within the texts they read and the world around them.

Yet, despite clear evidence of the contributions of thoughtfully framed classroom discourse to students’ vocabulary learning, research suggests that discussions as contexts for word learning are relatively uncommon (Scott et al., 2003). Moreover, many teachers view themselves as largely inconsequential in the quality of discussions; instead, they attribute productive discourse as resulting more from luck or timing than from a teacher’s knowledge and discursive skill (Adler et al., 2003/2004). It seems that, at this point, many teachers lack a deep understanding of the teacher’s pivotal role in orchestrating productive classroom talk.

#### *Implications for Future Research*

As the nation’s schools begin widespread instantiation of the *Common Core State Standards* (National Governors Association Center for Best Practices and

Council of Chief State School Officers, 2010), demands will grow for instruction that strengthens students' vocabulary knowledge in response to the complex texts that will dominate curriculum across grade levels. The results of this review suggest the need for professional development that deepens teachers' understanding of effective instruction of vocabulary. Going forward, we must focus attention on identifying the types of preservice and in-service education that will help teachers understand the complexity of word knowledge and, in turn, to acquire and learn to flexibly use the repertoire of talk moves that engender productive discussions about words and the important conceptual knowledge that words represent.

## References

- Adler, M., Rogle, E., Kaiser, E., & Caughlan, S. (2003/2004). Closing the gap between concept and practice: Toward more dialogic discussion in the language arts classroom. *Journal of Adolescent and Adult Literacy*, 47, 312–322.
- Alvermann, D. E. (2001). *Effective literacy instruction for adolescents* (Executive summary and paper commissioned by the National Reading Conference). Chicago, IL: National Reading Conference.
- Anderson, R. C., & Freebody, P. (1981). Vocabulary knowledge. In J. T. Guthrie (Ed.), *Comprehension and teaching: Research reviews* (pp. 77–117). Newark, DE: International Reading Association.
- Baumann, J. F., Edwards, E. C., Boland, E., Olejnik, S., & Kame'enui, E. W. (2003). Vocabulary tricks: Effects of instruction in morphology and context on fifth-grade students' ability to derive and infer word meanings. *American Educational Research Journal*, 40, 447–494. doi:10.3102/00028312040002447
- Baumann, J. F., Edwards, E. C., Font, G., & Tereshinski, C. A. (2002). Teaching morphemic and contextual analysis to fifth grade students. *Reading Research Quarterly*, 37, 150–176. Retrieved from <http://www.jstor.org/stable/748155>
- Beck, I. L., & McKeown, M. (1991). Conditions of vocabulary acquisition. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 789–814). New York, NY: Longman.
- Beck, I. L., McKeown, M. G., & Kucan, L. (2002). *Bringing words to life: Robust vocabulary instruction*. New York, NY: Guilford Press.
- Beck, I. L., McKeown, M. G., & Kucan, L. (2008). *Creating robust vocabulary: Frequently asked questions and extended examples*. New York, NY: Guilford Press.
- Beck, I. L., Perfetti, C. A., & McKeown, M. G. (1982). Effects of long-term vocabulary instruction on lexical access and reading comprehension. *Journal of Educational Psychology*, 74, 506–521. doi:10.1037/0022-0663.74.4.506
- Beers, K. (1998). Choosing not to read: Understanding why some middle schoolers just say no. In K. Beers & B. G. Samuels (Eds.), *Into focus: Understanding and creating middle school readers* (pp. 37–64). Norwood, MA: Christopher-Gordon.
- Bensoussan, M., & Laufer, B. (1984). Lexical guessing in context in EFL reading comprehension. *Journal of Research in Reading*, 7, 15–32. doi:10.1111/j.14679817.1984.tb00252.x
- Biancarosa, G., & Snow, C. E. (2004). *Reading next: A vision for action and research in middle and high school literacy: A report from the Carnegie Corporation of New York*. Washington, DC: Alliance for Excellent Education. Retrieved from <http://carnegie.org/fileadmin/Media/Publications/PDF/ReadingNext.pdf>

