

UC Irvine

UC Irvine Previously Published Works

Title

Early Elementary Grade Dual Language Learners from Spanish-speaking Homes Struggling with English Reading Comprehension: The Dormant Role of Language Skills.

Permalink

<https://escholarship.org/uc/item/8w30q6q8>

Journal

Journal of Educational Psychology, 112(5)

ISSN

0022-0663

Authors

Mancilla-Martinez, Jeannette

Hwang, Jin

Oh, Min

et al.

Publication Date

2020-07-01

DOI

10.1037/edu0000402

Peer reviewed



HHS Public Access

Author manuscript

J Educ Psychol. Author manuscript; available in PMC 2021 July 01.

Published in final edited form as:

J Educ Psychol. 2020 July ; 112(5): 880–894. doi:10.1037/edu0000402.

Early Elementary Grade Dual Language Learners from Spanish-speaking Homes Struggling with English Reading Comprehension: The Dormant Role of Language Skills

Jeannette Mancilla-Martinez,

Peabody College of Education and Human Development, Vanderbilt University, 230 Appleton Place, Peabody #329, Nashville, TN 37203-5721, USA

Jin Kyoung Hwang,

School of Education, University of California, Irvine, 467 Social Sciences Tower, Irvine, CA 92697, USA

Min Hyun Oh,

Peabody College of Education and Human Development, Vanderbilt University, 230 Appleton Place, Peabody #329, Nashville, TN 37203-5721, USA

Janna Brown McClain

Peabody College of Education and Human Development, Vanderbilt University, 230 Appleton Place, Peabody #329, Nashville, TN 37203-5721, USA

Abstract

This study investigated contributors of English reading comprehension outcomes among predominantly U.S.-born first and third grade ($N = 73$) dual language learners (DLLs) from Spanish-speaking, low-income homes who attend English-only instructional schools in the Southern region of the U.S., which is experiencing historic rates of school-age DLL enrollment. We investigated the utility of various conceptualizations of vocabulary, namely English-only, Spanish-only, and specifically Spanish-English conceptually-scored receptive vocabulary, in understanding DLLs' reading comprehension. We first examined whether a gap was evident between the various conceptualizations of vocabulary and English word reading. Then, using structural equation modeling, we investigated the influence of the various conceptualizations of vocabulary on English reading comprehension, accounting for English word reading skills. Finally, we examined the potential contributions of DLLs' home language environments. Results revealed that the gap between English word reading and vocabulary varied as a function of the conceptualization of vocabulary. Further, English word reading emerged as the robust contributor to children's English reading comprehension, with no significant influence of receptive vocabulary, regardless of how it was conceptualized. Finally, and contributing to a nascent area of research, attention to DLLs' home language use practices suggests that the productive language domain (i.e., children's own home language use) may represent an important contributor to English reading comprehension among DLLs from Spanish-speaking homes. We discuss theoretical and practical implications.

Keywords

dual language learners; reading comprehension; vocabulary; word reading; home language use

Introduction

Children from Spanish-speaking homes in the U.S. are predominantly U.S.-born and instructed only in English (Olsen, 2014). Among these children, those who are still acquiring English proficiency during the school-age years are formally designated by their schools as limited English proficient (LEP). In this study, we use the broader term dual language learner (DLL) to refer to students from households in which a language other than English is spoken, regardless of whether they are designated as LEP. In recent years, DLL growth has skyrocketed in new destination states, with the Southern region of the U.S. (e.g., Georgia, South Carolina, and Tennessee) experiencing rapid and unprecedented DLL growth (Gandara & Mordechay, 2017; McFarland et al., 2017; Ruiz Soto, Hooker, & Batalova, 2015;). As is the case nationally, the majority of DLLs in the South are U.S.-born from Spanish-speaking, low-income homes and have immigrant parents (Migration Policy Institute, 2015). However, unlike regions of the U.S. that have traditionally had large numbers of immigrants, DLLs in the South are entering schools that have historically conceptualized “minority” education in terms of Black and White and are thus less prepared to take on the linguistic needs of Latino DLLs (Gandara & Moredechay, 2017). A major area of concern is DLLs’ academic achievement—in particular, DLLs tend to struggle with reading comprehension. We know that word reading and language comprehension are two key factors that influence DLLs’ reading comprehension performance (Mancilla-Martinez & Lesaux, 2011, 2017; Nakamoto, Lindsey, & Manis, 2008; Proctor, Carlo, August, & Snow, 2005). However, previous work has been concentrated in traditional DLL destination states. Further, compared to word reading, much less is known about DLLs’ language comprehension skills.

This study aims to contribute to the field’s understanding of English reading comprehension achievement among early grade DLLs from Spanish-speaking, low-income homes in a new destination state in the Southern region of the U.S. via two interrelated, previously unexplored, goals. The first two-fold goal centers on examining the utility of conceptualizing DLLs’ vocabulary in terms of the number of known concepts, regardless of the language (Spanish or English) used to label the concepts—in addition to the typically Spanish-only and English-only conceptualization— in examining the extent to which a) a gap between English word reading and vocabulary is evident and b) English reading comprehension is predicted based on the various vocabulary conceptualizations, above and beyond the known influence of English word reading. The second goal is to investigate the extent to which accounting for DLLs’ home language use patterns provides additional insight into DLLs’ English reading comprehension.

Struggling Comprehenders in the Early Grades

From theoretical models to empirical research, there is wide consensus on the multifaceted nature of reading comprehension (e.g., Gough & Tunmer, 1986; Kintsch, 1988; Perfetti,

2007; Durgunoglu et al., 1993; Melby-Lervåg & Lervåg, 2011, 2014) and word reading plays a more important role than language comprehension during the elementary grade years for DLLs from Spanish-speaking homes in the U.S. (Mancilla-Martinez & Lesaux, 2011). In contrast, the cross-linguistic transfer of language skills is much less conclusive (Kelley, Roe, Blanchard, & Atwill, 2012; Mancilla-Martinez & Lesaux, 2010, 2017; Manis, Lindsey, & Bailey, 2004; Proctor, August, Carlo, & Snow, 2006). However, in the U.S., DLLs from Spanish-speaking homes have demonstrated lower language skills both in Spanish and English than their monolingual peers (Gross, Buac, & Kaushanskaya, 2014; Hammer, Lawrence, & Miccio, 2008; Mancilla-Martinez & Lesaux, 2011, 2017; Mancilla-Martinez & Vagh, 2013). Further, early language comprehension struggles do influence reading comprehension outcomes at the outset of high school entry (Mancilla-Martinez & Lesaux, 2017), warranting further investigation into how we can best support DLLs' language comprehension, which necessitates the use of valid and appropriate assessments.

A recent meta-analysis on children struggling with reading comprehension found that DLLs struggle with language comprehension significantly more than non-DLLs (Spencer & Wagner, 2017). A key implication of this work is that language comprehension measures should be included in assessment batteries designed to identify struggling comprehenders, which is a call made by Mancilla-Martinez and Lesaux (2011; 2017). The challenge in assessing language comprehension, in general—and for DLLs, in particular—is that studies vary widely in their conceptualization and accompanying operationalization of this key construct.

