Intervention for English Learners With Developmental Language Disorder
Connecting to Classroom English Language Arts Curriculum Through Increasing Academic Vocabulary Skills

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There are increasing numbers of English learners (ELs) in American classrooms today. Some of them have developmental language disorder (DLD) and receive intervention in the school setting. It is ideal to provide intervention that supports bilingual development in both the first language (L1) and English. When providing therapy, speech–language pathologists can most benefit ELs with DLD by connecting therapy to the curriculum of the classroom, particularly focusing on Tier 2 academic classroom vocabulary. This article provides a scientifically-based description of how to teach English academic vocabulary most effectively to ELs with DLD. The article concludes with practical recommendations for methods and materials that can be used to support academic success for these students. **Key words:** *bilingual*, *Common Core State Standards*, *curriculum*, *developmental language disorder*, *English Language Arts*, *English learner*, *intervention*, *vocabulary*

IT IS A WELL-KNOWN FACT that the numbers of school-aged English learners (ELs) are increasing across the United States. The percentage of public school students in the United States who were ELs was higher in fall 2017 (10.1%, or 5.0 million students) than in fall 2000 (8.1%, or 3.8 million students; National Center for Education Statistics, 2020). Unfortunately, American

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schools are not providing adequate support for these students. Even typically developing ELs who do not have documented special needs may struggle academically in school (Fumero & Tibi, 2020). According to the U.S. Department of Education's National Center for Education Statistics (2020), only 9% of ELs nationwide met reading proficiency standards in fourth grade in 2017; 5% met reading proficiency standards in eighth grade that year. These percentages are based on how ELs are classified in the schools, in that children who persist in not acquiring English or who are more recent immigrants to the United States are counted as ELs. If ELs have developmental language disorder (DLD), it becomes even more challenging for them to access the curriculum of the classroom or to attain learning standards set forth by schools, districts, and states, especially the English language arts (ELA) standards, most of which are

part of the Common Core State Standards. The ELA standards emphasize oral and written academic language expression and comprehension.

Although achieving ELA standards requires development of skills in a variety of areas, this article focuses specifically on the acquisition of English academic vocabulary. Academic vocabulary refers to vocabulary words used in reading and writing that often represent abstract concepts and may have multiple meanings. Knowledge of these words is especially necessary as a foundation for success in inferencing and discourse processing (Rosa-Lugo et al., 2020). For ELs with DLD, how do we strengthen their English oral and literate academic vocabulary skills to increase their access to ELA classroom curriculum and meet learning standards? When EL students with DLD do not receive comprehensive services to help them access classroom curriculum and succeed academically, this has a negative impact on access to educational and vocational opportunities (Roseberry-McKibbin, 2022). Thus, this article discusses several important points:

1. A basic definition of DLD and its two primary components: limited language (i.e., vocabulary) knowledge and cognitive processing deficits.
2. Promoting the success of ELs with DLD in the achievement of the ELA standards expressed in the Common Core State Standards.
3. Using evidence-based strategies for developing the vocabulary skills of ELs with DLD, including supporting a bilingual approach to intervention, teaching content-area cognates, facilitating multiple exposures and active engagement in vocabulary teaching, teaching Tier 2 vocabulary words, and incorporating phonological awareness.
4. An example of a scientifically-based hierarchy for teaching Tier 2 vocabulary words to ELs with DLD, including practical therapy activities for promoting academic success.

DEVELOPMENTAL LANGUAGE DISORDER IN ENGLISH LEARNERS

Research has found that in students with DLD across language groups, there are two major areas of weakness: language knowledge and cognitive processing skills. Recent research has emphasized the need to strengthen cognitive processing skills in ELs with DLD as a foundation for increasing language knowledge (Kohnert et al., 2021). Cognitive processing skills that need to be strengthened are selective attention, processing speed (e.g., retrieval speed), and working memory (Delage & Frauenfelder, 2020; Fumero & Tibi, 2020; Guiberson & Rodriguez, 2020; Jackson et al., 2020; Park et al., 2020; Smolak et al., 2020). Improving cognitive processing skills can promote development of both the first language and English in EL students with DLD (Ebert et al., 2012; Ebert et al., 2014). In other words, it is important to strengthen the child's underlying learning system by improving working memory, processing speed, and selective attention as a foundation for building stronger language skills. This is true for bilingual as well as monolingual children.