- Biemiller, A. (2003). Vocabulary: Needed if more children are to read well. *Reading Psychology, 24*, 323–335. doi:10.1080/02702710390227297
- Biemiller, A., & Slonim, N. (2001). Estimating root word vocabulary growth in normative and advantaged populations: Evidence for a common sequence of vocabulary acquisition. *Journal of Educational Psychology, 93*, 498–520. doi:10.1037//0022-0663.93.3.498
- Blachowicz, C. L. Z., & Fisher, P. (2000). Vocabulary instruction. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research (Vol. 3, pp. 503–523)*. Mahwah, NJ: Erlbaum.
- Blachowicz, C. L. Z., Fisher, P. J., Ogle, D., & Watts-Taffe, S. (2006). Vocabulary: Questions from the classroom. *Reading Research Quarterly, 41*, 524–539. doi:10.1598/RRQ.41.4.5
- Cain, K., Oakhill, J., & Lemmon, K. (2004). Individual differences in the inference of word meanings from context: The influence of reading comprehension, vocabulary knowledge, and memory capacity. *Journal of Educational Psychology, 96*, 671–681. doi:10.1037/0022-0663.96.4.671
- Carlo, M. S., August, D., McLaughlin, B., Snow, C. E., Dressler, C., Lippman, D. N., . . . White, C. E. (2004). Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms. *Reading Research Quarterly, 39*, 186–215. doi:10.1598/RRQ.39.2.3
- Celce-Murcia, M., & Rosensweig, F. (1979). Teaching vocabulary in the ESL classroom. In M. Celce-Murcia & L. McIntosh (Eds.), *Teaching English as a second language* (pp. 241–257). Rowley, MA: Newbury House.
- Coxhead, A. (2000). A new academic word list. *TESOL Quarterly, 34*, 213–238. doi:10.2307/3587951
- Crossley, S., Salsbury, T., & McNamara, D. (2010). The development of polysemy and frequency use in English second language speakers. *Language Learning, 60*, 573–605. doi:10.1111/j.1467-9922.2010.00568.x
- Cunningham, A. E., & Stanovich, K. E. (1991). Tracking the unique effects of print exposure in children: Associations with vocabulary, general knowledge, and spelling. *Journal of Educational Psychology, 83*, 264–274. doi:10.1037/0022-0663.83.2.264
- Cunningham, A. E., & Stanovich, K. E. (1997). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology, 33*, 934–945. doi:10.1037/0012-1649.33.6.934
- Cunningham, A. E., & Stanovich, K. E. (1998). What reading does for the mind. *American Educator, 22*, 8–15.
- Dale, E. (1965). Vocabulary measurement: Techniques and major findings. *Elementary English, 42*, 82–88.
- Daneman, M. (1988). Word knowledge and reading skill. In M. Daneman, G. MacKinnon, & T. G. Waller (Eds.), *Reading research: Advances in theory and practice (Vol. 6, pp. 145–175)*. San Diego, CA: Academic Press.
- Davis, F. B. (1968). Research in comprehension in reading. *Reading Research Quarterly, 3*, 499–545. Retrieved from <http://www.jstor.org/stable/747153>
- Dixon-Krauss, L. (2002). Literature as a context for teaching vocabulary. *Journal of Adolescent and Adult Literacy, 45*, 310–318.
- Dole, J., Sloan, C., & Trathen, W. (1995). Teaching vocabulary within the context of literature. *Journal of Reading, 38*, 452–460. Retrieved from <http://www.jstor.org/stable/40017892>

