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The Critical Role of Vocabulary Development for English Language Learners

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English language learners (ELLs) who experience slow vocabulary development are less able to comprehend text at grade level than their English-only peers. Such students are likely to perform poorly on assessments in these areas and are at risk of being diagnosed as learning disabled. In this article, we review the research on methods to develop the vocabulary knowledge of ELLs and present lessons learned from the research concerning effective instructional practices for ELLs. The review suggests that several strategies are especially valuable for ELLs, including taking advantage of students' first language if the language shares cognates with English; ensuring that ELLs know the meaning of basic words, and providing sufficient review and reinforcement. Finally, we discuss challenges in designing effective vocabulary instruction for ELLs. Important issues are determining which words to teach, taking into account the large deficits in second-language vocabulary of ELLs, and working with the limited time that is typically available for direct instruction in vocabulary.

This article highlights the need for sustained attention to the vocabulary development of English language learners (ELLs), reviews the research on means to develop the vocabulary knowledge of ELLs, presents lessons learned from the research, and describes several important issues that should be considered in the development of practices to build vocabulary knowledge in this group of students.

Past models of reading considered vocabulary knowledge an important source of variation in reading comprehension, particularly as it affects higher-level language processes such as grammatical processing, construction of schemata, and text models (Adams & Collins, 1977; Chall, 1987). Skilled readers can tolerate a small proportion of unknown words in a text without disruption of comprehension and can even infer the meanings of those words from sufficiently rich contexts. However, if the proportion of unknown words is too high, comprehension is disrupted (Carver, 1994). More recently, vocabulary has taken a more central role in models of reading as research uncovers its influence on earlier reading and reading-related skills including phonological, orthographic, and morphosyntactic processes (Anglin, 1993; Carlisle & Nomanbhoy, 1993; Muter & Diethelm, 2001; Verhallen & Schoonen, 1993; Wang & Geva, 2003).

National data confirm that there are large and persistent gaps between the reading performance of language-minority and English-only (EO) children. Fourth-grade performance on the National Assessment of Educational Progress (NAEP) reading test shows a 22–29 point scale score advantage for children living in homes where a language other than English was never used compared with children who lived in homes where a language other than English was always used (National Center for Education Statistics, 2003).

ELLs who experience slow vocabulary development are less able to comprehend text at grade level than their EO peers, and they may be at risk of being diagnosed as learning disabled, when in fact their limitation is due to limited English vocabulary and poor comprehension that results in part from this limitation. A recent report funded by the U.S. Department of Education underscores this possibility (Development Associates, 2003). The report refers to a large city school district where:

> the key issues faced in identification of Special Education LEP students is the shortage of credentialed personnel. In particular, there is a shortage of bilingual special educators and bilingual school psychologists who can participate in the assessment process. Early identification of students is especially problematic in the district since teachers often do not have the expertise to distinguish a learning problem from a delay in acquiring English language skills (p. 32).

The report also indicates that in most school districts, achievement and content area tests (83.8 percent of school districts sampled) or oral proficiency tests in English (73 percent of districts) were used as one source of information for assigning services to special education LEP students. Of the 11 sources of information used to make decisions about instructional services, six sources directly assessed English

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literacy or English oral language proficiency skills (achievement/content tests in English, oral proficiency tests in English, writing samples in English, teacher ratings of English proficiency, and literacy tests in English) and one indirectly assessed English literacy (aptitude tests in English) (p. 32).

LIMITED VOCABULARY OF ELLs

There have been dramatic increases in the number of ELLs in U.S. schools. Since the 1990–1991 school year, the ELL population has grown approximately 105 percent, while the general school population has grown by only 12 percent. In 2000–2001, an estimated 4,584,946 ELLs were enrolled in public schools, representing approximately 9.6 percent of the total school enrollment in pre-kindergarten through grade 12 (National Center for Education Statistics, 2004).

Students reading in their first language have already learned on the order of 5,000–7,000 words before they begin formal reading instruction in schools (Biemiller & Slonim, 2001). However, this is not typically the case for second-language learners when assessed in their second language. For example, Umbel, Pearson, Fernandez, and Oller (1992) tested the receptive vocabulary of Hispanic children in Miami in both English and Spanish. The 105 bilingual first-graders, of middle to high socioeconomic status relative to national norms, were divided according to the language spoken in their homes (English and Spanish or Spanish only). Both groups performed near the mean of 100 in Spanish. Even though the group from bilingual homes scored more than one standard deviation higher in English than the Spanish only group, both groups were significantly below the mean of the norming sample in English, even when the socioeconomic status of the English learners was higher than that of the norming sample.