For example, Park et al. (2020) examined processing speed in 8- to 12-year-old children with and without DLD; 35 were monolingual and 24 were bilingual. The subjects spoke Korean, Chinese, German, Bengali, French, Spanish, Albanian, Farsi, or Objibwe. Park et al. found that subjects with DLD showed slower processing time than typically developing subjects for nonlinguistic tasks (e.g., a visual choice reaction time task) and concluded that decreased processing speed especially affects vocabulary acquisition—children with DLD need more time to learn vocabulary and amass a lexicon because they are slower at processing information.

Other studies have examined the relationship between attention and impaired language processing in bilingual children with DLD (Ebert et al., 2019; Park et al., 2019). Park et al. (2019) concluded that both monolingual and bilingual children with DLD have

weak executive control skills, including difficulty with attention. Ebert et al. (2019) found that monolingual English-only children with DLD and bilingual Spanish–English children with DLD both showed difficulties with attention. Tasks used to measure attention included two nonlinguistic computerized assessments: a flanker task to measure attentional control and a continuous performance task to measure sustained attention. For the Spanish–English subjects, there was no evidence of a "bilingual cognitive advantage." Ebert et al. (2019) suggested that both monolingual and bilingual children with DLD exhibit subtle nonlinguistic deficits that are minimally affected by their diverse linguistic backgrounds. These attentional deficits can impact vocabulary learning because word acquisition is impeded and slowed due to poor attention.

Guiberson and Rodriguez (2020) described the use of working memory tasks as potential indicators of DLD in preschool Spanish–English–speaking children. Two groups of subjects were evaluated: One group was diagnosed with DLD, and the other (control) group was typically developing. Linguistic and working memory task data were collected from the children. Parents completed a vocabulary use checklist and they reported on their children's longest utterances. Results of the study showed that verbal working memory (i.e., nonword repetition) was associated with linguistic performance. The children with DLD had more difficulty with the verbal working memory task. Verbal working memory performance combined with vocabulary use scores resulted in 79% of cases correctly classified. Guiberson and Rodriguez concluded that verbal working memory tasks may be useful in identifying children with DLD if combined with other more robust linguistic measures.

One might infer from these studies (Ebert et al., 2019; Park et al., 2019, 2020) that it would be helpful to strengthen both language knowledge and cognitive processing skills (e.g., attention, processing speed, memory) when supporting the development of academic vocabulary in ELs with DLD. This would support these learners' success in achieving ELA standards at grade level and promote greater attainment of the Common Core State Standards in general.

COMMON CORE STATE STANDARDS: PROMOTING SUCCESS IN ACHIEVEMENT OF ENGLISH LANGUAGE ARTS STANDARDS IN AMERICAN SCHOOLS

The Common Core State Standards, enacted in 2010, have been adopted by 42 out of 50 states in the United States (several states adopted and then repealed the standards). The overarching goal is to prepare students to succeed in a 21st century, globally competitive society (Common Core State Standards Initiative, 2021). Although not all states use the Common Core State Standards, most states have ELA standards that target similar areas of knowledge and skills (World Population Review, 2020).

Requirements of today's ELA standards target three areas: (a) building knowledge through content-rich nonfiction, or expository (informational) text, (b) reading, writing, and speaking grounded in evidence from text, and (c) regular practice with complex texts and academic language. For ELs with DLD, to the greatest extent possible, they must have strong language knowledge and adequate cognitive processing skills to achieve ELA standards in U.S. schools. Speech–language pathologists (SLPs) must link all intervention activities, materials, goals, and outcomes to help students achieve success in ELA; a major component of this is increasing these students' academic vocabulary skills.