- Fukkink, R. G., & DeGlopper, K. (1998). Effects of instruction in deriving word meaning from context: A meta-analysis. *Review of Educational Research, 68*, 450–469. doi:10.3102/00346543068004450
- Goerss, B. L., Beck, I. L., & McKeown, M. G. (1999). Increasing remedial students' ability to derive word meaning from context. *Journal of Reading Psychology, 20*, 151–175. doi:10.1080/027027199278457
- Graves, M. F. (2006). *The vocabulary book: Learning and instruction*. New York, NY: Teachers College Press.
- Harmon, J. M. (1998). Constructing word meanings: Strategies and perceptions of four middle school learners. *Journal of Literacy Research, 30*, 561–599. doi:10.1080/10862969809548014
- Harmon, J. M. (2000). Creating contexts for supporting word-meaning constructions: Dialogues with struggling middle-school readers. *National Reading Conference Yearbook, 49*, 331–343.
- Harris, M. L., Schumaker, J. B., & Deshler, D. D. (2011). The effects of strategic morphological analysis instruction on the vocabulary performance of secondary students with and without disabilities. *Learning Disability Quarterly, 34*, 17–33.
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Paul Brookes.
- Hedrick, W. B., Harmon, J. M., & Linerode, P. M. (2004). Teachers' beliefs and practices of vocabulary instruction with social studies textbooks in grades 4–8. *Reading Horizons, 45*, 103–125.
- Hiebert, E. H. (2005). In pursuit of an effective, efficient vocabulary program. In E. H. Hiebert & M. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice* (pp. 243–263). Mahwah, NJ: Erlbaum.
- Jimenez, R. T., Garcia, G. E., & Pearson, P. D. (1996). The reading strategies of bilingual Latino students who are successful English readers: Opportunities and obstacles. *Reading Research Quarterly, 31*, 90–112. doi:10.1598/RRQ.31.1.5
- Knapp, M. S. (1995). *Teaching for meaning in high-poverty classrooms*. New York, NY: Teachers College Press.
- Kucan, L. (2007). Insights from teachers who analyzed transcripts of their own classroom discussions. *The Reading Teacher, 61*, 228–236. doi:10.1598/RT.61.3.3
- Langer, J. A. (2001). Beating the odds: Teaching middle and high school students to read and write well. *American Educational Research Journal, 38*, 837–880. doi:10.3102/00028312038004837
- Lesaux, N. K., Kieffer, M. J., Faller, S. E., & Kelley, J. G. (2010). The effectiveness and ease of implementation of an academic vocabulary intervention for linguistically diverse students in urban middle schools. *Reading Research Quarterly, 45*, 196–228. doi:10.1598/RRQ.45.2.3
- Lublinter, S., & Smetana, L. (2005). The effects of comprehensive vocabulary instruction on Title I students' metacognitive word-learning skills and reading comprehension. *Journal of Literacy Research, 37*, 163–200. doi:10.1207/s15548430jlr3702\_3
- McKenna, M. C., Kear, D. J., & Ellsworth, R. A. (1995). Children's attitudes toward reading: A national survey. *Reading Research Quarterly, 30*, 934–955. Retrieved from <http://www.jstor.org/stable/748205>
- McKeown, M. G., Beck, I. L., Omanson, R. C., & Perfetti, C. A. (1983). The effects of long-term vocabulary instruction on reading comprehension: A replication. *Journal of Literacy Research, 15*, 3–18. doi:10.1080/10862968309547474

- McKeown, M., Beck, I., Omanson, R., & Pople, M. (1985). Some effects of the nature and frequency of vocabulary instruction on the knowledge and use of words. *Reading Research Quarterly*, 20, 522–535. Retrieved from <http://www.jstor.org/stable/747940>
- Miller, G., & Gildea, P. M. (1985). How to misread a dictionary. *AILA Bulletin*, 13–26.
- Murphy, P. K., Wilkinson, I. A., Soter, A. O., Hennessey, M. N., & Alexander, J. F. (2009). Examining the effects of classroom discussion on students' comprehension of text: A meta-analysis. *Journal of Educational Psychology*, 101, 740–764. doi:10.1037/a0015576
- Nagy, W. E. (2005). Why vocabulary instruction needs to be long-term and comprehensive. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice* (pp. 27–44). Mahwah, NJ: Erlbaum.
- Nagy, W. E., Anderson, R. C., Schommer, M., Scott, J., & Stallman, A. C. (1989). Morphological families in the internal lexicon. *Reading Research Quarterly*, 24, 262–282. Retrieved from <http://www.jstor.org/stable/747770>
- Nagy, W. E., Berninger, V. W., & Abbott, R. D. (2006). Contribution of morphology beyond phonology to literacy outcomes of upper elementary and middle-school students. *Journal of Educational Psychology*, 98, 134–147. doi:10.1037/0022-0663.98.1.134
- Nagy, W. E., Herman, P. A., & Anderson, R. C. (1985). Learning words from context. *Reading Research Quarterly*, 20, 233–253. Retrieved from <http://www.jstor.org/stable/747758>
- Nagy, W. E., & Scott, J. A. (2000). Vocabulary processing. In M. Kamil, P. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 269–284). Mahwah, NJ: Erlbaum.
- Nagy, W. E., & Townsend, D. (2012). Words as tools: Learning academic vocabulary as language acquisition. *Reading Research Quarterly*, 47, 91–108. doi:10.1002/RRQ.011
- Nation, I. S. (1990). *Teaching and learning vocabulary*. New York, NY: Newbury House.
- National Assessment of Educational Progress. (2013). *2013 Reading Assessment*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Retrieved from <http://nces.ed.gov/nation-sreportcard/reading/>
- National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). *Common Core State Standards for English language arts and literacy in history/social studies, science, and technical subjects, Appendix A*. Washington, DC: Authors. Retrieved from [http://www.corestandards.org/assets/Appendix\\_A.pdf](http://www.corestandards.org/assets/Appendix_A.pdf)
- National Reading Panel. (2000). *Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.
- Nelson, J. R., & Stage, S. A. (2007). Fostering the development of vocabulary knowledge and reading comprehension through contextually-based multiple meaning vocabulary instruction. *Education and Treatment of Children*, 30, 1–22. doi:10.1353/etc.2007.0003
- Nippold, M. A. (2002). Lexical learning in school-age children, adolescents, and adults: A process where language and literacy converge. *Journal of Child Language*, 29, 474–478. doi:10.1017/s0305000902275340

