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Cross-Linguistic Universals in Reading Acquisition with Applications to English-Language Learners with Reading Disabilities

Brenda K. Gorman, Ph.D.[1]

ABSTRACT

There is a considerable gap in English reading achievement between English-language learners and native speakers in the United States. Differentiation of whether English language learners' struggles are symptomatic of reading disability or related to second language acquisition is often challenging. These issues highlight the need for increased insight into reading development and disability in this population. The purpose of this article is to provide an overview of cross-linguistic universals in reading acquisition, how reading disabilities manifest in various languages, and whether diagnostic and instructional approaches that are effective for native English speakers are also appropriate for English-language learners. Recommendations for assessment and intervention practices for at-risk and reading-disabled English-language learners are provided.

KEYWORDS: Reading, reading disability, cross-linguistic, English language learners

Learning Outcomes: As a result of this activity, the reader will be able to (1) discuss core skills that are critical for reading acquisition across languages, (2) evaluate how unique characteristics of a particular language may influence reading development, (3) list three skills that distinguish average from poor readers who are English language learners, and (4) describe strategies for tailoring reading intervention to build on strengths and meet the needs of English-language learners.

IMPORTANCE OF READING

Reading is an extraordinary, vital skill. The consequences of limited reading proficiency are grave; academic success is limited, employment opportunities are fewer, financial survival is more difficult, and full participation in soci-

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ety is challenging. For many, learning to read does not come easily. According to the National Center for Education Statistics,[1] 33% of fourth graders and 26% of eighth graders in the United States are reading below the basic proficiency level. Statistics for English language learners (ELLs) are even more disconcerting, with 70% of fourth grade and 71% of eighth grade ELLs reading below the basic proficiency level. ELLs currently represent ~10% of school-age children in the United States, and it is estimated that this percentage will increase to more than 30% by 2010.[2,3] This projection highlights the critical need for increased insight into reading development and disability on this population.

In the United States, where monolinguals constitute the majority, ELLs' academic difficulties are often attributed to bilingualism. However, the majority of the world population speaks more than one language, and the educational experience of successful learners in many countries involves two or more languages.[4] The achievement gap that plagues the United States is most likely a multifaceted problem related to linguistic, socioeconomic, political, sociocultural, and individual factors, as well as to limited teacher training in working with diverse children,[5,6] and to limited research to guide best assessment and instructional practices for ELLs.[7]

Issues

Reading disabilities (RDs) may manifest as difficulty with word decoding, fluency, and/or reading comprehension. A perplexing task for educators and clinicians is that of distinguishing whether the source of ELLs' reading difficulties is limited language proficiency or true reading disability. ELLs currently appear to be under-represented in special education, with 9% of ELLs receiving special education services compared with 13% of all public school students in grades K through 12.[6,8] Closer examination of these data reveals that this representation varies, with a tendency toward higher percentages of ELLs in special education in urban areas and lower percentages in rural areas.[9] Also noteworthy is that ELLs appear to be over-represented in particular categories of special education, including speech-language impairment, mental retardation, and emotional disturbance, yet under-represented in the category of reading disability. Consequently, a wait-and-see approach has resulted in a significant discrepancy in the promptness with which ELLs are identified and referred for reading services. Whereas English speakers are generally identified as having reading disabilities in second or third grade, ELLs are often not identified until fourth or fifth grade,[6] which results in prolonged academic struggle and delayed intervention.

Hundreds of languages are spoken by ELL students in the United States The top five languages are Spanish (79% of ELLs), Vietnamese (1.95%), Hmong (1.56%), Cantonese (1.02%), and Korean (0.97%).[10] Given the variety of languages that our ELL population represents, some of the key questions related to reading in ELLs include: Are the precursors of successful reading the same across languages? Do reading disabilities manifest in similar ways across languages? Are assessment and intervention methods that are appropriate for English speakers also appropriate for ELLs? The purpose of this article is to summarize cross-linguistic universals and differences in reading acquisition and to discuss recommended assessment and instructional practices for at-risk and reading-disabled ELL students.

Universal Building Blocks for Reading Development

The National Reading Panel has identified five major building blocks of successful reading acquisition in English: phonemic awareness, phonics, vocabulary, fluency, and reading comprehension.[11] Current research indicates that there are both similarities and differences in the process of learning to read in various languages. The latter three building blocks are clearly important for reading in any language. Due to the different writing systems that exist (e.g., alphabetic systems such as English, logographic systems such as Chinese), researchers have questioned the cross-linguistic importance of phonological awareness and phonics.