Knowing a word implies knowing many things about the word—its literal meaning, its various connotations, the sorts of syntactic constructions into which it enters, the morphological options it offers and a rich array of semantic associates such as synonyms and antonyms (see Nagy & Scott, 2000 for a review). These various aspects are related to the depth of word knowledge, which is as important as learning many words (breadth of word knowledge). Second-language learners have been shown to be impaired in depth of word knowledge, even for frequently occurring words (Verhallen & Schoonen, 1993).

Cross-sectional data collected on fourth-grade Spanish-speaking and EO students in four schools in Virginia, Massachusetts, and California corroborate that ELLs have limited breadth of vocabulary, and also indicate they lack depth of vocabulary knowledge as well (August et al., 1999). To assess breadth of vocabulary, students were tested individually on the L form (pretest) and M form (posttest) of the Peabody Picture Vocabulary Test Revised (PPVT-R). The results confirmed data reported by Umbel et al. (1992): that there is a large gap in the breadth of vocabulary between ELLs and EO speakers and that the gap does not diminish over the course of the year (Table 1).

TABLE 1
Means for ELLs and Native Speakers in Breadth of Vocabulary as Measured by the Peabody Test (Receptive Vocabulary) English Version, Standard Scores

	Fall		*Spring*	
Group	*Mean*	*N*	*Mean*	*N*
English language learners	76.16	106	75.03	63
English only	110.41	205	115.45	84

This study also examined how depth of ELL vocabulary knowledge compares to that of native English speakers. Two tasks examined the child's understandings of the multiple meanings of words, one indication of depth of word knowledge. The first of these was a polysemy comprehension task. A sentence judgment task was used, in which students were to decide whether sentences such as the following made sense:

"We were growing sheep last year"
"Their love for each other grew"
"The boy grew two inches"
"My teacher wants the homework to grow?"

These sentences contained a number of polysemous words (i.e., those with multiple meanings such as "grow") and the student's task was to say whether the usage made sense in English. The data once again indicated a gap in the scores of EOs and ELLs (Table 2). The gap might in fact be larger because the EO children were close to ceiling (16) in the spring.

The second task was a production task in which students were asked to write as many meanings as they could think of for the words, "bug," "ring," "light," and "hand." Their responses were coded with more weight given to meanings that were more removed from the core meaning. For example, "a bug in a computer program" is a relatively remote use of the word "bug," whereas "an insect" is the core meaning. Unfortunately, this test was not administered in the spring. In the fall, ELLs scored approximately half as well as their EO peers ($M = 5.04$ for 49 ELLs; $M = 10.03$ for 132 EO students.).

In summary, previous research indicates that ELLs know fewer English vocabulary words than monolingual English speakers, but in addition, know less about the meaning of these words.

TABLE 2
Means Correct for ELLs and Native Speakers in Depth of Vocabulary as Measured by the Polysemy Comprehension Task

	Fall		*Spring*	
Group	*Mean*	*N*	*Mean*	*N*
English language learners	13.10	109	12.94	32
English only	14.69	203	15.05	43

RESEARCH BASE FOR DEVELOPING METHODS TO BUILD VOCABULARY IN ELLS

Transfer of Cognate Knowledge

Second-language acquisition research has identified transfer as an important process involved in the acquisition of a second language. Transfer is defined as "the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (Odlin, 1989, p. 27). One striking similarity between Spanish and English is the large number of cognate pairs the two languages share. These offer the possibility for transfer to occur for a meaningful number of words. Holmes and Guerra Ramos (1995) characterize cognates as vocabulary items in two different languages that are similar both orthographically and semantically. They consider the existence of cognate vocabulary to be crucially important, stating that cognates account for from a third to as much as half of the active vocabulary of an average educated person. Nash (1997) estimates this active vocabulary to range from 10,000 to 15,000 words.

There have been several investigations of cognate transfer in English reading comprehension and vocabulary inferencing skills. Most recently, Dressler (2000) investigated cognate awareness in a sample of fifth-grade Spanish-speaking ELLs who had been taught to search for cognate relationships as a strategy in reading English text. The students who had been taught the strategy were more successful in inferring meaning for (untaught) cognates than a control group, but there was variability in the application of this knowledge source among cognates, with the degree of phonological transparency between cognates playing an important role in fifth-grade ELLs' ability to detect a cognate relationship. Connections between pairs that are more phonologically transparent (*amorous–**amoroso***) were more easily perceived than the connections between pairs that are opaque (*obscure–**oscuro***) on the basis of sound. In addition, since upper-grade ELLs vary widely in their ability to read in Spanish, it seems important to consider linguistic information all Spanish speakers, regardless of their level of native- or home-language literacy, may access in identifying cognate pairs, that is, the spoken forms of the words in question.