Spoken language comprehension can be assessed receptively (i.e., listening) and expressively (i.e., speaking), and both predict reading comprehension among monolinguals and multilinguals (Ouellette, 2006; Spear-Swerling, 2004; Wise, Sevcik, Morris, Lovett, & Wolf, 2007). Although recent work reveals no distinction between receptive and expressive language comprehension among monolingual English speakers from preschool to fifth grade (Lonigan & Milburn, 2017), the utility of different measures of language comprehension to tap this construct remains equivocal, particularly among DLLs. More specifically, listening comprehension and vocabulary represent the most commonly used proxies to assess language comprehension, but the extent to which they are distinct contributors of reading comprehension remains inconclusive (Braze et al. 2016; Conners, 2009; Foorman, Herrera, Petscher, Mitchell, & Truckenmiller, 2015; Fraser & Conti-Ramsden, 2008; Macaruso & Shankweiler, 2010; Ouellette & Beers, 2010; Protopapas et al., 2013; Sabatini, Sawaki, Shore, & Scarborough, 2010; Tunmer & Chapman, 2012). We do know, however, that vocabulary is a non-negotiable component of language comprehension. Perhaps most importantly, we also know that limited vocabulary contributes to compromised reading comprehension, especially for DLLs (August, Carlo, Dressler, & Snow, 2005; Carlo et al., 2011; Lesaux, Crosson, Kieffer, & Pierce, 2010; Lesaux, Kieffer, Faller, & Kelley, 2010), and that, when utilizing standardized measures, efforts to improve students' vocabulary skills have been met with limited success (Nagy, 1988; Wright & Cervetti, 2016). Thus, many studies focused on DLLs use measures of vocabulary to proxy language comprehension in predicting reading comprehension (Carlisle, Beeman, Davis, & Spharim, 1999; Lindsey, Manis, & Bailey, 2003; Manis, Lindsey, & Bailey, 2004; Reed, Petscher, & Foorman, 2016; Verhoeven, 2000).

The concern is that, likely on account of the English-only instructional context which is typical of U.S. schools, vocabulary tends to be assessed only in English among DLLs. Without question, assessment of language comprehension, particularly in school settings, is an onerous task. When there is more than one language to consider, the task is considerably greater. Yet, we cannot continue to assess DLLs only in English and discount the fact that they bring to school additional linguistic resources in their native language. Furthermore, even when DLLs from Spanish-speaking homes are assessed in both Spanish and English, they are assessed with measures designed for monolingual Spanish and monolingual English speakers, respectively. As a result, they too often evidence low Spanish *and* low English vocabulary knowledge (Gross, Buac, & Kaushanskaya, 2014; Hammer, Lawrence, & Miccio, 2008; Mancilla-Martinez & Lesaux, 2011, 2017; Mancilla-Martinez & Vagh, 2013). By relying on monolingually-designed vocabulary measures for DLLs, we inevitably tap only partial vocabulary knowledge and risk taking a deficit orientation towards their linguistic knowledge. Indeed, reliance on monolingually-designed vocabulary measures ignores scientific understandings of bilingual language acquisition. In this study, we thus adopt the Revised Hierarchical Model (RHM) proposed by Kroll and Stewart (1994) to account for vocabulary in DLLs.

The RHM model (Kroll & Stewart, 1994) postulates a centralized conceptual system shared between two languages, such that the asymmetrical strengths of the links among first language, second language, and concepts vary as a function of the fluency levels in the second language. Although devised from adults learning English as a second language, recent work demonstrates its applicability in children (Poarch, Van Hell, & Kroll, 2015; Sheng et al., 2013). We therefore include a traditional monolingually-designed Spanish and monolingually-designed English vocabulary measure, but also utilize a vocabulary measure specifically designed for Spanish-English bilinguals that utilizes conceptual scoring. For example, students from Spanish-speaking homes may know the concept of a *seed*, but may only have the label in Spanish or in English. Conceptually-scored vocabulary assessments allow DLLs to respond in either language by giving credit for labeling the concept, whether the label is produced in Spanish (*semilla*) or in English (*seed*). In this way, the language in which the label for the concept is known is not the focal target. Instead, the focal target is whether the concept is known, which demonstrates understanding, a key foundational skill in comprehension.

Conceptually-scored standardized vocabulary measures have been found to have utility for preschool-age DLLs from Spanish-speaking homes (Mancilla-Martinez et al., 2018), but open questions remain about their utility for elementary-age children. A word reading-vocabulary gap has been documented among elementary-age DLLs from Spanish-speaking homes, such that DLLs' word reading skills are on par with national monolingual norms while their vocabulary skills are well below national monolingual norms (Mancilla-Martinez & Lesaux, 2011; Nakamoto, Lindsey, & Manis, 2007). But this previous work was carried out in traditional DLL destination states. It remains unknown whether a word reading-vocabulary gap profile would be evident in a new destination state traditionally unaccustomed to serving this population of learners. This is important to investigate as these findings have direct theoretical, policy, and instructional implications. In a related vein, previous studies have not explored whether the use of measures based on scientific

understandings of bilingual language acquisition, such as conceptually-scored vocabulary, influence findings concerning a potential word reading-vocabulary gap. Furthermore, the extent to which conceptually-scored measures predict English reading comprehension among this population has yet to be investigated. Recent work suggests that the stigma of being labelled as LEP (i.e., students who are still in the process of acquiring English proficiency) by schools can contribute to negative academic trajectories for DLLs, perhaps because of lowered expectations from teachers and tracking into remedial coursework rather than grade level curriculum (Umansky, 2016). Inclusion of conceptually-scored measures that build on scientific understandings of bilingual language acquisition and take a more comprehensive account of DLLs' language development may help to combat language stigma by providing a baseline understanding of what DLLs effectively bring to the language-learning task, thereby potentially improving the quality of instruction they receive. This suggests investigations of the utility of conceptually-scored vocabulary are warranted.

We know from previous work that vocabulary matters for DLLs' reading comprehension, but open questions remain concerning the conceptualization and operationalization of vocabulary among DLLs. Another understudied potential contributor to DLLs' English reading comprehension is their home language environment as, by definition, DLLs are exposed to (and likely use) more than one language at home.

The Home Language Environment

A long line of research, with both monolinguals and multilinguals, has linked home language experiences to children's early reading skill development (e.g., Collins, 2015; De Houwer, 2009; Schmitt, Simpson, & Friend, 2011). Studies on home language exposure (i.e., what children hear; the receptive domain) and use (i.e., what children produce; the expressive domain) among DLLs from Spanish-speaking homes in the U.S. reveal that consistent exposure to a language (i.e., English and/or Spanish) at home supports language acquisition in that language (e.g., Hoff, 2018; Mancilla-Martinez & Lesaux, 2011; Oller & Eilers, 2002; Pearson, Fernández, Lewedeg, & Oller, 1997; Weisleder & Fernald, 2013). Furthermore, in both cross-sectional (Hammer et al., 2012) and longitudinal studies (Pearson et al., 1997; Hurtado, Grüter, Marchman, & Fernald, 2014) with infants and toddlers, DLLs' vocabulary size and grammatical skills were found to be proportional to the amount of exposure to each language. Adding more nuance to the issue of language exposure, Place and Hoff (2011) suggest that native language exposure is more supportive of language acquisition compared to non-native speech.