PHONOLOGICAL AWARENESS

Across alphabetic languages, converging evidence indicates that phonological awareness is indeed a critical skill for reading acquisition, although the relevance of specific tasks and stimuli may vary by language.[12–15] The sequence of phonological awareness development also appears to be consistent, with a progression from syllable awareness, to onset-rime awareness, followed by phoneme awareness.[16]

In nonalphabetic languages, the importance of phonological awareness in learning to read is less clear. For example, several researchers have explored phonological awareness in children learning to read Chinese. One study with third graders indicated that visual processing skills, as opposed to phonological awareness, correlated with reading performance,[17] whereas other research conducted with first graders has indicated that phonological awareness, as opposed to visual processing skills, correlated with reading in Chinese.[18,19] Siok and Fletcher[20] investigated students in the first through fifth grades learning to read in Chinese and found that onset-rime awareness, not phonemic awareness, correlated with reading skills. The authors attributed this finding to the fact that Chinese characters map onto monosyllabic morphemes, which may be characterized as onset rimes. Looking across grade levels, they found that visual processing skills predicted reading in early grades, whereas onset rime and reading were more highly correlated in later grades. In summary, phonological awareness appears to play a role in Chinese reading acquisition, particularly in later grades.

PHONICS

Phonics refers to knowledge of letter-sound correspondences. By this definition, phonics skills are applicable to reading alphabetic languages. It appears that children's ability to master phonics is related to the orthographic consistency and phonological structure of a particular language. In transparent orthographies, letter-sound correspondences are consistent. For example, languages such as Spanish, Italian, Greek, and Finnish are considered to have transparent orthographies because there is nearly a one-to-one correspondence between letters and their sounds. In addition, Spanish and Italian have a relatively simple syllabic structure, with predominantly open consonant-vowel syllables. These features appear to facilitate children's letter-sound mappings, which then promote rapid achievement of word decoding.[21] Other languages, such as German, have regular orthographies but more complex syllable structures. Consequently, mastering phonics in such a language is thought to be somewhat more difficult than in Spanish or Italian, yet still easier than in languages with opaque orthographies, such as English, French, and Portuguese. These features may result in different rates of phonics mastery and adoption of different word attack strategies. Children learning to read in a language with both an opaque orthography and a complex syllable structure, such as English, are likely to have the greatest difficulty breaking the code.[21]

Universal Characteristics of Reading Disability

The exact causes of reading disabilities remain speculative. Research consistently points to phonological processing as the primary neurological underpinning of dyslexia across languages,[21,22] yet there may be cross-linguistic differences in its manifestation. The principles of orthographic consistency and phonological complexity also provide insight into how RDs may manifest in various languages. For example, children with RD who are learning to read opaque orthographies may display more significant decoding difficulties than their peers who are learning to read transparent orthographies. Reading *accuracy* appears to distinguish dyslexics from normal readers in English. However, accuracy of word reading is not particularly symptomatic of dyslexics in transparent orthographies such as Spanish; more informative measures in these languages are reading *speed* and accuracy of nonword reading.[23–26] Because many Spanish-speaking ELLs in the United States enroll in bilingual education and initially learn to read in Spanish, such differences in manifestation may explain, in part, why ELLs with reading difficulties are often identified later than their English-speaking peers.

Reading Development and Disorders in English Language Learners

A recurrent finding in research with second-language learners is that skills in children's first language (L1) often transfer to their second language (L2). A nice review of this literature by Restrepo and Gray[27] can be found in a recent issue of *Seminars in Speech and Language*. According to Cummins'[28] *linguistic interdependence hypothesis*, children with strong language and literacy skills in L1 are more likely to develop strong language and literacy skills in L2. In contrast, the *script-dependent hypothesis* contends that the neural pathways for reading are not interdependent, but rather language-specific[29]; therefore, whether transfer occurs between the languages depends on the similarity between their orthographies and phoneme-grapheme correspondences. Some languages, such as English and Spanish, share a similar orthography and have many similarities in their phoneme-grapheme correspondences. Consequently, according to the script-dependent hypothesis, a reader's knowledge of the alphabet in Spanish is likely to transfer to English. In addition, a child who has difficulty learning to read in Spanish is also likely to have difficulty learning to read in English. When the two systems are different, this model suggests that a child may display reading difficulties in one language but not in the other. For example, a child who learns to read Chinese characters successfully may display word decoding difficulties in English. Current research provides supporting evidence for both the interdependence hypothesis and the script-dependent hypothesis.[30]

Overall, knowledge of how reading disabilities may manifest in various languages and familiarity with these hypotheses will help the clinician recognize patterns of transfer and analyze ELL students' difficulties during the assessment process.