In another study involving elementary grade students, García (1991) found that fifth- and sixth-grade Spanish-speaking ELLs did not understand the meanings of English words that were cognates to familiar Spanish words, and failed to recognize relationships between cognate pairs that shared a high degree of orthographic and semantic overlap. Jimenez, García, and Pearson (1996), on the other hand, found that sixth- and seventh-grade Latino bilingual students who were proficient in reading English frequently and successfully used their knowledge of Spanish in inferring meaning for English cognates. Durgunoglu, Nagy, and Hancin-Bhatt (1993) also investigated cognate awareness in ELLs' English reading comprehension. They found that while students' awareness of cognate relationships was varied and limited, the transfer role of that limited awareness was important to second-language reading. Finally, Hancin-Bhatt and Nagy (1994) sought to determine whether or not cognate recognition abilities followed a developmental trend. They found that, from grade 4 to grade 8, students' recognition of cognates increased quite rapidly.

A second, indirect type of information that potentially facilitates transfer results from the systematic relationships between Spanish and English suffixes, as in the regular correspondences between the English {ity}, {ing}, and {ly} and Spanish {**idad**}, {**a/endo**}, and {**mente**}, respectively. Hancin-Bhatt and Nagy (1994) investigated Spanish–English bilinguals' use of morphological knowledge in native- and second-language cognate recognition. Specifically, they studied the extent to which students in grades 4–8 recognized systematic relationships between suffixes in English and Spanish. The authors found that students more easily recognized cognate stems in suffixed words (e.g., *amicably*) than noncognate stems in suffixed words (e.g., *shortly*), suggesting that cross-language transfer may play a role in the learning of English derivational morphology rules.

In sum, review of the literature suggests that (1) knowledge of the cognate relationships that exist between Spanish and English is a powerful example of positive transfer in that this knowledge has been shown to facilitate English reading comprehension; (2) the extent to which cognate relationships are perceived is related to the degree of semantic, orthographic, and phonological overlap they share; (3) English morphological analysis is initially learned through cognates; and (4) the ability to recognize cognates develops with age.

Effective Vocabulary Instruction

Given the importance of vocabulary to oral and written language comprehension (NICHD, 2000), it is astounding that in the past 25 years there have been very few quasiexperimental or experimental studies focused on English vocabulary teaching among elementary-school language-minority children. This is in contrast to a wealth of research on vocabulary learning among monolingual English speakers, enough to justify the inclusion of vocabulary as a key component of reading instruction in the report of the National Reading Panel (NICHD, 2000). The National Reading Panel found over 45 experimental intervention studies focused on vocabulary.

Perez (1981) reported a study of the vocabulary learning of 75 language-minority Mexican American third-graders. The children received 20-minute daily oral instruction in word meanings, focusing on compound words, synonyms, antonyms, and multiple meanings for about 3 months. One group received instruction in pronunciation of the words and memorization of definitions. A second group used the same list of words and focused on making semantic maps with the words, and making predictions of word meanings. A third group developed a matrix showing the relationships among the words and predicted word meanings. A fourth group completed the same chart as the third group, as well as completing cloze sentences. The children in all groups were asked to complete written recalls about the social studies chapter on the second and third days of the lessons and again 4 weeks later. They also completed multiple-choice vocabulary tests. The group that constructed relationship maps and completed cloze sentences outperformed the group that worked on pronunciation and memorization of definitions.

The former group also outperformed the pronunciation and memorization group on text recall. This study shows that active processing of word meanings leads to greater recall and understanding of word meanings, but it was only a brief learning trial using one list of words, so its long-term implications cannot be assessed.

Another vocabulary study with ELLs examined the effectiveness of procedures for presenting words to first-grade Spanish dominant students (Vaughn-Shavuo, 1990). In this doctoral dissertation, children were randomly assigned to two groups. Both groups received vocabulary instruction during a 30-minute daily English as a Second Language (ESL) class. One group worked on learning words that were presented in individual sentence contexts. The other group worked on words presented in meaningful narratives, dictated their own sentences using the target words, and examined picture cards that illustrated the word meanings. During 3 weeks of instruction, 31 words were presented to each group. By the end of the training, the latter group, whose instruction was more elaborated than the first group, showed better ability to use the English vocabulary than did the control group (21 words learned vs. 9).