Some ELs know fewer English vocabulary words than monolingual English speakers, and they know less about the meaning of these words (Green et al., 2015). Wood et al. (2021) analyzed the vocabulary skills of typically developing ELs and several other populations; they discovered that these ELs were at risk for academic weakness in the area of vocabulary, using fewer academic words in their expository writing. The research

of Bialystok et al. (2010) established that bilingual children know fewer words in English than do comparable monolingual English speakers, especially when all the children are being educated in English at school. Thus, even typically developing ELs may need to accelerate their academic vocabulary learning just to catch up to monolingual English-speaking peers.

The need for vocabulary development is even more important for ELs with DLD. For example, the research of Sheng et al. (2012) with typically developing Spanish-speaking children and those with DLD showed that 65% of the DLD group had semantic deficits in comparison with 14% of typically developing students. Many bilingual children with DLD had sparsely linked semantic networks. For example, they had difficulty with giving precise definitions of vocabulary words, instead defining words in vague, general, and concrete ways, and not knowing any synonyms for vocabulary words that were in their lexicon (also see Mesa & Yeomans-Maldonado, 2019, 2021; Owens, 2020). Kan et al. (2020) studied preschool children with DLD who spoke Cantonese as an L1 and English as an L2, concluding that their vocabulary skills in Cantonese were lower than those of their typically developing peers. Because poor vocabulary knowledge impacts every area of academics, EL students with DLD who have cognitive processing problems and weak vocabulary skills are especially at risk for difficulties in accessing and being successful with the ELA curriculum. Thus, it is important to examine evidence-based strategies that have been shown to be successful in supporting vocabulary development in ELs with DLD.

EVIDENCE-BASED STRATEGIES FOR VOCABULARY DEVELOPMENT IN ELS WITH DLD

When considering evidence-based strategies that support ELs with DLD in acquiring academic vocabulary, SLPs can examine research that supports several areas that are critical to building vocabulary skills. These areas include (1) a bilingual approach to intervention, (2) teaching content-area cognates to link L1 and L2 learning, (3) facilitating multiple exposures to words and active engagement during learning, (4) teaching Tier 2 vocabulary words, and (5) strengthening phonological awareness skills.

Supporting a bilingual approach to intervention

Much research has emphasized the necessity of bilingual intervention to affect positive changes in the ability of students with DLD to communicate in both the first language and English (Cycyk & Huerta, 2020; Dam et al. 2020; Kohnert et al., 2021; Mendez & Simon-Cereijido, 2019; Mesa & Yeomans-Maldonado, 2019; Rosa-Lugo et al., 2020; Simon-Cereijido, 2015). Thus, even if SLPs are monolingual English speakers, it is critical to involve families in carryover activities at home to promote continued L1 development (Cycyk & Huerta, 2020). Bilingual paraprofessionals and other school personnel who speak students' first languages may be engaged to facilitate bilingual intervention to improve vocabulary skills in L1 along with English (Cycyk et al., 2021; Kohnert et al., 2021). One way to leverage L1 vocabulary skills to support the acquisition of English vocabulary is to teach content-area cognates.

Teaching content-area cognates

Researchers have recommended teaching content-area cognates if possible to support increasing language skills in EL students with DLD (Dam et al., 2020; Fumero & Tibi, 2020; Kohnert et al., 2021; Sheng et al., 2016; Squires et al., 2020). For example, many words in Spanish are quite similar to their English counterparts. Professionals can leverage students' Spanish skills as a foundation to teach new words in English. When teaching geometry to Spanish-speaking students, for example, professionals can use cognates such as angle (*ángulo*), triangle (*triángulo*), sphere (*esfera*), and parallel lines (*lineas paralelas*). A geography teacher can point out

such cognates as gulf (*golfo*), arid (*arido*), and volcanic (*volcanico*). In addition to teaching content-area cognates, SLPs can reinforce new vocabulary words through providing multiple exposures to words and active engagement in learning these new words.