Although less studied, children's expressive home language use patterns have also been investigated to understand their language acquisition (Mancilla-Martinez & Lesaux, 2011; Quiroz, Snow, & Zhao, 2010; Ribot, Hoff, & Burridge, 2018; Winsler et al., 2014). In a longitudinal study that measured English vocabulary growth between English monolingual and Spanish-English DLLs, the latter who spoke mostly English at home evidenced larger English productive vocabulary ability than those who spoke mostly Spanish at home (Vagh, Pan, & Mancilla-Martinez, 2009). Nonetheless, the English vocabulary growth rates for monolinguals (i.e., only English at home) were faster compared to the growth rates for the DLLs.

A few studies have also examined both home language exposure and use and their relations to language and literacy outcomes. Quiroz, Snow, and Zhao (2010) found that children's English vocabulary was positively associated with exposure to (e.g., the amount of English spoken by older siblings) and use of (e.g., the amount of English spoken to family members) English at home. In a review of the literature on young DLLs' language development, Hammer et al. (2014) report preliminary evidence that children's home language use affects their dual language development. At the same time, the authors underscore that more research is needed that accounts for *both* exposure to and use of two languages. More recently, Ribot, Hoff, and Burridge (2018) report a significant effect of English input at home to DLLs' higher English expressive vocabulary and higher English receptive language skills. Additionally, children's English expressive vocabulary—but not English receptive language skills—was associated with their use of English at home, suggesting a potentially important role of expressive language use for vocabulary achievement.

It may also be that home language environment becomes less important as children grow older and spend more time outside of the home, such as at school. There is considerable documentation that the language used in schooling significantly shapes school-aged children's language development (e.g., Duursma et al., 2007; Jackson, Schatschneider, & Leacox, 2014; Skibbe, Connor, Morrison, & Jewkes, 2011). In addition, other work has found that while fifth-grade DLLs' English vocabulary development did not require parental use of English, Spanish vocabulary development required both parental use of Spanish and instructional support in school (Duursma et al., 2007). In this study, we thus attend to home language exposure and use patterns in an effort to better understand their relationships with DLLs' English reading comprehension. In line with other studies that examine the home language environment, we utilize parents' self-reports as they have been found to be valid and reliable (e.g., De Houwer, 2007; Duursma et al., 2007).

Present Study

The early elementary grade years have garnered much attention from the reading research community and policy realm as these years are instrumental for children to acquire the necessary skills for successful reading comprehension for the duration of schooling. Given that DLLs from Spanish-speaking, low-income homes continue to struggle disproportionately with English reading comprehension, there is a need for studies that reveal contributing factors, especially in states with unprecedented growth in the DLL population (e.g., Southern states). Existing evidence from work conducted in states that have historically served DLLs reveals a gap between DLLs' adequate word reading and low vocabulary skills during the elementary school years, and we know both skills influence reading comprehension. An important next step is to investigate the utility of measures that better account for the vocabulary skills DLLs bring to the language learning task in investigating whether there is a word reading-vocabulary gap and how inclusion of these measures relate to reading comprehension among DLLs in new destination states. It is also essential to attend to the role of their home language environments in understanding DLLs' language and reading development.

This study examines contributors of English reading comprehension outcomes among predominantly U.S.-born first and third grade DLLs from Spanish-speaking, low-income homes who attend English-only instructional elementary schools in the Southern region of the U.S. and who are struggling early grade readers. We investigate the extent to which a gap is evident between word reading and various conceptualizations of vocabulary (i.e., English-only, Spanish-only, and Spanish-English conceptually-scored receptive vocabulary), as well as the influence of these various conceptualizations of vocabulary on English reading comprehension, accounting for English word reading skills. Furthermore, we explore potential contributions of children's home language environments. We address the following research questions:

1. To what extent do various conceptualizations of receptive vocabulary (English-only, Spanish-only, and especially Spanish-English conceptually-scored) reveal a word reading-vocabulary gap among early elementary grade DLLs?
2. How do various conceptualizations of receptive vocabulary (English-only, Spanish-only, and especially Spanish-English conceptually-scored) compare in predicting English reading comprehension among early elementary grade DLLs, accounting for the influence of English word reading?
3. To what extent do early elementary grade DLLs' home language environments (language exposure, language use, and combination of the two) provide additional insight into their English reading comprehension performance?

In line with previous research (August & Shanahan, 2006; Mancilla-Martinez & Lesaux, 2011), we hypothesize that Spanish-only and English-only measures will reveal a word reading-vocabulary gap, such that English word reading will be at age-appropriate levels while single-language vocabulary will be lower. In contrast, we hypothesize that conceptualizing vocabulary as an integrated account of both Spanish and English (i.e., conceptually-scored vocabulary) will reveal a narrowed word reading-vocabulary gap because this approach considers DLLs' language resources across both of their languages (Kroll & Stewart., 1994; Mancilla-Martinez et al., 2018). Previous work has not investigated the predictive utility of conceptually-scored vocabulary for understanding DLLs' English reading comprehension, limiting our ability to develop a hypothesis on the nature of this relationship. Given the importance of word reading for younger elementary students, word reading will likely emerge as a key, robust predictor and may potentially limit the contribution of vocabulary, however conceptualized. Yet, this is an open empirical question, and represents a line of research that can help push the field toward how best to conceptualize and thus measure DLLs' vocabulary. Finally, based in prior work, we hypothesize that DLLs' home language environments will reveal that use of more English in the home is associated with higher English reading comprehension (Ribot et al., 2018).

Method

Participants

This study utilized data collected across two academic years. The larger study began in academic year 2016-2017 (Year 1) and focused on investigating conceptually-scored

vocabulary development among elementary-aged children from Spanish-speaking homes. During Year 1, 118 kindergarten ($n = 59$, 50%) and second grade ($n = 59$, 50%) children and their families were recruited for participation from three English-only instructional context elementary schools in a large urban school district in the Southern region of the U.S. Children's parents participated by completing a demographic and language use questionnaire. Before the spring of 2017, five students withdrew from the study. In academic year 2017-2018 (Year 2), the study focused on reading comprehension. Upon recruitment in the fall of 2017, seven students moved schools, leaving 107 possible participants. Seventy-three parents provided continuing consent for their children to participate, with 39 (53%) in first grade and 34 (47%) in third grade. *T*-test results revealed no significant difference in parents' income and students' receptive conceptually-scored vocabulary between those who did and did not participate in Year 2 (income: $t(61) = .07$, $p = .94$; Year 1 receptive conceptually-scored vocabulary: $t(116) = .52$, $p = .60$). However, there was a significant difference in home language, such that students who continued participation in Year 2 came from more Spanish-dominant homes ($t(103) = 2.97$, $p = .004$).