ASSESSMENT AND DIAGNOSIS

The traditional method for diagnosing reading disabilities has been based on standardized assessments that reveal a significant discrepancy between IQ and reading achievement. However, this discrepancy model has received a great deal of criticism in light of research that has uncovered significant problems with the validity of this model.[31,32] For culturally and linguistically diverse children, there are concerns with the appropriateness of standardized tests on which discrepancy criteria are based.[33]

Fortunately, many professionals are calling for more effective approaches to assess and diagnose reading disabilities. Unfortunately, there is no current consensus on what these more valid methods are. Alternative models that have been proposed include identification based on impairment of specific underlying processes,[34] children's poor academic achievement,[35] and inadequate response to intervention.[36] Admittedly, these methods are not without limitations, but they merit further investigation. Ultimately, the utility of these methods for linguistically diverse learners will depend on our deeper understanding of similarities and differences in how reading disabilities manifest in various languages.

Impairments of Specific Underlying Processes

For native English speakers, curriculum-based measures such as alphabet knowledge, word reading, spelling, vocabulary, syntactic awareness, and reading comprehension distinguish normal readers from their peers with RD. Phonological processing, working memory, and rapid naming tasks that are designed to tap into specific underlying processes also appear to be indicative of RD across both alphabetic and nonalphabetic languages.[30,37–39] Some tasks appear to be more informative at particular grade levels than others. Phonological processing deficits appear to be the most robust diagnostic indicator across grade levels. Researchers have proposed that phonological deficits may also account for the other deficits, such as in syntactic processing or comprehension, often observed in children with RD.[40]

SKILLS THAT DIFFERENTIATE AVERAGE READERS FROM AT-RISK AND READING-DISABLED ELLs

Research conducted with kindergarten and first-grade ELLs from various language

backgrounds has indicated that phonological processing measures differentiate normal from at-risk ELL readers.[38,41,42] Letter identification at the end of kindergarten or beginning of first grade may also indicate who is likely to display persistent reading difficulties.[7] There is some uncertainty regarding the utility of working memory and syntactic awareness, as measured by oral cloze tasks, for distinguishing young normal and at-risk ELLs in kindergarten.[38] Alternatively, nonword repetition is a short-term memory task proposed to tap into a cognitive process underlying both phonological awareness and vocabulary development that is recommended for evaluating younger children.[43,44]

Siegel and her colleagues have conducted numerous investigations of reading disability in ELLs representing many languages in Canada. In these studies, participants were deemed to have attained English proficiency, and assessment measures were administered in English. For second-grade ELLs, phonological processing and word reading were particularly robust indicators of RD. Lesaux and Siegel[38] found that word reading, phonological processing, and oral cloze tasks differentiated average second-grade readers from those with RD. Working memory for numbers, not working memory for words, was also indicative of reading skill in this sample. Looking at third and fourth graders, Lesaux, Rupp, and Siegel[39] found that most measures predictive of word reading and reading comprehension in monolinguals were also predictive for ELLs. Da Fontoura and Siegel[45] examined Portuguese-English speakers in fourth through sixth grades and found that poor readers had similar difficulties in the two languages. Specifically, they displayed significant difficulty on word reading, pseudoword reading, and spelling tasks, with somewhat less severe difficulty on syntactic awareness and working memory tasks in both languages. Similarly, D'Angiulli, Siegel, and Serra[30] examined Italian-English speakers in fourth through eighth grades and found that poor readers displayed difficulties on both phonological processing tasks and, to a lesser extent, syntactic awareness tasks in both languages. Abu-Rabia and Siegel[46] found that phonological awareness, working memory, and syntactic awareness deficits were characteristic of Arabic-English speakers with RD. Overall, these studies suggest that indicators of RD in native English speakers are also effective for ELLs, with deficits in phonological processing emerging as the most consistent indicator across grade levels and languages (Table 1).