Facilitating multiple exposures and active engagement in vocabulary teaching

For EL students with DLD, it is critical to teach vocabulary through *multiple exposures* to words and *active engagement* in learning these new words (Beck et al., 2013; Green et al., 2015). Storkel et al. (2017) stated that for children with language impairment, 36 exposures to a new word was ideal to promote word learning in order to accommodate working memory deficits. Although the research of Storkel et al. (2017) was conducted with monolingual children with DLD, one can infer that bilingual children with DLD might benefit from multiple exposures to new words as well. Table 1 provides a practical, research-based hierarchy of specific activities and ideas for providing multiple exposures to vocabulary words and promoting active engagement. Developing rich vocabulary skills positively impacts language expression more broadly (Dam et al., 2020; Tattersall et al., 2015). For example, one study found that larger L2 (English) vocabulary contributed to ELs' greater use of complex sentences (Paradis et al., 2017). It is ideal if Tier 2 vocabulary words are targeted in intervention.

Teaching Tier 2 vocabulary words

To incorporate the ELA standards into vocabulary intervention, experts today agree that "Tier 2" words should be targeted (Moore & Montgomery, 2018; Rosa-Lugo et al., 2020). Tier 1 words are the most basic, common words that many students acquire automatically from their environment (e.g., *clock*, *happy*, *play*). Tier 3 words are highly specialized, and the frequency of their use is low (e.g., *peninsula*, *isotope*, *radiation*). Tier 2

words are high-frequency words that are found across a variety of content domains (e.g., *measure*, *evaluate*, *fortunate*, *coincidence*, *similar*); instruction relating to the use of these words is most productive and efficient. There are many online resources to guide professionals to lists of appropriate Tier 2 words (Roseberry-McKibbin, 2015). For example, Coxhead (2021) has a comprehensive list that is available online (https://readingwise.com/blog/vocab-update-tier2-and-academic-word-list).

Professionals can increase active engagement with and support students' learning of Tier 2 words by connecting these new words with ones that students already know, thus building on students' prior knowledge. One way to accomplish this is through teaching synonyms. For example, if a student says, "I will look for my lunch box," the SLP might say, "You will search for your lunch box; *search for* means the same thing as *look for*." In another example, if a student says, "I have to do my homework," the SLP might say, "You are *required* to do your homework." In yet another example, if a student says, "I feel lucky that I got to go to Disneyland," the professional can say, "Oh, you feel *fortunate* that you got to go to Disneyland. *Fortunate* is a more sophisticated word for lucky."

It also is important to teach students vocabulary words that are critical for following directions, completing assignments, and understanding the content of subject matter emphasized within the classroom. For example, students need to understand words such as *beforehand*, *afterward*, and *following*. Standardized tests of academic achievement often use words such as *compare*, *contrast*, *define*, *describe*, and *enumerate*. Professionals need to ensure that students understand exactly what these words mean and that they can answer test questions accurately when these words are used.

Another strategy for teaching Tier 2 vocabulary words to ELs with DLD is to use curriculum materials from the classroom in intervention activities (Green et al., 2015; Roseberry-McKibbin, 2022; Ukrainetz, 2017).

Table 1. Teaching vocabulary hierarchy for English learners with developmental language disorder

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Annual goal: The student will demonstrate increased receptive and expressive knowledge of Tier 2 vocabulary words.

Short-term objective 1:
When the clinician verbally presents Tier 2 target vocabulary words, the student will point to the pictures of these words with 80% accuracy.
Clinician: "Marisol, point to *increase.*"
Student: Points to a picture of something getting bigger or larger.

Short-term objective 2:
When the clinician holds up a picture and says, "Does this picture show something increasing?," the student will verbally or nonverbally indicate *yes* or *no* with 80% accuracy.
Clinician: "Does this picture show something increasing?"
Student: Verbally or nonverbally indicates *yes* or *no*.

Short-term objective 3:
When the clinician gives a one- to two-sentence verbal description of a target word/concept and provides the student with two choices, the student will verbally supply the correct answer with 80% accuracy.
Clinician: "Listen. This word means that something is getting bigger or larger. Is it *decreasing* or *increasing?*"
Student: "Increasing."

Short-term objective 4:
When shown pictures of target Tier 2 vocabulary words, the student will give verbal, one-word labels with 80% accuracy.
Clinician: (shows a picture) "Anak, what's this doing?"
Student: "Increasing."

Short-term objective 5:
When asked to define a target vocabulary word, the student will give a 5+ word verbal description with 80% accuracy.
Clinician: "Mario, what does *increase* mean?"
Student: "Increase means that something gets bigger or larger—like you have more of it."