Carlo et al. (2004) developed, implemented, and evaluated an intervention designed to build breadth and depth of word knowledge and reading comprehension in 254 bilingual and monolingual children from nine fifth-grade classrooms in four schools in California, Virginia, and Massachusetts. The intervention, which consisted of 15 weeks of instruction, was organized around the topic of immigration; the curriculum relied on a variety of text genres including newspaper articles, diaries, firsthand documentation of the immigrant experience, historical accounts, and fiction. Instruction was delivered for 30–45 minutes 4 days a week. Every fifth week was devoted to review of the previous 4 weeks' target words. Students' classroom teachers were trained by the researchers to deliver the instruction. In accordance with research indicating words are best learned from rich semantic contexts, target vocabulary words were selected from brief, engaging reading passages. A relatively small number of vocabulary items were introduced each week (12); the words were those that students at this level were likely to encounter repeatedly across texts in different domains. Although there were relatively few words introduced each week, activities helped children make semantic links to other words and concepts and thus attain a deeper and richer understanding of a word's meaning as well as learn other words and concepts related to the target word. In keeping with research-based best practice previously cited, the lessons also taught students to infer meanings from context and to use roots, affixes, cognates, morphological relationships, and comprehension monitoring.

Although there were no treatment gains on the PPVT, the ELLs improved on several measures of vocabulary and comprehension. Students did better in generating sentences that conveyed different meanings of multimeaning words, in completing cloze passages, in tests of knowledge of word meanings, and on measures of word association and morphological knowledge. On a cloze test, used to evaluate comprehension, students showed significant improvement, but the impact on comprehension was much lower than on word learning. It is clear from these results that this multifaceted training led to improved knowledge of the words studied.

A recent study to develop breadth and depth of vocabulary in ELLs involved 293 Spanish-dominant limited English proficient third-grade students enrolled in eight elementary schools in two school districts in El Paso, Texas (Calderón et al., in press). Both the experimental and control students had been instructed in Spanish for reading, language arts, and content areas since kindergarten. The students had been identified by their schools as "ready to begin their transition into English." Over the course of approximately 23 weeks, vocabulary was taught as one component of a 90-minute reading block. It was taught in two contexts—through decodable books and through children's literature. To build word knowledge through decodable texts, DVDs were used to preview the vocabulary. The DVDs contained skits that illustrated key vocabulary that appeared in the decodable books. In addition, 30 minutes per day of oral language activities revolved around grade-level children's literature.

This second venue provided the primary method for building children's vocabulary knowledge. Teachers pretaught vocabulary, developed vocabulary through reading and discussing each book, and reinforced vocabulary through oral language activities that occurred after the story had been read. Children in the control group participated in Reader's and Writer's Workshops. The Reader's Workshop was a daily forum for focused attention to reading. In guided reading, shared reading, and independent reading, students worked with their teacher and with other students to hone their decoding skills, increase their fluency, and monitor their comprehension. In book discussion and activities to build vocabulary and enrich their comprehension, students improved their understanding of texts, learned to make inferences and connections about texts, and became more competent and confident readers. The Writer's Workshop set the stage for teaching and learning about writing. The workshop format established a daily time block focused on writing. The emphasis was on the writing process, which mimicked the stages of writing that expert writers use: from generating ideas to getting thoughts down on paper or on the computer, from drafting to soliciting and incorporating comments, and from revising to polishing for clarity and correctness. The writing process culminated when students published and presented finished pieces to their classmates.

Children in both conditions were pretested in the fall and posttested in the spring using four subtests of the Woodcock Language Proficiency Battery-Revised (WLPBR; Woodcock, 1991) in both Spanish and English: picture vocabulary, letter-word identification, word attack, and passage comprehension. After adjusting for the initial pretest difference, the experimental group outperformed the control group on three of the four measures: word attack with an effect size of +0.21, passage comprehension with an effect size of +0.16, and picture vocabulary with an effect size of +0.11.[1]

LESSONS LEARNED FROM THE RESEARCH

This section describes lessons learned from the research that might be useful in developing future interventions to build the vocabulary of ELLs. It is important to keep in mind that each intervention discussed in the previous section consisted

of a variety of strategies. Thus, it is difficult to know whether certain strategies in an intervention were more effective than others. Nonetheless, it is possible to formulate some conclusions based on this body of research. First, it is apparent that the instructional practices used in the cited studies build on a number of vocabulary instructional practices that have been effective with EO learners (Beck & McKewon, 2001; Beck, McKeown, & Kucan, 2002; Beck, McKeown, & Omanson, 1987; Beck, Perfetti, McKeown, 1982; Craik & Tulving, 1975; Stahl, 1999; Stahl & Clark, 1987; Stahl & Fairbanks, 1986). These strategies include providing definitional and contextual information about each word's meaning; actively involving students in word learning through talking about, comparing, analyzing, and using the target words; providing multiple exposures to meaningful information about each word; as well as teaching word analysis. Second, there appear to be several strategies that may be especially important for ELLs. They are addressed in the following section.