Table 1 Cross-Linguistic Indicators of Reading Disability

- Phonological processing deficits appear to be the most robust diagnostic indicators of RD across languages and grade levels.
- In addition to word reading, working memory, syntactic awareness, and rapid naming measures also contribute to identification of RD.
- Of skills measured in kindergarten, the single best predictor of ELLs' word reading and reading comprehension skills in later grades appears to be phonological processing skills, followed by letter identification.

Note: Oral language proficiency in English is not a reliable predictor of ELLs' reading ability.
RDs, reading disabilities; ELLs, English-language learners.

Cautious interpretation of these conclusions and applications to ELLs in the United States is recommended for numerous reasons. The primary language of instruction for these children in these studies was English, and many attended daily native language classes through Canada's Heritage Language Programs. Limited background information on the participants' language proficiency and home experiences was provided. Furthermore, the Canadian participants were from middle class backgrounds. In contrast with Canada, the majority of ELLs in the United States come from disadvantaged backgrounds,[47,48] and the relationship between socioeconomic status and literacy achievement is well-established. Therefore, although current research suggests that phonological awareness, working memory, and syntactic awareness measures can be used to diagnose RD in both native English speakers and ELLs, further investigation is warranted.

MEASURES ADMINISTERED IN KINDERGARTEN THAT PREDICT LATER READING ACHIEVEMENT

In one large study, Lesaux and Siegel[38] found that the single best predictor of ELLs' word reading and reading comprehension skills in second grade was their phonological processing skills as measured in kindergarten. The second most predictive measure was letter identification. Although predictive for native English speakers, rapid naming and oral cloze skills were not significant predictors of the second-grade ELL students' reading or reading comprehension in this study. Lesaux, Rupp, and Siegel[39] reported that ELLs' performance in kindergarten on letter identification, rhyme detection, phoneme deletion, and working memory best predicted their word reading skills in fourth grade. Interestingly, they found that word reading skills in kindergarten were not predictive of reading growth. Similarly, kindergartners' abilities on letter identification, rhyme detection, working memory, and oral cloze tasks were significant predictors of fourth-grade reading comprehension.

Poor Academic Achievement

Poor academic achievement has been suggested as another alternative approach to identifying children with RD.[35] For ELLs, it is often challenging to differentiate whether academic struggles are symptomatic of a true learning disability or to limited English proficiency. It has been reported that educators frequently underestimate ELLs' reading ability because of limited English language proficiency.[49] English proficiency, however, is not a reliable predictor of ELLs' reading ability. Moreover, comparison to native English speakers is not an appropriate method of identifying ELLs at risk for RD.

Some studies have indicated lower performance of ELLs than of native English speakers on language-based measures such as phonological awareness, nonword repetition, syntactic awareness as measured by oral cloze tasks, working memory, and rapid naming, particularly for the younger children in earlier stages of English acquisition.[38,39] With effective instruction, however, ELLs have been found to achieve similar or even higher performance than their monolingual peers on several tasks such as phonological awareness, word and pseudoword reading, rapid naming, and spelling.[30,38,39,46,47,50,51] Such advantages may be related to positive transfer of skills from a more transparent language than English or to the possibility that exposure to multiple phonological systems may enhance children's metalinguistic skills, yielding a positive effect of bilingualism on literacy acquisition.

In terms of reading comprehension, there are mixed findings. Some studies have indicated that ELLs continue to display lower reading comprehension than their monolingual peers,[52,53] whereas other research has shown that ELLs who have received high-quality, balanced reading instruction catch up to their monolingual peers by fourth grade.[39] Such differences in the research may be explained by various factors such as differences in socioeconomic status, quality of schools, and quality of literacy instruction.

Overall, there is solid evidence that ELLs' reading achievement is not predetermined by their level of English proficiency upon entering kindergarten. In fact, phonological processing in early elementary grades appears to be a better predictor of word reading than language proficiency in either L1 or L2.[49,54]

Other educators frequently attribute observed reading difficulties to limited English proficiency and, thus, wait until children have acquired more English before further probing their reading skills.[49] Such an approach contributes to underidentification and delayed remediation for children who do indeed need services. As an alternative to this wait-and-see approach, phonological awareness, working memory, and nonword repetition measures discussed previously may facilitate early identification of at-risk ELLs, as may additional warning signs.