Short-term objective 6:
When given a Tier 2 target vocabulary word, the student will use the word in a sentence with 80% accuracy.
Clinician: "Carlo, please use the word *increase* in a sentence."
Student: "My father is getting an increase in his pay this year."

Short-term objective 7:
When presented with a paragraph or word list containing the target vocabulary word, the student will find and read the word out loud with 80% accuracy.
Clinician: "Josefina, look at this story. Please find the word *increase* and read the word to me after you find it."
Student: Finds the word *increase* and reads it aloud.

Short-term objective 8:
When asked to spell a target vocabulary word, the student will spell the word out loud with 80% accuracy.
Clinician: "Jaime, please spell the word *increase.*"
Student: Spells the word aloud.   (*continues*)

Table 1. Teaching vocabulary hierarchy for English learners with developmental language disorder (*Continued*)

Short-term objective 9:

When given a target vocabulary word, the student will write a sentence containing the word with 80% accuracy.

Clinician: "Estera, please write a sentence using the word *increase*."

Student: Writes a sentence containing the word *increase.*

Short-term objective 10:

With 80% accuracy, the student will count the number of words in a sentence that he has written or in a sentence that is prewritten that contains the target vocabulary word (e.g., a sentence using the word *increase*).

Clinician: "Look, Carla, please count how many words there are in this sentence."

Student: (counts the number of words)

Short-term objective 11:

When given a target vocabulary word, the student will identify the number of syllables in the word with 80% accuracy.

Clinician: "Nina, how many syllables are in the word *increase*?"

Student: "Two."

Short-term objective 12:

When given a target vocabulary word, the student will identify the number of sounds in the word with 80% accuracy.

Clinician: "Emilio, how many sounds are in the word *increase*?"

Student: "Six."

Short-term objective 13:

When given a target vocabulary word and asked to supply a word that rhymes with it, the student will do so with 80% accuracy.

Clinician: "Francisco, can you give me a word that rhymes with increase?"

Student: "Decrease."

Short-term objective 14:

When the student hears the SLP say a target vocabulary word phoneme by phoneme, the student will demonstrate word-blending skills by stating the whole word with 80% accuracy.

Clinician: "Montero, what word is this? I-n-c-r-ea-se."

Student: "Increase."

Short-term objective 15:

When given a target vocabulary word, the student will identify the first sound in that word with 80% accuracy.

Clinician: "Listen, Michaela, *increase*. What is the first sound in that word?"

Student: "(short) I."

Short-term objective 16:

When given a target vocabulary word, the student will identify the last sound in that word with 80% accuracy.

Clinician: "Listen, Viktor, *increase*. What is the last sound in that word?"

Student: "S."

For example, as a practicing part-time itinerant public school SLP, the author sometimes asks students to bring their ELA textbooks to their therapy sessions. We use the current passage or selection they are reading to target Tier 2 vocabulary, reading comprehension, and phonological awareness, among other skills.

Incorporating phonological awareness

Because of the reciprocal nature of vocabulary and phonological awareness skills (Einarsdottir et al., 2016; Goldstein et al., 2017; Rosa-Lugo et al., 2020), EL students with DLD also may need activities to stimulate the development of phonological awareness to support building vocabulary knowledge (Lonigan, 2007; McGregor & Duff, 2015). This reciprocity exists because items stored in the lexicon are represented in their phonological forms; thus, stronger phonological awareness increases the strength of those representations, whereas more vocabulary words in the lexicon press the need for more precise levels of phonological awareness. Phonological awareness can be defined as the ability to reflect on and consciously manipulate the sound system of a language. Phonological awareness is related to spelling, reading, and writing achievement (Kohnert et al., 2021; Paradis et al., 2021; Pratt et al., 2020; Soto et al., 2020). Participating in activities to build phonological awareness help these students perform more successfully in the classroom (Goldstein et al., 2017; Westernoff et al., 2021). This is true for monolingual English-speaking students, and some recent studies have shown that bilingual students also can benefit from participating in activities to build phonological awareness skills.