- Nippold, M. A., & Sun, L. (2008). Knowledge of morphologically complex words: A developmental study of older children and young adolescents. *Language, Speech and Hearing Services in Schools, 39*, 365–373. doi:10.1044/0161-1461(2008/034)
- Nystrand, M., Wu, L. L., Gamoran, A., Zeiser, S., & Long, D. (2003). Questions in time: Investigating the structure and dynamics of unfolding classroom discourse. *Discourse Processes, 35*, 135–198. doi:10.1207/S15326950DP3502\_3
- Paribakht, T., & Wesche, M. (1996). Enhancing vocabulary acquisition through reading: A hierarchy of text-related exercise types. *Canadian Modern Language Review, 52*, 155–178. doi:10.1017/cbo9781139524643.013
- Paris, S., Lipson, M., & Wixon, K. (1983). Becoming a strategic reader. *Contemporary Educational Psychology, 8*, 293–316. doi:10.1016/0361-476x(83)90018-8
- Pearson, P. D., Hiebert, E. H., & Kamil, M. L. (2007). Vocabulary assessment: What we know and what we need to learn. *Reading Research Quarterly, 42*, 282–296. doi:10.1598/RRQ.42.2.4
- Perie, M., Moran, R., & Lutkus, A. (2005). *NAEP 2004 trends in academic progress: Three decades of student performance in reading and mathematics*. Washington, DC: National Center for Education Statistics.
- Proctor, C. P., Carlo, M., August, D., & Snow, C. (2005). Native Spanish-speaking children reading in English: Toward a model of comprehension. *Journal of Educational Psychology, 97*, 246–256. doi:10.1037/0022-0663.97.2.246
- Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *Canadian Modern Language Review, 26*, 282–307. doi:10.3138/cmlr.56.2.282
- Ram, G., Marinellie, S. A., Benigno, J., & McCarthy, J. (2013). Morphological analysis in context versus isolation: Use of a dynamic assessment task with school-age children. *Language, Speech, and Hearing Services in Schools, 44*, 32–47. doi:10.1044/0161-1461(2012/11-0023)
- RAND Reading Study Group. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Santa Monica, CA: RAND Corporation.
- Resnick, L. B., Levine, J. M., & Teasley, S. D. (Eds.). (1991). *Perspectives on socially shared cognition*. Washington, DC: American Psychological Association.
- Scott, J. A. (2005). Creating opportunities to acquire new word meanings from text. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research to practice* (pp. 69–91). Mahwah, NJ: Erlbaum.
- Scott, J. A., Jamieson-Noel, D., & Asselin, M. (2003). Vocabulary instruction throughout the day in twenty-three Canadian upper-elementary classrooms. *Elementary School Journal, 103*, 269–312. doi:10.1086/499726
- Scott, J. A., & Nagy, W. E. (1997). Understanding the definitions of unfamiliar words. *Reading Research Quarterly, 32*, 184–200. doi:10.1598/RRQ.32.2.4
- Shanahan, T. (2000). Research synthesis: Making sense of the accumulation of knowledge in reading. In M. Kamil, P. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. 3, pp. 209–226). Mahwah, NJ: Erlbaum.
- Sharpe, T. (2008). How can teacher talk support learning? *Linguistics and Education, 19*, 132–148. doi:10.1016/j.linged.2008.05.001
- Silverman, R. D., Proctor, C. P., Harring, J. R., Doyle, B., Mitchell, M. A., & Meyer, A. G. (2013). Teachers' instruction and students' vocabulary and comprehension: An exploratory study with English monolingual and Spanish-English bilingual students in grades 3–5. *Reading Research Quarterly, 49*, 31–60. doi:10.1002/rrq.63