THE IMPORTANCE OF RECOGNIZING EARLY WARNING SIGNS

It is essential that speech-language pathologists (SLPs) take a proactive role in prevention and early identification of young children who, even before receiving formal reading instruction, are at risk for reading difficulties.[55] For many young children with speech-language deficits, an RD

Table 2 Early Warning Signs of Reading Disability in English-Language Learners

- History of speech/language delay or impairment in the native language
- Communication difficulties at home
- Significant family history of learning disability/reading disability
- Difficulty developing literacy skills in the native language despite instruction
- Limited progress compared with similar peers despite high-quality intervention

is an impairment "waiting to happen."[56,57] It is important for SLPs to understand that this increased risk for an RD is not defined by whether a child meets a particular school district's eligibility criteria for speech-language services. Some children's problems will be severe enough to qualify them for traditional services. Other children's speech and language deficits will not be severe enough to qualify them for services, yet they are still predictive of future reading difficulties.[58] In these cases, it is a great disservice to these at-risk children to wait until they fail to intervene. Alternatively, clinicians can recommend or provide non-special education types of school and home support to promote improved speech, language, phonological awareness, and narrative skills to prevent later struggles.[58] Clinicians can also investigate whether children display additional warning signs of RD (Table 2).[7,59]

GENERAL ASSESSMENT RECOMMENDATIONS

At the National Symposium on Learning Disabilities in English Language Learners, Cheng recommends a four-step process called RIOT, which uses a team approach for the assessment of ELLs.[7] The first step involves a thorough collection and *review* of all relevant documents and student background information. This includes consideration of the student's proficiency in L1 and L2, the quality of home language support, and the types and quality of current and previous classroom instruction, family and developmental history, and influential cultural factors.[59] Next, the team should conduct *interviews* with the student's teachers, peers, family members, and other informants as necessary to determine how the child is functioning in school and home environments. The next two steps involve thorough probing of the student's phonemic awareness, phonics, vocabulary, fluency, and reading comprehension, as age-appropriate. Third, the team should *observe* the student in multiple contexts using a variety of measures such as performance checklists, work samples, language samples, and criterion-referenced measures. The fourth step involves *testing*, which may include use of standardized tests if they are valid and reliable for the student, with test modifications as necessary.

Assessment should be conducted in both the native language and the language of instruction to rule out other possible causes of the child's difficulty and to reduce the risk of misdiagnosis. Although several formal assessments of language and literacy are available in Spanish, school districts may have ELL students representing dozens of different languages, and, unfortunately, no formal assessments may be available for some of these languages. In this case, observation and alternative assessment methods are necessary. Overall, a variety of assessment measures will yield more accurate information than any one source alone.[7]

RESPONSE TO INTERVENTION

A third and increasingly popular alternative for identifying learning disabilities in both monolinguals and ELLs is Response to Intervention (RTI). This approach is useful in helping evaluation teams rule out poor instruction as a contributing factor to the child's difficulties. As opposed to traditional models of referral to special education, RTI helps educators identify and support at-risk children before they fail. This assessment model may be a less culturally and linguistically biased means of identifying children in need, may expedite provision of intervention, and can be used to strategize effective instruction. Currently, there are two general versions of RTI: the "problem-solving" approach and the "standard-protocol" approach.[60]

The problem-solving approach involves identifying a student's problem, analyzing the problem, devising and implementing an intervention plan, evaluating the student's response, and modifying the intervention as deemed

Table 3 Recommendations for Reading Intervention with English Language Learners

Successful interventions integrate the five building blocks of reading by first grade.

1. The **phonological awareness** component:
   - is best initiated during preschool years to prevent later reading difficulties.
   - is often necessary for older ELLs.
   - involves print.
2. The **phonics** component:
   - includes systematic instruction of letter-sound correspondence rules and patterns.
   - extends to application of skills during meaningful reading and writing tasks.
3. The **vocabulary** component:
   - includes teaching of Tier 2 words and monitoring/teaching of Tier 1 words in English as needed.
   - promotes cognate awareness to enhance English reading comprehension.
   - provides multiple opportunities to review and reinforce word knowledge.
   - focuses on both breadth and depth of word knowledge.
4. The **fluency** component involves strategies such as:
   - reading in unison with an adult, peer, or audiotape.
   - echo reading/reading in imitation.
   - readers' theater.
5. The **reading comprehension** component involves strategies such as:
   - browsing the story before reading to activate prior knowledge and make predictions.
   - preteaching vocabulary.
   - setting a purpose for reading.
   - identifying cognates.
   - making inferences.
   - confirming/disconfirming predictions.
   - story retelling/summarizing/paraphrasing using content webs and writing activities.

necessary. An advantage of the problem-solving approach is its individualization. One disadvantage is the potential subjectivity in identification of at-risk status. Teacher nominations and rating scales have been found to have low sensitivity in identifying students who are at risk for reading disability, with over-reliance on English language proficiency as an indicator in ELLs.[49] Other disadvantages of this approach are that solutions are generally based on trial and error, and interventions may not be evidence based.