Family demographic and language use questionnaire data from Year 1 were available for 64 (88%) of continuing students in Year 2 of the study. Because parental literacy levels were not assumed, trained Spanish-English bilingual undergraduate and graduate research assistants called and gave parents the option of completing the questionnaire over the phone or in person at the school. Only four (6%) parents requested to complete the questionnaire independently. The vast majority of students ($n = 57$; 89%) were born in the U.S. The 11% of students who were born outside the U.S. were included in our analysis as the exclusion criteria for participating in this study was whether or not Spanish was used in the home. Furthermore, *t*-test results revealed no significant difference in reading comprehension between students who were born in the U.S. from those born outside of the U.S. ($t(60) = -.64$, $p = .53$). In contrast to their children, nearly all of the parents were foreign-born (97%), with the majority from Mexico (58%) and the rest from El Salvador (16%), Honduras (9%), Guatemala (9%), Cuba (2%), and Puerto Rico (2%). The participating schools were largely comprised of children from low-income homes. Indeed, of the parents who reported their family income level ($n = 35$; 55%), families had an income-to-needs ratio at the poverty level (.95, $SD = .43$), on average. Finally, the majority of students ($n = 52$; 71%) were formally classified as LEP by the school district based on scores from the WIDA Consortium's test for Assessing Comprehension and Communication in English State-to-State for ELLs (ACCESS; <https://www.wida.us/Assessment/access20.aspx>), which is administered upon initial entry in the school. Within our sample, six (8%) were former LEP and 15 (21%) were never designated as LEP. LEP students are assessed annually in the spring to evaluate continued eligibility.

Procedure

Recruitment letters were sent home in August 2017 through the school system to all first and third grade students who were previously in the study as kindergarten and second graders at the same three participating elementary schools. As noted above, 73 parents (62%) returned consent letters allowing their children to continue participation in the study. Two students dropped out of the study over the course of the school year because they moved schools, but

they were nonetheless included in the analytic sample since we used maximum likelihood accounting for missing data. Spanish-English bilingual undergraduate and graduate research assistants were trained to administer the measures in fall and spring (see Measures section). The assessments were administered during a three-week window, in a quiet area of the school, from mid-October to early November (fall), and from April to May (spring).

Measures

Vocabulary and English word reading were assessed one-on-one in fall and English reading comprehension was assessed in small groups in fall and spring. Home language use data were obtained from parent questionnaires in Year 1 of the larger study.

English-only receptive vocabulary.—The *Peabody Picture Vocabulary Test-4* (*PPVT-4*; Dunn & Dunn, 2007) was used to assess children's English receptive vocabulary. Children were required to point to the picture that matched the target word provided by the examiner. The test–retest reliability for ages 7 to 10 (encompassing the age range of our sample) is .91.

Spanish-only receptive vocabulary.—The *Test de Vocabulario en Imágenes Peabody* (*TVIP*; Dunn, Lugo, Padilla, & Dunn, 1986) was used to assess children's Spanish receptive vocabulary. Children were required to point to the picture that matched the target word provided by the examiner. The publisher reports the internal consistency reliabilities of 0.93-0.94 for ages 6 and 7 (i.e., an average age range for first grade students) and 0.91-0.94 for ages 8 and 9 (i.e., an average age range for third grade students).

Spanish-English conceptually-scored receptive vocabulary.—The *Receptive One-Word Picture Vocabulary Test-4: Spanish-Bilingual Edition* (*ROWPVT-4:SBE*; Martin, 2013) was used to assess children's Spanish-English conceptually-scored vocabulary knowledge. As a conceptual measure, children were presented with the target item in Spanish or English (depending on the child's language dominance, which is determined based on parent or teacher report), and missed items are re-administered in the opposite language, allowing for the assessment of their receptive knowledge in either language. The items are ordered by increasing difficulty, beginning with the easiest concepts and ending with less frequently encountered concepts. As with the *PPVT-4* and *TVIP*, each item displays four pictures. The child is asked which of the four pictures is the target word and prompted to point to (i.e., identify) the correct picture. The task is discontinued when the child makes four errors within six consecutive responses. The publisher reports the median internal consistency reliability coefficient as .95 for the Spanish bilingual edition of the assessment.

English word reading.—The *Test of Word Reading Efficiency-2* (*TOWRE-2*; Torgesen, Wagner, & Rashotte, 2012) was used to assess English word reading. Both the Sight Word Efficiency (SWE) and Phonemic Decoding Efficiency (PDE) subtests were administered and the composite score was used for the analyses. The SWE subtest assesses the number of real words a student can read in 45 seconds. Internal reliability is reported as .91 and scorer reliability as .99. The PDE subtest measures a student's ability to accurately and quickly read

phonemically regular non-words in 45 seconds. Internal reliability is reported as .92 and scorer reliability as .99. For the Total Word Reading Efficiency (i.e., the composite), internal reliability is reported as .95 and scorer reliability as .99.

English reading comprehension.—The *Group Reading Assessment and Diagnostic Evaluation (GRADE; Williams, 2001)* was used to assess English reading comprehension. The *GRADE* is a group-administered, untimed test that is divided into grade levels and subtests designed to measure developmentally appropriate reading skills for each level. The *GRADE* was administered by one trained undergraduate or graduate research assistant, to small groups of five to seven students at a time, depending on the number of participating children in each homeroom, for both first and third grade students. Each *GRADE* testing session lasted approximately 60 to 75 minutes for both grade levels.

The two comprehension subtests (i.e., Sentence Comprehension and Passage Comprehension) of the *GRADE* Levels 1 and 3, which are designed to measure reading comprehension of students typically at grades 1 and 3, respectively, were administered. Each level has two parallel versions (i.e., A and B) that are norm-referenced for fall and spring, which allows monitoring of participants' reading growth. In the current study, we administered Form A in fall and form B in spring, and calculated student performance using the relevant norms. The Sentence Comprehension subtest includes 19 sentences, each with a missing word. For each item, students are asked to select one word from four choices that best fits in each blank. This subtest aims to measure students' ability to comprehend a sentence as a complete idea unit. The Sentence Comprehension subtest has reported a split-half reliability of .95 for first grade and from .91 to .94 for third grade. The Passage Comprehension subtest consists of 8 (Level 1) or 7 (Level 3) passages, each followed by multiple-choice questions for a total of 24 items (Level 1) or 28 items (Level 3). This subtest assesses four key metacognitive strategies during reading: questioning, clarifying, summarizing, and predicting. The Passage Comprehension subtest also captures developmental differences, by measuring students' attention to decoding or comprehending. The reported internal consistency coefficient for this subtest ranges from .91 to .94 for first grade and from .91 to .92 for third grade at Level 3. The results from the Sentence and Passage Comprehension subtests were combined into raw and standard composite comprehension scores for further analysis. The internal reliability coefficients for the Comprehension Composite range from .95 to .97 for first grade and from .94 to .96 for third grade.

Home Language.—A parent questionnaire, which was adapted from a demographic questionnaire generated by the Development of Literacy in Spanish Speakers (DeLSS) research project (<http://www.cal.org/what-we-do/projects/delss>), and was prepared in Spanish and English, was administered to collect information on family demographics (described above) and home language use. Parents were asked a series of questions about their language use practices in the home. Language exposure questions referred to talk directed to the child by the mother, father, other adults in the home, and other children in the home, as applicable. These items were averaged to create the language exposure variable that was used in the analysis. Language use questions referred to the talk directed by the

child to the mother, father, other adults in the home, and other children in the home, as applicable. Again, the average of the language use items was used to create the language use variable. Parents responded to these questions on a 5-point scale, as follows: 1 = only Spanish, 2 = mostly Spanish, 3 = English and Spanish equally, 4 = mostly English, and 5 = only English. The home language use scale used in the current study comes directly from the DeLSS project and is widely used in research with Spanish-speaking DLLs.