For example, Einarsdottir et al. (2016) carried out a longitudinal study in Iceland with 267 Icelandic-speaking subjects. The subjects' phonological awareness skills were tested initially when they were between 5;4 and 5;10 years of age. The researchers contacted these subjects when they were 18–19 years of age and gained permission to view their performance on national tests of Icelandic language proficiency and math achievement administered in 4th, 7th, and 10th grades. Einarsdottir et al. found that subjects' phonological awareness test scores at 5 years strongly correlated at every grade (4, 7, and 10) with math and Icelandic language achievement (including vocabulary). The researchers concluded that early intervention for deficits in phonological awareness skills is crucial for later academic success, which includes grade-level knowledge of academic vocabulary.

To promote the growth of phonological awareness skills in ELs with DLD, SLPs can have students do the following (Einarsdottir et al., 2016; Goldstein et al., 2017; Lonigan, 2007; McGregor & Duff, 2015; Roseberry-McKibbin, 2022):

1. Count the number of words in a spoken sentence, the number of syllables in a spoken word, and the number of sounds in a spoken word.
2. Isolate and pronounce the rime, onset, and coda portions of spoken words.
3. Use sound blending to form whole words from individually presented sounds (e.g., "d-o-g; what is that?").

There are many other phonological awareness skills that SLPs can target, but the skills listed previously can serve as a good foundation for helping ELs with DLD learn Tier 2 words. These phonological awareness activities can be incorporated into a vocabulary teaching hierarchy that is evidence-based, practical, and effective for improving the vocabulary skills of ELs with DLD.

A SCIENTIFICALLY-BASED HIERARCHY FOR TEACHING TIER 2 VOCABULARY WORDS

A vocabulary teaching hierarchy, presented in Table 1, summarizes a process for teaching Tier 2 vocabulary words to EL students with DLD. This hierarchy incorporates several principles that research has shown to be ideal for supporting ELs with DLD. First, the hierarchy addresses cognitive weaknesses in working memory, processing speed, and attention that have been cited in the research (Delage & Frauenfelder, 2020; Fumero & Tibi, 2020; Guiberson & Rodriguez, 2020; Jackson et al., 2020; Park et al., 2020; Smolak et al., 2020). These cognitive weaknesses can be addressed through multiple exposures to and active engagement with the word to promote deeper learning and improved retention.

Second, the hierarchy incorporates phonological awareness activities because there is a strong reciprocal relationship between phonological awareness and vocabulary skills as noted earlier. Third, the hierarchy begins with having EL students with DLD demonstrate receptive vocabulary knowledge before expressive knowledge. It is documented that in the early stages of learning an L2, some students may go through a "silent period" where they do little to no speaking and, instead, focus on comprehension of the L2 (Bligh & Drury, 2015; Jung et al., 2017; The Education Alliance, 2021). Although not all students go through a silent period, some do. Thus, the hierarchy of objectives given in Table 1 starts with receptive learning of new vocabulary that does not pressure students to begin talking immediately but gradually builds to include more and more complex verbal answers as a student progresses through the hierarchy. The specific, measurable objectives described in Table 1 can be used by SLPs in various settings, including the public schools.

Clearly, using the hierarchy in Table 1 to teach Tier 2 curriculum vocabulary promotes phonological awareness and deep knowledge of word definitions through multiple exposures and active engagement. As previously stated, this is helpful for ELs with DLD because it strengthens memory for new vocabulary words. Continually repeating new words in new contexts can improve attention to the words and help students retrieve them more quickly.

SUMMARY AND CONCLUSION

The increasing number of EL students in America's schools demands that professionals attend to their academic and learning needs. Statistics show that some typically developing ELs in American schools are not attaining grade-level achievement in reading. For EL students with DLD, the situation is even more challenging: They have limited language knowledge as well as cognitive deficits in the areas of working memory, speed of processing, and attention. To improve educational outcomes for these students, this tutorial has focused on methods for improving academic vocabulary skills for increased curricular access to and success with ELA standards, including those of the Common Core. Suggestions have been given for a bilingual approach to therapy that supports both L1 and English. Practical, evidence-based suggestions have been offered to help support these students through enriching and building their knowledge and use of Tier 2 academic vocabulary.

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