In contrast, the standard-protocol approach to RTI entails delivery of the same evidence-based intervention to all children displaying similar struggles. Advantages of this approach relate to the ease of training interventionists, the greater quality control of intervention, and the greater evidence base for the effectiveness of the RTI approach. A disadvantage of this approach is that, although some information is available for evidence-based intervention for children in grades K through 3, scant information is available for other grade levels.[60] Both RTI models suffer from the challenge of establishing expected levels of child responsiveness and require a stronger evidence base to establish the best practices for ELLs.[61,62]

INTERVENTION

There are several evidence-based guidelines that monolingual and bilingual clinicians can follow when providing reading intervention for ELL students. Converging evidence indicates that successful interventions follow a systematic, balanced approach that combines both explicit teaching and contextualized practice. These interventions are intense (e.g., 30 minutes or more per day) and are delivered individually or in small groups. By first grade, these interventions integrate phonemic awareness, phonics, word decoding, fluency, reading comprehension, and writing (Table 3).[11,61–65]

Phonological Awareness

Phonological awareness (PA) intervention is best initiated during preschool years to prevent later reading difficulties.[11] The PA approach may also be a necessary component of remediation for older ELLs.[66] Instruction using a variety of engaging activities that target one or two PA skills appears to yield better gains than instruction that targets more skills. Because PA is a means to help children learn to read and write, outcomes are enhanced when instruction incorporates written letters. As appropriate,

intervention should reinforce children's application of PA skills to reading and writing tasks. For example, Vaughn and colleagues[61,62] designed reading interventions for first-grade Spanish-speaking ELLs. Teaching progressed from initial sound identification and isolation to final and medial sound identification and isolation. Children practiced phoneme blending and segmenting of one-syllable words, and gradually included words containing consonant clusters. Children were expected to put this knowledge to use by reading and spelling words containing the teaching targets.

Phonics

Effective phonics instruction involves systematic and explicit instruction of letter-sound correspondence rules and patterns.[48,61,62,67] Intervention should target consonants, long vowels, and short vowels, and possibly sound discrimination of phonemes that are not in the ELL student's repertoire. Both native speakers and ELLs with reading difficulties will likely need explicit teaching in how English letters can represent more than one sound and how sounds can be represented by single letters or letter groups.[68] Struggling readers often have difficulty learning consonant digraphs (ch, sh, th, gh), vowel digraphs (ea, ei, oi, ou), common initial word blends (br, sm), and stems (-ake, -ell, -ing). Thus, careful attention to these patterns is needed. As with phonological awareness instruction, phonics instruction should extend to application of skills during meaningful reading and writing tasks. To promote rapid and successful word recognition, Vaughn and colleagues'[61,62] interventions for first-grade ELLs prioritized high-frequency letter-sound correspondences and patterns found in high-frequency sight words. Subsequent word reading tasks built on letter-sound correspondences that were previously practiced, with gradual introduction of new correspondences. Children in the English intervention initially decoded words using a sounding out strategy, beginning with closed syllable words (e.g., bat, can, pen), followed by words containing open syllables (e.g., ta-ble, ze-ro, mu-sic), R-controlled syllables (e.g., her, first, turn), E-controlled syllables (e.g., twin/twine, cut/cute, mad/made), consonant -LE syllables (e.g., ap-ple, puz-zle), and vowel teams (e.g., ai, ea, ey, oi, oo, ou). Due to the syllabic nature of Spanish, learning to read consonant-vowel syllables promotes rapid word reading skills in Spanish. Therefore, the Spanish intervention differed from the English intervention somewhat by including a speeded syllable reading component following the phonics instruction. This illustrates how the unique phonological and orthographic characteristics of a particular language may influence mastery of phonics and word attack strategies.[13]

Vocabulary

Vocabulary instruction is likely an area of high priority for ELLs with RD, as ELLs may have additional challenges related to learning English vocabulary.[69] August and colleagues[70] have summarized useful strategies for enhancing vocabulary development in ELL students. These strategies include monitoring ELLs' knowledge of Tier 1 words in English, promoting cognate awareness, and reviewing and reinforcing new vocabulary. An additional strategy is to focus on both breadth and depth of vocabulary knowledge.