Analytic Approach

To answer our research questions, we used students' receptive vocabulary and English word reading scores from fall and their English reading comprehension scores from fall and spring. We used standard scores for receptive vocabulary and English reading comprehension, and scaled scores for English word reading in the analyses. To address our first research question that focused on examining whether a gap between word reading and vocabulary was evident, we conducted *t*-tests comparing students' English word reading to English-only vocabulary, Spanish-only vocabulary, and Spanish-English conceptually-scored vocabulary. To address the second research question, we conducted structural equation modeling (SEM) using maximum likelihood to account for missing data. We utilized a SEM approach because it allowed us to include multiple outcomes in a single model, and this approach could handle missing data using maximum likelihood estimation. The hypothesized model that was tested is displayed in Figure 1. We tested whether English-only, Spanish-only, and Spanish-English conceptually-scored vocabulary predicted either fall or spring English reading comprehension. We tested for one vocabulary measure at a time, and subsequently included all three vocabulary measures simultaneously, accounting for English word reading. To address our third and final research question, we conducted SEM to test whether students' home language influenced on their English reading outcomes, above the influence of vocabulary and English word reading.

Results

Preliminary Descriptive Analyses

As shown in Table 1, parents in the sample reported that the language exposure their children received was Spanish-dominant ($M = 2.13$, $SD = .75$). Their average rating for their children's language use, however, was significantly higher ($M = 2.45$, $SD = .95$; $t(63) = 3.93$, $p < 0.001$), which indicates more balance between English and Spanish in children's own language use at home. Further, there was a positive and moderate-large correlation between children's home language exposure and use ($r = .70$, $p < .001$), and we thus also created a composite home language variable for inclusion in our analyses. The home language composite was an average score of language exposure and use at home ($M = 2.29$, $SD = .79$). Given the noted significant difference between language exposure and language use, we also examined the influence of language exposure and language use separately.

Table 2 displays students' raw and standard scores (scaled scores for English word reading) on all measures. We note that 12 students were not able to advance beyond the practice items on the English word reading measure (i.e., *TOWRE-2*). Per the standardized protocol outlined in the *TOWRE-2* technical manual, these students had to discontinue the

assessment and a score could thus not be derived. However, these same students successfully completed all of the other assessments, per each of the assessment's standardized protocols. On average, children in the sample evidenced low-average English reading comprehension, as well as similarly low-average English word reading. We underscore that the English word reading average was likely lower since an English word reading score could not be derived for 12 students. Finally, students' performance on receptive vocabulary varied depending on the measure used. On English-only receptive vocabulary, their performance was nearly one standard deviation below monolingual norms. On Spanish-only receptive vocabulary, their performance was more than one standard deviation below monolingual norms. In sharp contrast, on Spanish-English conceptually-scored receptive vocabulary, their performance was nearly one standard deviation *above* national Spanish-English bilingual norms. Indeed, *t*-test results indicate that the differences between the three receptive vocabulary measures were all statistically significant (English-only vs. Spanish-only: $t(72) = 3.19, p < .01$; English-only vs. Spanish-English conceptually-scored: $t(64) = 10.50, p < .001$; Spanish-only vs. Spanish-English conceptually-scored: $t(64) = 14.41, p < .001$). In addition, a series of *t*-test results revealed that the differences on all measures (i.e., all vocabulary, English word reading, and English reading comprehension) between LEP and non-LEP were not statistically significant. Thus, we did not include LEP status as a predictor in our models.

Finally, Table 3 displays Pearson correlations among all variables of interest. English reading comprehension had a positive and low-moderate correlation with English receptive vocabulary and a strong-moderate correlation with English word reading. Further, the three receptive vocabulary measures were all correlated positively, but in the low to low-moderate range. Home language had a positive, low correlation with English receptive vocabulary, whether conceptualized as the Home Language Composite or as Home Language Use, but not with Home Language Exposure.

Research Question 1: Revisiting the Word Reading-Vocabulary Gap

Table 2 displays results from the *t*-tests conducted to examine whether a gap exists between DLLs' English word reading and vocabulary. Results from the comparison includes students who had valid data for both measures. However, the results remained the same when the sample was constrained to students who had valid data ($n = 54$) on all four measures (i.e., English-only vocabulary, Spanish-only vocabulary, conceptually-scored vocabulary, and English word reading). As shown, the extent to which a gap emerged varied depending on the vocabulary measure used. DLLs' English word reading and English-only vocabulary did not evidence a gap. In contrast, there was a gap between DLLs' English word reading and both Spanish-only vocabulary and conceptually-scored vocabulary. Specifically, DLLs' Spanish-only vocabulary was significantly lower than their English word reading while their conceptually-scored vocabulary was significantly higher than their English word reading.

Research Question 2: Predicting English Reading Comprehension

Table 4 displays the standardized regression coefficients from the structural equation models investigating the contribution of English-only, Spanish-only, and Spanish-English conceptually-scored receptive vocabulary on English reading comprehension, accounting for English word reading. The models fit the data well (RMSEA = .00, CFI > .99 for Models

1-4). As expected, English word reading emerged as the robust predictor of students' fall and spring English reading comprehension in all our models (standardized coefficient ranging from .61 to .72). English-only vocabulary emerged as the only significant receptive vocabulary predictor, but only for spring English reading comprehension (see Model 1 in Table 4). We tested for interactions between vocabulary and English word reading and results were not significant (models not shown).

Research Question 3: Contribution of Home Language Use Patterns

Given that only English word reading and English-only receptive vocabulary emerged as significant predictors of English reading comprehension (see Table 4), we retained those predictors in our next analytical models. Table 5 displays the standardized regression coefficients from the structural equation models that account for students' home language configurations (Home Language Exposure, Home Language Use, and Home Language Composite). The models fit the data well (RMSEA = .00, CFI > .99 for Models 1-3). As shown, the robust influence of English word reading on English reading comprehension remained across all models (standardized coefficients ranging from .62 to .73). In contrast, the influence of English-only receptive vocabulary was attenuated to non-significance when students' home language use practices were accounted for. Further, only Home Language Use (i.e., the language children are reported to use in the home) and the Home Language Composite (i.e., average of the language children are reported to hear and are reported to use in the home) emerged as significant predictors of fall English reading comprehension when entered alone in the models with English word reading and English-only receptive vocabulary (see Model 2 and Model 3, respectively). We tested for interactions between vocabulary, word reading, and home language, and results were not statistically significant (models not shown).

Discussion

This study examined the language and reading achievement of predominantly U.S.-born dual language learners (DLLs) from Spanish-speaking, low-income homes instructed in English and residing in the Southern region of the U.S., which has experienced unprecedented growth in this population of learners (Gandara & Moredechay, 2018). We investigated the utility of various conceptualization of vocabulary in examining the extent to which there is word reading-vocabulary gap and in predicting English reading comprehension. We also examined the influence of the home language environment on English reading comprehension. Three key findings emerged from this study. First, as hypothesized, the gap between English word reading and vocabulary varied as a function of the vocabulary measure used. Second, and as expected on account of students' developmental stage, English word reading had a strong, robust influence on children's English reading comprehension. However—and somewhat unexpected—receptive vocabulary did not. Finally, and contributing to a nascent area of research, our results suggest that the productive language domain (i.e., children's own home language use) may represent an important contributor to English reading comprehension among DLLs' from Spanish-speaking homes. We discuss our findings and offer theoretical and practical implications in the following sections.