Take Advantage of Students' First Language

One method of building vocabulary is to capitalize on students' first language knowledge if this language shares cognates with English. For example, the Vocabulary Improvement Project (VIP) (Carlo et al., 2004) taught students to draw on their cognate knowledge as a means of figuring out the meaning of new words in English. In a study designed to assess the extent to which students in the VIP used their knowledge of cognates in inferring word meaning, Dressler (2000) found that cognate performance depended to some extent on the characteristics of cognate pairs. These characteristics included (1) the degree of phonological transparency between the cognates, and (2) the degree of orthographic overlap shared by the cognate pair. The findings of this study suggest that while literacy in Spanish would provide students with access both to orthographic as well as phonological sources of information about cognate relationships, it is possible for students to draw connections between cognate pairs on the basis of sound alone, so that students who are not literate, but are orally proficient in Spanish are likely to benefit from instruction in cognate awareness as well as those who are literate in Spanish.

Teaching Spanish-literate children to take advantage of their cognate knowledge is a powerful tool because many English words that are cognates with Spanish are high-frequency Spanish words, but low-frequency English words. Thus students are likely to know the words in Spanish (concept and label) but lack the English label. Moreover, many of these words are what Beck, McKewon, and Kucan (2002) label Tier 2 words. Tier 2 words include words that have importance and utility; they are characteristic of mature language users and appear frequently across a variety of domains. They have instructional potential (words that can be worked with in a variety of ways so that students can build rich representations of them and their connections to other words and concepts, and words for which students already have conceptual understanding). These are words for which students understand the general concept but provide precision and specificity in describing the concept (examples include coincidence/coincidencia, industrious/industrioso, and fortunate/afortunado).

August, Carlo, and Calderon are presently conducting a study to determine whether students have to be at a certain developmental level to take advantage of cognate knowledge in their first language. The experimental study builds on our knowledge of transfer as well as on effective vocabulary instruction. A total of 160 ELLs in the third grade have been recruited from two schools in the Miami-Dade County Public School District. They are not new arrivals to the United States but are still supported by the district with English language development classes. In addition, the students are literate in Spanish; they receive sustained and systematic Spanish language arts instruction for approximately 3 hours a week throughout their elementary school years. Next year, the same number of fifth-grade students from the same schools will be recruited.

Each year, 16 teachers, eight at each school, participate in the study; half are assigned to the treatment condition and half are assigned to the control. Each of the conditions (third and fifth grade) involves 6 weeks of instruction, delivered four times per week for 1 hour after school. Students in the treatment condition are presented with instruction that develops cognate recognition strategies and morphological analysis strategies. This instruction is presented via three thematic units (nine lessons per unit) focused on exploration of Antarctica, exploration of outer space, and exploration of coral reefs. Students in the control condition are presented with an adaptation of a commercially available program; it includes five thematically organized units meant to develop comprehension strategies and vocabulary.

The effect of the interventions will be measured with respect to curriculum-specific vocabulary outcomes (English vocabulary mastery test, a Spanish assessment of derivational morphology, and an English assessment of derivational morphology), general vocabulary outcomes (English and Spanish WLPB Picture-Word and Listening Comprehension), and reading outcomes (Spanish and English WLPB Letter-word and Passage subtests, and a Sentence Verification Technique measured at the end of third and fifth grade). The main analyses will focus on evaluating differences in performance on each of the outcomes as a function of condition and controlling for individual differences prior to instruction.

Ensure ELLs Know the Meaning of Basic Words

A second instructional practice that is important for ELLs is learning the labels for many words that EO students already know. Many of these words are what Beck and colleagues (2002) label Tier 1 words. They define Tier 1 as "mostly basic words—clock, baby, happy—rarely requiring instruction in school" (p. 16). However, for ELLs, these words do require instruction; moreover, it is not so straightforward to teach these words. A conceptual framework developed to guide instruction of these words (Calderon et al., in press) was predicated on four dimensions: concreteness (ability to be shown or demonstrated), cognate status, depth of word meaning, and utility. As is apparent from the examples that follow, Tier 1 words, or basic words, are not unidimensional.