MONITOR KNOWLEDGE OF TIER 1 WORDS IN ENGLISH

Vocabulary knowledge is critical for successful reading comprehension. Tier 1 words are generally considered simple, concrete vocabulary words. Tier 2 words are high-frequency words used by mature language users. Tier 3 words are very specific, low-frequency words.[71] Direct teaching of Tier 1 words to elementary school-age children is generally not considered necessary, as native speakers usually learn these on their own. However, the clinician should probe ELL students' knowledge of Tier 1 words in English. Some students may indeed require direct instruction of Tier 1 words if they are not likely to learn them incidentally.

PROMOTE COGNATE AWARENESS

Cognate knowledge can support ELLs' vocabulary and reading comprehension in English.[54,72] This means that clinicians should help students tap into their knowledge of cognates.

A Google search, such as for Spanish-English cognates, yields numerous Web sites and books that are useful for selecting appropriate targets. If possible, the clinician should attempt to identify and initially teach phonologically transparent cognates, or those words that share a more similar sound and stress pattern, as these will be more easily perceived by children new to this concept. Whereas most of the research on children's knowledge and strategic use of cognates has been conducted with readers in grades four and higher, reading is not a precursor of perceiving cognates. Therefore, clinicians may also start attuning younger children to the phonological and semantic similarities between words in their two languages, thereby promoting their ability to use this strategy once they become readers.

Some Spanish-English cognates can be classified as Tier 1 words (e.g., family/familia, animal/animal, dentist/dentista). The clinician can probe whether the child is familiar with such words in the first or second language. Children will likely know Tier 1 words in L1, so these words may be useful for initially teaching children to recognize cognates. Once children make the connection, the focus may turn to Tier 2 words, as it is vital that children increase their knowledge of these useful, high-frequency words (e.g., famous/famoso, community/comunidad, democracy/democracia, director/director). An added advantage of focusing on Tier 2 cognates is that many, such as in Spanish and English, contain identical or similar derivational morphemes (e.g., pre/pre-, bi/bi-, ex/ex-, -ble/ble, -age/aje, -tion/ción, -cracy/cracia). It is known that children's knowledge of derivational morphemes is beneficial for building their vocabulary because 60% of English words have Latin or Greek origins.[73] Therefore, Tier 2 cognates are excellent teaching targets that may enhance the child's vocabulary not only in one language, but also in the other language. In addition, the clinician should point out false cognates when possible.

REVIEW AND REINFORCE

Children are more likely to learn new words if the clinician provides multiple opportunities for practice. One recommended approach to presenting these opportunities is through read-alouds.[74,75] It is beneficial to preteach Tier 2 words that are neither cognates nor easily demonstrated to support children's story comprehension and to avoid interrupting the flow of text to teach word meanings. During the text discussion, the clinician can use picture cues or simple demonstration to illustrate Tier 1 words, and can encourage students to identify cognates. When the words cannot be easily defined or presented in English, such as Tier 3 words, the clinician may provide a definition in the child's first language, if possible. Following the read-aloud, the clinician can present various language activities, such as story retells, word books, story maps, and dramatization, to review and reinforce the targeted words. August et al also recommend that, due to limited teaching time available, clinicians need to investigate ways to encourage vocabulary learning in a variety of contexts.[70] For example, children can use audiovisual materials and engage in computer activities to practice vocabulary both in and outside of school. Parents can also be encouraged to participate in vocabulary instruction in the home language if clinicians send home word lists and activities.

Evidence-based practices for vocabulary instruction emphasize the need to focus not only on increasing children's breadth of vocabulary but also their depth of vocabulary knowledge. It has been found that second language learners may lack depth of word knowledge, even for high-frequency words.[76] Vocabulary games and activities will provide insufficient support for effective word learning and semantic enrichment unless word practice extends to meaningful contexts. For example, Vaughn-Shavuo found that vocabulary intervention for first-grade ELLs yielded better gains when it involved a cohesive plan to promote elaboration on word meaning and usage during narrative tasks than when it merely targeted word use in individual sentences.[77] Perez compared several intervention approaches for third-grade ELLs. The most successful approach promoted active processing, as opposed to word memorization, through activities in which students analyzed word relationships (i.e., multiple meanings, compound words,

synonyms, and antonyms), made predictions about word meanings, and produced words in meaningful contexts.[78]