Nuance to the Gap Between Word Reading and Vocabulary

Results of this study revealed that DLLs from Spanish-speaking, low-income homes in the early elementary grades evidence English word reading skills that are within the national norm, but on the low-average range. This finding somewhat converges with previous research conducted with students who share a similar demographic profile as those in the current study (Mancilla-Martinez & Lesaux, 2011; Pérez & Rinaldi, 2006). In this study, however, students' English word reading scores ($M = 92.80$, $SD = 14.92$) were similar to their English receptive vocabulary ($M = 91.05$, $SD = 15.06$), but significantly higher than their Spanish-only vocabulary skills ($M = 81.05$, $SD = 18.80$; $t(60) = 4.12$, $p < .001$). As previously noted, 12 students were unable to complete the English word reading assessment and thus the average English word reading scores are almost certainly lower for this group of students. These results thus suggest that, in a region of the U.S. that has experienced unprecedented DLL growth, there are DLLs who appear to be falling considerably behind in their word reading skills despite their English-only instructional context. Explicit and targeted word reading instruction is likely still necessary for this particular group of students. Furthermore, results of this study converge with other work showing that DLLs from Spanish-speaking homes do not demonstrate single-language vocabulary skills on par with national monolingual norms (Mancilla-Martinez & Lesaux, 2011; Pollard-Durodola et al., 2018). For English-only vocabulary, this pattern of results is to be expected, given that the majority of students in the sample were formally designated as LEP. For Spanish-only vocabulary, this pattern of results is also somewhat expected, given that students were not afforded formal Spanish language instruction. As such, the monolingually-normed evaluations of vocabulary knowledge do not reflect the life experiences of the students in this study.

In sharp contrast, DLLs' Spanish-English conceptually-scored vocabulary was significantly higher than not only their English- and Spanish-only vocabulary, but also than their English word reading skills ($t(54) = 7.36$, $p < .001$). As hypothesized based on existing evidence (Mancilla-Martinez et al., 2018), DLLs evidenced age-appropriate conceptually-scored receptive vocabulary skills. Inclusion of conceptually-scored vocabulary measures that are sensitive to participants' linguistic backgrounds (i.e., Spanish-English bilinguals) appears promising for understanding vocabulary knowledge and its developmental trajectory for DLLs. In other words, solely utilizing English-only and Spanish-only vocabulary measures normed on monolingual populations might have resulted in the prevalent, and potentially deficit-oriented, finding of limited vocabulary knowledge among DLLs. Use of a bilingually-normed, conceptually-scored vocabulary measure instead reveals that DLLs possess rich vocabulary knowledge. Given that conceptually-scored vocabulary measures have not been widely studied to understand DLLs' reading development in U.S. schools, this approach warrants further investigation.

Word Reading Limits Reading Comprehension

English word reading emerged as the single, robust predictor of English reading comprehension. During the early elementary grades, the literacy instructional focus is understandably largely focused on helping students develop their word reading skills. Because students' word reading skills place a limit on the extent to which they can read

texts, it is also difficult to differentiate word reading from reading comprehension at this developmental stage. In this study, and in line with previous findings (Francis, Fletcher, Catts, & Tomblin, 2005; Mancilla-Martinez & Lesaux, 2010), the correlation between word reading and reading comprehension was high enough to warrant a composite. It is therefore unsurprising that variation in children's ability to read printed words represented the strongest predictor of variability in their ability to comprehend the text being read.

In contrast to word reading proficiency, students' receptive vocabulary knowledge—in both English and Spanish—did not emerge as significant predictors of English reading comprehension at this developmental stage (i.e., early elementary grades). This finding aligns with previous studies that did not find vocabulary knowledge as a large contributor to reading comprehension during the early elementary grades (e.g., Mancilla-Martinez & Lesaux, 2011; Nakamoto, Lindsey, & Manis, 2008). While not entirely unexpected in light of findings that show language comprehension (e.g., vocabulary knowledge) becomes a stronger predictor of reading comprehension in later grades as reading tasks become more meaning-based (e.g., Lesaux et al., 2010; Mancilla-Martinez, Kieffer, Biancarosa, Christodoulou, & Snow, 2011; Mancilla-Martinez & Lesaux, 2017; Proctor, Carlo, August, & Snow, 2005), we did expect some influence of vocabulary. In particular, we hypothesized that conceptually-scored vocabulary might exert an influence on DLLs' English reading comprehension, and this was not the case. It is possible that it may be premature to expect an influence on reading comprehension, but this finding also raises questions about the conceptually-scored assessment.

From a theoretical standpoint, the use of conceptually-scored vocabulary measures with bilinguals is well-supported (Kroll & Stewart, 1994). Indeed, even monolingual theoretical models such as the Knowledge Hypothesis (Anderson & Freebody, 1981) posit that building knowledge is not language-dependent, and that assessing concepts—regardless of language—is critical. Like all students, the DLLs in this sample are effectively building knowledge. But unlike monolinguals, they are amassing concepts in both Spanish and English. Umansky and Reardon (2014) report that Latino DLLs in dual-language programs were reclassified as English proficient at a slower pace compared to those in English-only programs. However, Umansky and Reardon also found that DLLs in dual-language programs ultimately had higher *long-term* outcomes, such as a higher overall reclassification rate and higher English proficiency and academic performance. This suggests that DLLs who are effectively acquiring knowledge in both Spanish and English, which conceptually-scored vocabulary measures are designed to tap, will likely find positive impacts on their academic performance, including their English language proficiency and their English reading comprehension, over time. In a similar vein, recent work has shown that vocabulary skills as early as kindergarten predict reading comprehension at the onset of high school entry (Mancilla-Martinez & Lesaux, 2017), but not shorter term (Mancilla-Martinez & Lesaux, 2011). We thus argue that conceptually-scored vocabulary measures have the potential for better understanding the language comprehension skills of DLLs and warrants further study. At the same time, we recognize that a key challenge is the push for immediate, short-term impact in today's educational context.

The Intriguing Role of Productive Language

One of the most intriguing findings from this study is that DLLs' home language use (i.e., the language children were reported to productively use at home) may warrant further study to understand their English reading comprehension development. Indeed, our findings raise questions about the language modality that might be of most utility. Our results suggest that tapping productive language may be especially important during the early elementary grade years. Home language only emerged as significant when children's own productive language use was included in the models, and not when only home language exposure (i.e., the language children were reported to receptively hear at home) was considered. In fact, the influence of English receptive vocabulary was attenuated to non-significance when children's home language use was accounted for. However, productive language use only influenced fall, and not spring, English reading comprehension. The fact that home language use data were obtained from parents at study entry may help explain the more proximal effect on fall compared to spring English reading comprehension. It may be that their language use shifted over the course of the academic school year, as previous research has found that home language use is dynamic over time (Mancilla-Martinez & Kieffer, 2010). Given the importance of schooling for students' language development (Duursma et al., 2007; Jackson, Schatschneider, & Leacox, 2014; Skibbe, Connor, Morrison, & Jewkes, 2011), it may also be that school language use exerted greater influence than home language use over the course of the school year.