For example, a Tier 1 word might be *butterfly*. This is a word that ELLs may not know, but it can be easily taught by pointing to a picture of a butterfly during text discussion. Another Tier 1 word might be *bug*. Words like *bug* (insect) or *march* (move like a soldier) may be easily instructed during text discussion by pointing to a picture of a bug or marching in place, but because the words are polysemous, they merit further instruction to build students' knowledge of multiple meanings. There are some Tier 1 words that cannot be demonstrated and are not polysemous but students will need to know them also (e.g., *uncle*). A simple explanation of the word's meaning during the story reading will suffice or if the teacher and students are bilingual, a translation is sufficient. Idioms and everyday expressions (e.g., "make up your mind"; "let's hit the books"; "once upon a time") are also Tier 1 words and teachers will need to explain the word meaning to students. Some Tier 1 words are cognates (*family*/*familia; preparation*/*preparación*); the cognates in this category consist of words that are high-frequency words in Spanish and English; they do not require substantial instruction because students know the word meanings in Spanish. (The teacher merely states the English cognate and students provide the Spanish cognate or the teacher provides the English cognate and students said both the English word and Spanish cognate.) False cognates also need to be pointed out by the teacher and the correct translation given (examples of words that are false cognates are: *rope*/*ropa*; *embarrased*/*embarazada*). Finally, words that appear often in text across content areas or are key to understanding a passage can be considered high utility words. Teachers should ensure students know these words; if they do not, comprehension of the text is disrupted.

Review and Reinforcement

A third instructional practice that ELLs particularly benefit from is review and practice. One way to review and reinforce vocabulary is through read-alouds. Read-alouds have been shown to speed up lexical acquisition for younger second-language learners acquiring Dutch as a second language (Appel & Vermeer, 1998). This method has also proved promising with language-minority students acquiring English in the United States (Calderon et al., in press). As with teaching basic words, different methods are called for during the read-aloud depending on the four dimensions of the word described in the previous section: concreteness, cognate status, depth of word meaning, and utility. During reading, concrete words can be demonstrated; for cognates, teachers can tell students the cognate in Spanish or ask students for the cognate. Key words that have been pretaught can be reinforced through questions that require students to use and understand the words. Beck, McKeown, and Kucan (2002) defined Tier 3 words as words students are unlikely to know, but are also words that are not frequently used across a variety of domains. For Tier 3 words, teachers can provide a definition in Spanish if the word cannot be demonstrated or a simple explanation given in English. Specialized Tier 3 words (*isotope*, *continent*) may require preteaching to build concept knowledge and then reinforcement through discussion during text reading.

Teacher-directed language development activities that followed the read-alouds were also used to build oral language proficiency as well as to review and reinforce word meaning for the words that were instructed through the read-aloud (Calderon et al., in press; Carlo et al., 2004). The activities were crafted to conform to the particular words the story provided because different stories lent themselves to different kinds of activities. For example, a story that used many locative prepositions was used to teach them. Other activities reviewed and reinforced words that had been taught through the read-aloud; students were required to use the words in story retells, story mapping, or dramatization. For older children, literature logs helped reinforce word meaning.

Because of the large gap in vocabulary development between ELLs and EO students and the limited time available for teacher-directed instruction, student-directed reinforcement activities were an important part of the intervention work (Calderon et al., in press; Carlo et al., 2004). Examples included using tapes in Spanish to reinforce English word and story meaning; providing activities to help students listen for and use words outside of the language arts class (e.g., in Word Wizard students listen for or look for the target words instructed in class and bring examples into the classroom to be shared), and involving parents in building word knowledge (in the first language) through interview questions and word lists that were sent home.

CHALLENGES IN DESIGNING EFFECTIVE VOCABULARY INSTRUCTION

A challenge encountered in designing vocabulary interventions for ELLs concerns the selection of target words for instruction. In the United States, there are no reliable estimates of the breadth of vocabulary of Spanish-speaking ELLs upon school entry or of the magnitude of their vocabulary growth over a school year. Results from current research (Miccio, Tabors, Páez, Hammer, & Wagstaff, in press) suggest that Spanish-speaking children attending Head Start and kindergarten show about 2.6 points growth per year on the Woodcock Picture Vocabulary Test—a growth rate well below that needed to bring them to parity with EO classmates. But these growth rates provide no information about the categories of words children are acquiring. For example, some words such as concrete nouns may be relatively easy to acquire, whereas less imageable words, words that represent relationships, and verbs with complex argument structures may be much more difficult to acquire. Research on English monolinguals is the only knowledge source available for conjecturing which types of words the children are likely to know, to need, and to be able to learn (Biemiller & Slonim, 2001). However, for ELLs whose first language shares cognates with English, some words that are difficult for EO students will not be for literate ELLs; many high-frequency words in Spanish are low-frequency words in English.