Carlo and colleagues reported on the effectiveness of an English vocabulary intervention for fifth-grade Spanish-speaking ELLs that was designed to enhance depth of word knowledge and reading comprehension.[79] Vocabulary words were selected thematically from short, interesting reading passages to facilitate presentation of words in meaningful contexts. The targeted words could be classified as Tier 2 words[71] that were likely to be seen in various contexts. The intervention integrated both direct word instruction and word-learning strategies using a variety of activities. Children were exposed to the Spanish text before the English text. Then, the first day of English text presentation, instructional activities involved having students identify the targeted English vocabulary words and infer meaning from contextual clues. The second day of instruction, students used the words to complete cloze sentences. Some of the sentences related to the text, and others related to more distant themes. The third day, activities were designed to increase students' depth of meaning and included tasks targeting word association, synonyms, antonyms, and semantic feature analysis. The fourth day, activities promoted analysis of root words, affixes, multiple meanings, and cognates. The program also incorporated home assignments and weekly tests. The investigators found that this approach, which taught children to use contextual cues and word analysis strategies to infer meaning, was indeed effective.

Fluency

Children's ability to read text quickly and accurately is critical for successful reading comprehension. Like native English speakers, ELLs will benefit from a variety of guided oral reading procedures. This may include repeated reading of connected text containing previously learned letter-sound combinations, with gradually increasing complexity as children are successful.[11,61,62] Students can engage in oral reading practice by reading in unison with adults, with peers, and with audiotapes. They may also practice through echo reading, by reading in imitation of the clinician, or through readers' theater in which students rehearse and recite scripts with peers.

Comprehension

Successful reading comprehension is the ultimate goal of reading intervention for children with RD. Comprehension may suffer due to several other deficits, including oral language proficiency, decoding, vocabulary, fluency, and limited working memory skills. Because comprehension involves both literal and inferential comprehension, there are several recommended strategies for supporting both.[11,61,62,72] Before reading, browsing the story or text will help children activate their prior knowledge and predict what the reading will be about. Preliminary discussion of the topic and review of the text structure may be useful. Clinicians should also help children set a purpose for reading, such as seeking an answer to a specific question or finding out if students' predictions are correct. During the reading, ELLs can identify cognates, engage in comprehension monitoring, and practice making inferences. Following the reading, children may practice retelling the narrative, paraphrasing parts of the text, or summarizing the text. Students can confirm or disconfirm their predictions. To facilitate students' use of such strategies, clinicians can present mnemonics such as KWL (K- What do I *know*? W-What do I *want* to know? L-What did I *learn?*).[80] Additional activities for children in elementary grades may involve discussing and writing about the main ideas. Students may also use content webs designed for story grammar or expository texts to help them summarize the text verbally and in writing.

CONCLUSION

Research to date has revealed numerous cross-linguistic similarities in reading development and reading disability, yet also some differences related to the orthographic transparency and specific phonological features of each language. In children who are learning to read in two languages, similar patterns of development and disability in both languages would be expected, according the linguistic interdependence

hypothesis. According to the script-dependent hypothesis, whether the reader exhibits comparable difficulties in both languages would depend on the degree of orthographic and phonological similarity between the two languages.

For assessment and diagnosis of RD in ELLs, models based on impairments of specific underlying processes, poor academic achievement, and inadequate response to intervention have been proposed as alternatives to replace the problematic discrepancy model. Research indicates that children's phonological processing, working memory, and rapid naming performance appear to be indicative of reading disability across both alphabetic and nonalphabetic languages. Phonological processing deficits emerge as the most robust indicator of RDs across languages and grade levels. However, a variety of assessment measures is necessary for accurate identification. English language learners' performance should be compared with that of similar peers, as ELLs have been found to display lower performance on language-based measures and higher performance on other measures when compared with monolinguals. In addition, it is imperative that clinicians identify the signs of reading disability as early as possible. Speech-language impairments put children at significant risk for developing reading problems.

Finally, recommended intervention practices for ELLs with reading difficulties include numerous strategies that have been found effective for native English speakers with modifications to capitalize on the students' skills in L1. Successful interventions involve an integrated approach that combines explicit teaching and application of skills during meaningful reading activities. Much progress has yet to be made in establishing best practices for reading assessment and intervention for ELLs, and it is important for clinicians to stay abreast of future developments.

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