- Snow, C. E., Lawrence, J., & White, C. (2009). Generating knowledge of academic language among urban middle school students. *Journal of Research on Educational Effectiveness*, 2, 325–344. doi:10.1080/19345740903167042
- Soter, A. O., Wilkinson, I. A. G., Murphy, P. K., Rudge, L., Reninger, K., & Edwards, M. (2008). What the discourse tells us: Talk and indicators of high-level comprehension. *International Journal of Educational Research*, 47, 372–391. doi:10.1016/j.ijer.2009.01.001
- Stahl, S. A., & Clark, C. H. (1987). The effects of participatory expectations in classroom discussion on the learning of science vocabulary. *American Educational Research Journal*, 24, 541–556. doi:10.3102/00028312024004541
- Stahl, S. A., & Fairbanks, M. M. (1986). The effects of vocabulary instruction: A model based meta-analysis. *Review of Educational Research*, 56, 72–110. doi:10.3102/00346543056001072
- Stahl, S. A., & Nagy, W. E. (2006). *Teaching word meanings*. New York, NY: Routledge.
- Stahl, S. A., & Vancil, S. (1986). Discussion is what makes semantic maps work in vocabulary instruction. *The Reading Teacher*, 40, 62–69. Retrieved from <http://www.jstor.org/stable/20199306>
- Stanovich, K. E., & Cunningham, A. E. (1993). Where does knowledge come from? Associations between print exposure and information acquisition. *Journal of Educational Psychology*, 85, 211–229. doi:10.1037/0022-0663.85.2.211
- Sternberg, R. J., & Powell, J. S. (1983). Comprehending verbal comprehension. *American Psychologist*, 38, 878–893. doi:10.1037/0003-066X.38.8.878
- Swanborn, M. S. L., & deGlopper, K. (1999). Incidental word learning while reading: A meta-analysis. *Review of Educational Research*, 69, 261–285. doi:10.3102/00346543069003261
- Templeton, S. (1992). Theory, nature, and pedagogy of higher-order orthographic development in older students. In S. Templeton & D. R. Bear (Eds.), *Development of orthographic knowledge and the foundations of literacy: A memorial festschrift for Edmund H. Henderson* (pp. 253–277). Hillsdale, NJ: Erlbaum.
- Townsend, D., & Collins, P. (2009). Academic vocabulary and middle school English learners: An intervention study. *Reading and Writing*, 22, 993–1019. doi:10.1007/s11145-008-9141-y
- Verhallen, M., & Schoonen, R. (1993). Lexical knowledge of monolingual and bilingual children. *Applied Linguistics*, 14, 344–363. doi:10.1093/applin/14.4.344
- Vermeer, A. (2001). Breadth and depth of vocabulary in relation to L1/L2 acquisition and frequency of input. *Applied Psycholinguistics*, 22, 217–234. doi:10.1017/s0142716401002041
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Watts, S. M. (1995). Vocabulary instruction during reading lessons in six classrooms. *Journal of Literacy Research*, 27, 399–424. doi:10.1080/10862969509547889
- Wolf, M. K., Crosson, A. C., & Resnick, L. B. (2005). Classroom talk for rigorous reading comprehension instruction. *Reading Psychology*, 26, 27–53. doi:10.1080/02702710490897518
- Wood, D. (1992). Teaching talk: How modes of teacher talk affect pupil participation. In K. Norman (Ed.), *Thinking voices: The work of the National Oracy Project* (pp. 201–214). London, England: Hodder Arnold.
- Wysocki, K., & Jenkins, J. R. (1987). Deriving word meanings through morphological generalization. *Reading Research Quarterly*, 22, 66–81. Retrieved from <http://www.jstor.org/stable/747721>

## Authors

EVELYN FORD-CONNORS is a lecturer and associate director of the Donald D. Durrell Reading and Writing Clinic at the Boston University School of Education, Two Silber Way, Boston, MA 02215; e-mail: [econnors@bu.edu](mailto:econnors@bu.edu). Her areas of specialization include literacy instruction for struggling readers and writers, classroom discourse with a focus on teachers' talk, and teacher coaching.

JEANNE R. PARATORE is a professor of literacy education at Boston University, Two Silber Way, Boston, MA 02215; e-mail: [jparator@bu.edu](mailto:jparator@bu.edu). Her areas of specialization are family literacy, interventions for struggling readers, and teacher and student talk during literacy instruction.