This potential finding is not without limitations, but, from a theoretical standpoint, warrants further investigation, as the ability to produce language is related to lexical quality. Perfetti (2007) defines lexical quality as "the extent to which the reader's knowledge of a given word represents the word's form and meaning constituents and knowledge of word use that combines meaning with pragmatic features" (p. 359). Perfetti also underscores that, logically, readers vary in the average lexical quality of their words, and posits that lexical quality has consequences for comprehension. Similarly, some work suggests that language production (compared with receptive language) may be more intertwined with comprehension (MacDonald, 2013; Pickering & Garrod, 2007). Likewise, Swain's output hypothesis (2000) suggests that as students produce language in interactions with others, they "produce language more deeply, with more mental effort than does input, which would thus seem to have a potentially significant role in language development" (p. 99). These findings may help shed light on the intriguing role that children's home language use (i.e., productive domain) appears to play, compared with their home language exposure (i.e., receptive domain) and the direct measure of children's receptive vocabulary. If productive language potentially more effectively helps predict DLLs' English reading comprehension, testing more parsimonious models of reading comprehension for this population is warranted. For practitioners, this finding could also help improve the efficiency of language assessments by narrowing the battery to potentially include only productive, rather than both productive and receptive, measures. It may also justify greater attention to language production in instructional contexts with DLLs (Bunch, 2013; Gibbons, 2002; Soto-Hinman, 2011).

Limitations and Future Research

One of the key limitations of this study is that we did not directly assess children's productive vocabulary. While their home language use data provided an index of both receptive and productive language, we only directly assessed receptive vocabulary due to testing time constraints in the school setting. We nonetheless assert that examining whether any of the receptive vocabulary measures (i.e., English-only, Spanish-only, and Spanish-English conceptually-scored) have a *long-term* effect on children's reading comprehension after the early elementary grade years is also needed, as some work suggests might be the case (Mancilla-Martinez & Lesaux, 2017). At the same time, and as we have discussed, our findings also point to a potentially promising role of productive language based on the home language use data we did obtain. It is possible that productive vocabulary measures, including productive conceptually-scored vocabulary, may emerge as significant contributors of DLLs' English reading comprehension. A clear direction for future research is to test a model of English reading comprehension for DLLs that accounts for *both* receptive and expressive vocabulary, including conceptually-scored measures. Further, and also as previously noted, we were unable to obtain English word reading scores for all of our participants as 12 were unable to pass the practice items. Thus, it is likely that the average English word reading performance among our sample was in fact overestimated, as previously discussed. Thus, studies that attend to the language and literacy achievement of DLLs in new destination states, as we have done in this study, are necessary. Our results suggest DLLs' word reading skills might not be adequately supported and more research would help shed light on the extent to which this might in fact be the case. Finally, our relatively small sample size may have contributed to our inability to detect potential differences between LEP and non-LEP students. Relatedly, we did not test for grade level in our analysis as we used standard (or scaled) scores for all of the measures of interest, which did not allow us to examine grade level effects. The conceptually-score vocabulary measure did not provide growth scaled scores and we instead tested for grade level effects using the raw scores in the analysis. However, we found no main effects of grade on the outcomes of interest. Because our sample size could have influenced the results, replication studies with larger samples are warranted.

Conclusion

This study aimed to contribute to the field's understanding of English reading comprehension among DLLs from Spanish-speaking homes in the Southern region of the U.S. experiencing historic rates of school-age DLL enrollment. It also aimed to shed light on the extent to which various conceptualizations of vocabulary—including the use of measures that simultaneously account for Spanish and English—influence English reading comprehension outcomes during the foundational early elementary years. Our results show that DLLs in the Southern region of the U.S. evidence not only low English reading comprehension, but also generally low English word reading skills that place a limit on their English reading comprehension performance. Furthermore, results of this study suggest that DLLs' productive language skills, proxied by their home language use patterns in this study, may be especially important in understanding their English reading comprehension outcomes.

References

- Anderson RC, & Freebody P (1981). Vocabulary knowledge In Guthrie J (Ed.), *Comprehension and Teaching: Research Reviews* (pp. 77–117). Newark, DE: International Reading Association.
- August D, & Shanahan T (2006), editors. *Developing literacy in second-language learners: Report of the National Literacy Panel on Language-Minority Children and Youth*. Lawrence Erlbaum Associates: Mahwah, NJ.
- August D, Carlo M, Dressler C, & Snow C (2005). The critical role of vocabulary development for English language learners. *Learning Disabilities*, 20(1), 50–57. doi: 10.1111/j.1540-5826.2005.00120.x
- Braze D, Katz L, Magnuson JS, Einar Mencl W, Tabor W, Van dyke JA, ...Shankweiler DP (2016). Vocabulary does not complicate the simple view of reading. *Reading and Writing: An Interdisciplinary Journal*, 29(3), 435–451. doi: 10.1007/s11145-015-9608-6
- Bunch GC (2013). Pedagogical language knowledge: Preparing mainstream teachers for English learners in the new standards era. *Review of Research in Education*, 37, 298–341. doi: 10.3102/0091732X12461772
- Cárdenas-Hagan E, Carlson CD, & Pollard-Durodola SD (2007). The cross-linguistic transfer of early literacy skills: The role of initial L1 and L2 skills and language of instruction. *Language, Speech, and Hearing Services in Schools*, 38(3), 249–259. doi: 10.1044/0161-1461(2007/026)
- Carlisle JF, Beeman M, Davis LH, & Spharim G (1999). Relationship of metalinguistic capabilities and reading achievement for children who are becoming bilingual. *Applied Psycholinguistics*, 20, 459–478.
- Carlo MS, August D, McLaughlin B, Snow CE, Dressler C, Lippman DN, ... White CE (2011). Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms. *Reading Research Quarterly*, 39(2), 188–215. doi: 10.1598/RRQ.39.2.3
- Collins BA (2015). Dual language development of Latino children: Effect of instructional program type and the home and school language environment. *Early Childhood Research Quarterly*, 29(3), 389–397. doi: 10.1016/j.ecresq.2014.04.009
- Conners F (2009). Attentional control and the simple view of reading. *Reading and Writing: An Interdisciplinary Journal*, 22(5), 591–613. doi:10.1007/s11145-008-9126-x
- De Houwer A (2007). Parental language input patterns and children's bilingual use. *Applied psycholinguistics* 28(3), 411–424. doi:10.1017.S0142716407070221
- De Houwer A (2009). *Bilingual first language Acquisition*. Bristol, UK: Multilingual Matters.
- Dunn LM, & Dunn DM (2007). *Peabody Picture Vocabulary Test – 4*. Bloomington, MN: NCS Pearson, Inc.
- Dunn L, Padilla E, Lugo D, & Dunn L (1986). *Test de Vocabulario en Imagenes Peabody*. Circle Pines, MN: American Guidance Service.
- Durguno lu A, Nagy WE, & Hancin-Bhatt B (1993). Cross-language transfer of phonemic awareness. *Journal of Educational Psychology*, 85(3), 453–465. doi: 10.1037/0022-0663.85.3.453
- Duursma E, Romero-Contreras S, Szuber A, Proctor P, Snow C, August D, & Calderon M (2007). The role of home literacy and language environment on bilinguals' English and Spanish vocabulary development. *Applied Psycholinguistics*, 28, 171–190. doi: 10.1017.S0142716406070093
- Foorman BR, Herrera S, Petscher Y, Mitchell A, & Truckenmiller A (2015). The structure of oral language and reading and their relation to comprehension in Kindergarten through Grade 2. *Reading and Writing: An Interdisciplinary Journal*, 28(5), 655–681. doi:10.1007/s11145-015-9544-5
- Foorman B, Petscher Y, Herrera S (2018). Unique and common effects of decoding and language factors in predicting reading comprehension in Grades 1–10. *Learning and Individual Differences*, 63, 12–23. doi: 10.1016/j.lindif.2018.02.011
- Francis DJ, Fletcher JM, Catts HW, & Tomblin JB (2005). Dimensions Affecting the Assessment of Reading Comprehension In Paris SG & Stahl SA (Eds.), *Center for improvement of early reading achievement (CIERA). Children's reading comprehension and assessment* (pp. 369–394). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