The selection of words for instruction is not a trivial matter. Given the multiple demands on instructional time, it is imperative to focus on words children are unlikely to learn on their own through exposure to English oral discourse; it is also important to focus on words children will encounter

frequently in text and oral language. A promising point of departure for selecting words is found in inventories of vocabulary knowledge of elementary aged monolingual English speakers. Biemiller and Slonim (2001) have found evidence for a common sequence of vocabulary acquisition for EO students. They studied root word vocabulary in two normative samples—an English-speaking, wide socioeconomic range sample, and an advantaged sample. They estimated that in second grade, the mean normative vocabulary was 5,200 root words, increasing to approximately 8,400 by fifth grade. During grades 3–5, the lowest quartile of students added about three root words a day, whereas the highest quartile added about 2.3 words a day. However, by fifth grade, children in the lowest quartile had only reached average fourth grade level because they has such a small vocabulary in second grade.

A second challenge relates to the large deficits in second-language vocabulary of ELLs and the limited time for direct instruction. It is critical to develop creative methods to expose ELLs to words in ways that develop and reinforce word meaning throughout the school day as well as in out-of-school settings. Examples of methods that expose children to more words as well as reinforce the words children have already learned include the use of technology, additional scripted books purposefully crafted to reinforce word meanings, games for student/student practice using picture cards and games that provide incentives for students to listen for new words or previously taught words outside of the vocabulary lesson, and word walls to display the highly imageable or most concrete words.

CONCLUSIONS

In summary, although vocabulary is critically important to comprehension and ELLs lag behind their English-speaking peers in depth and breadth of vocabulary knowledge, there has been very little experimental research in the past 25 years that investigates the development of vocabulary in language-minority students acquiring English as a societal language. There is a need for additional research to determine if there is a set of words that should be taught to ELLs, how the list differs according to first-language backgrounds, and the order in which words should be taught. Moreover, there is a need to test the effectiveness of specific methods of vocabulary instruction with this population. We hope that this article will help guide and stimulate additional research on vocabulary development and other linguistically based interventions that can facilitate the reading and educational process for ELL students. Further, we hope that, with sound interventions to develop vocabulary and comprehension in ELLs, fewer students will be diagnosed as learning disabled, based on low performance in these domains.

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NOTE

1. The difference between the experimental and control group was marginally significant on picture vocabulary ($F = 3.042$, $p = 0.08$).

REFERENCES

Adams, M. J., & Collins, A. (1977). *A schema-theoretical view of reading*. Cambridge, MA: Bolt Beranek & Newman.

Anglin, J. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development, 58*(10).

Appel, R., & Vermeer, A. (1998). Speeding up second language vocabulary acquisition of minority children. *Language and Education, 12,* 159–173.

August, D., Carlo, M., Lively, T., Lippman, D., McLaughlin, B., & Snow, C. (1999). Enhancing vocabulary knowledge and reading comprehension in English language learners. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

Beck, I., & McKewon, M. G. (2001). Text talk: Capturing the benefits of read-aloud experiences for young children. *Reading Teacher, 55,* 10–20.

Beck, I., McKeown, M., & Kucan, L. (2002). *Bringing words to life*. New York: Guilford Press.

Beck, I., McKeown, M., & Omanson, R. (1987). The effects and use of diverse vocabulary instructional techniques. In M. McKeown & M. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 147–163). Hillsdale, NJ: Erlbaum.

Beck, I., Perfetti, C., & McKeown, M. (1982). Effects of long-term vocabulary instruction on lexical access and reading comprehension. *Journal of Educational Psychology, 74*(4), 506–521.

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*(3), 498–520.

Calderon, M., August, D., Slavin, R., Duran, D., Madden, N., & Cheung, A. (in press). Bringing words to life in classrooms with English language learners. In E. Hiebert & M. L. Kamil (Eds.), *Teaching & learning vocabulary: Bringing words to life*. Hillsdale, NJ: Erlbaum.

Carlisle, J., & Nomanbhoy, D. (1993). Phonological and morphological awareness in first graders. *Applied Psycholinguistics, 14,* 177–195.

Carlo, M., August, D., McLaughlin, B., Snow, C., Dressler, C., Lippman, D., Lively, T., & White, C. (2004). Closing the gap: Addressing the vocabulary needs of English language learners in bilingual and mainstream classrooms. *Reading Research Quarterly, 39*(2), 188–215.

Carver, R. P. (1994). Percentage of unknown vocabulary words in text as a function of the relative difficulty of the text: Implications for instruction. *Journal of Reading Behavior, 26*(4), 413–437.

Chall, J. (1987). Two vocabularies for reading: Recognition and meaning. In M. McKeown & M. Curtis (Eds.), *The nature of vocabulary acquisition*. Hillsdale, NJ: Erlbaum.

Craik, F., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology, 104,* 268–294.

Development Associates. (2003). *The descriptive study of services to LEP students and LEP students with disabilities* (OELA Report EDOO-CO-0089). Retrieved July 16, 2004 from http://www.devassoc1.com/reports.htm.

Dressler, C. (2000). The word-inferencing strategies of bilingual and monolingual fifth graders: A case study approach. Unpublished qualifying paper, Harvard Graduate School of Education, Cambridge, MA.

Durgunoglu, A. Y., Nagy, W. E., & Hancin-Bhatt, B. J. (1993). Cross-language transfer of phonological awareness. *Journal of Educational Psychology, 85*(3), 453–465.

García, G. E. (1991). Factors influencing the English reading test performance of Spanish-speaking Hispanic children. *Reading Research Quarterly, 26*(4), 371–392.

Hancin-Bhatt, B., & Nagy, W. E. (1994). Lexical transfer and second language morphological development. *Applied Psycholinguistics, 15*(3), 289–310.

Holmes, J., & Guerra Ramos, R. (1995). False friends and reckless guessers: Observing cognate recognition strategies. In T. Huskin, M. Haunes, & J. Coady (Eds.), *Second language reading and vocabulary learning*. Norwood, NJ: Ablex Publishing Corporation.

Jimenez, R. T., García, G. E., & Pearson, D. P. (1996). The reading strategies of bilingual Latina/o students who are successful English readers: Opportunities and obstacles. *Reading Research Quarterly, 31*(1), 90–112.

Miccio, A., Tabors, P., Páez, M., Hammer, C., & Wagstaff, D. (in press). Vocabulary development in Spanish-speaking Head Start children of Puerto Rican descent. In J. Cohen, K. McAlister, K. Rolstad, & J. MacSwan (Eds.), *ISB4: Proceedings of the 4th International Symposium on Bilingualism*. Somerville, MA: Cascadilla Press.

Muter, V., & Diethelm, K. (2001). The contribution of phonological skills and letter knowledge to early reading development in a multilingual population. *Language Learning, 51*(2), 187–219.

Nagy, W. E., & Scott, J. (2000). Vocabulary processes. In M. L. Kamil, P. B. Mosenbach, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research, vol. III* (pp. 269–284). Mahwah, NJ: Erlbaum.

Nash, R. (1997). *NTC's dictionary of Spanish cognates thematically organized*. Lincolnwood, IL: NTC Publishing Group.

National Center for Education Statistics. (2003). *The Nation's report card*. Retrieved September 7, 2004 from http://nces.ed.gov/nationsreportcard.

National Center for Education Statistics. (2004). *The condition of education.* Retrieved July 16, 2004 from http://nces.ed.gov/programs/coe.

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: National Institute of Child Health and Human Development.

Odlin, T. (1989). *Language transfer: Cross-linguistic influences in language learning*. New York: Cambridge University Press.

Perez, E. (1981). Oral language competence improves reading skills of Mexican American third graders. *Reading Teacher, 35*(1), 24–27.

Stahl, S. (1999). *Vocabulary development*. Cambridge, MA: Brookline Books.

Stahl, S., & Clark, C. (1987). The effects of participatory expectations in classroom discussion on the learning of science vocabulary. *American Educational Research Journal, 24,* 541–556.

Stahl, S., & Fairbanks, M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research, 56,* 72–110.

Umbel, V. M., Pearson, B. Z., Fernandez, M. C., & Oller, D. K. (1992). Measuring bilingual children's receptive vocabularies. *Child Development, 63*(4), 1012–1020.

Vaughn-Shavuo, F. (1990). Using story grammar and language experience for improving recall and comprehension in the teaching of ESL to Spanish-dominant first-graders. Unpublished doctoral dissertation, Hofstra University, Hempstead, NY.

Verhallen, M., & Schoonen, R. (1993). Vocabulary knowledge of monolingual and bilingual children. *Applied Linguistics, 14,* 344–363.

Wang, M., & Geva, E. (2003). Spelling performance of Chinese ESL children: Lexical and visual-orthographic processes. *Applied Psycholinguistics, 24*(1), 1–25.

Woodcock, R. W. (1991). *Woodcock language proficiency battery-revised, English and Spanish forms*. Chicago: Riverside Publishing.

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