- Fraser J, & Conti-Ramsden G (2008). Contribution of phonological and broader language skills to literacy. *International Journal of Language & Communication Disorders*, 43(5), 552–569. doi:10.1080/13682820701778069 [PubMed: 22612631]
- Gandara P & Mordechay K (2017). Demographic change and the new (and not so new) challenges for Latino education. *The Educational Forum*, 81(2), 148–159. doi: 10.1080/00131725.2017.1280755
- García JR, & Cain K (2014). Decoding and reading comprehension: A meta-analysis to identify which reader and assessment characteristics influence the strength of the relationship in English. *Review of Educational Research*, 84, 74–111. doi: 10.3102/0034654313499616
- Gibbons P (2002). *Scaffolding language, scaffolding learning: Teaching second language learners in the mainstream classroom*. Portsmouth, NH: Heinemann.
- Gough P, & Tunmer WE (1986). Decoding, reading, and reading disability. *Remedial and Special Education*, 7, 6–10. doi:10.1177/074193258600700104
- Gross M, Bauc M, & Kaushanskaya M (2014). Conceptual scoring of receptive and expressive vocabulary measures in simultaneous and sequential bilingual children. *American Journal of Speech-Language Pathology*, 23(4), 574–586. doi:10.1044/2014 [PubMed: 24811415]
- Jackson CW, Schatschneider C, & Leacox L (2014). Longitudinal analysis of receptive vocabulary growth in young Spanish English-speaking children from migrant families. *Language, Speech, and Hearing Services in Schools*, 45, 40–51. doi: 10.1044/2013_LSHSS-12-0104
- Hammer CS, Lawrence FR, & Miccio AW (2008). Exposure to English before and after entry into Head Start 1: Bilingual children's receptive language growth in Spanish and English. *International Journal of Bilingual Education and Bilingualism*, 11(1), 30–56. doi:10.2167/beb376.0 [PubMed: 26430382]
- Hammer CS, Komaroff E, Rodriguez BL, Lopez LM, Scarpino SE, & Goldstein B (2012). Predicting Spanish-English bilingual children's language abilities. *Journal of Speech, Language, and Hearing Research*, 55(5), 1251–1264. doi: 10.1044/1092-4388(2012/11-0016)
- Hammer CS, Hoff E, Uchikoshi Y, Gillanders C, Castro DC, Sandilos LE (2014). The language and literacy development of young dual language learners: A critical review. *Early Childhood Research Quarterly*, 29, 715–733. doi:10.1016/j.ecresq.2014.05.008 [PubMed: 25878395]
- Hoff E (2018). Lessons from the study of input effects on bilingual development. *International Journal of Bilingualism*. doi:10.1177/1367006918768370
- Hoover WA, & Gough PB (1990). The simple view of reading. *Reading and Writing: An Interdisciplinary Journal*, 2(2), 127–160.
- Hurtado N, Grüter T, Marchman VA, & Fernald A (2014). Relative language exposure, processing efficiency and vocabulary in Spanish-English bilingual toddlers. *Bilingual: Language and Cognition*, 17(1), 189–202. doi: 10.1017/s136672891300014x
- Kelley MF, Roe M, Blanchard J, & Atwill K (2012). The influence of Spanish vocabulary and phonemic awareness on beginning English reading development: A three-year (K-2nd) longitudinal study. *Journal of Research in Childhood Education*, 1, 42–59. doi: 10.1080/02568543.2014.973127
- Kendeou P, Savage R, & Van den Broek P (2009). Revisiting the simple view of reading. *British Journal of Educational Psychology*, 79(2), 353–370. doi: 10.1348/978185408X369020
- Kintsch W (1988). The role of knowledge in discourse comprehension: A construction-integration model. *Psychological Review*, 95(2), 163–182. [PubMed: 3375398]
- Kroll JF, & Stewart E (1994). Category interference in translation and picture naming: Evidence for asymmetric connections between bilingual memory representations. *Journal of Memory and Language*, 33(2), 149–174. doi:10.1006/jmla.1994.1008
- Lesaux NK, Crosson AC, Kieffer MJ, & Pierce M (2010). Uneven profiles: Language minority learners' word reading, vocabulary, and reading comprehension skills. *Journal of Applied Developmental Psychology*, 31(6), 475–483. doi: 10.1016/j.appdev.2010.09.004 [PubMed: 21243117]
- Lesaux NK, Kieffer MJ, Faller SE, & Kelley JF (2010). The effectiveness and ease of implementation of an academic vocabulary intervention for linguistically diverse students in urban middle schools. *Reading Research Quarterly*, 45(2), 196–228. doi: 10.1598/RRQ.45.2.3

- Lindsey KA, Manis FR, & Bailey CE (2003). Prediction of first-grade reading in Spanish-speaking English-language learners. *Journal of Educational Psychology*, 95, 482–494. doi:10.1037/0022-0663.95.3.482
- Lonigan CJ, & Milburn TF (2017). Identifying the dimensionality of oral language skills of children with typical development in preschool through fifth grade. *Journal of Speech, Language, and Hearing Research*, 60(8), 2185–2198. doi: 10.1044/2017_JSLHR-L-15-0402
- Macaruso P, & Shankweiler D (2010). Expanding the simple view of reading in accounting for reading skills in community college students. *Reading Psychology*, 31(5), 454–471. doi: 10.1080/02702710903241363
- MacDonald MC (2013) How language production shapes language form and comprehension. *Frontiers in Psychology*, 4(226), 1–16. doi: 10.3389/fpsyg.2013.00226 [PubMed: 23382719]
- McFarland J, Hussar B, de Brey C, Snyder T, Wang X, Wilkinson-Flicker S, Gebrekristos S, Zhang J, Rathbun A, Barmer A, Bullock Mann F, and Hinz S (2017). *The Condition of Education 2017* (NCES 2017- 144) U.S. Department of Education. Washington, DC: National Center for Education Statistics Retrieved [date] from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017144>.
- Mancilla-Martinez J, & Kieffer MJ (2010). Language minority learners' home language use is dynamic. *Educational Researcher*, 39(7), 545–546. doi:10.3102/0013189X10383168
- Mancilla-Martinez J, Greenfader CM, & Ochoa W (2018). Spanish-speaking preschoolers' conceptual vocabulary knowledge: Towards more comprehensive assessment. *Dialog*, 21(1), 22–49.
- Mancilla-Martinez J, Kieffer MJ, Biancarosa G, Christodoulou JA, & Snow CE (2011). Investigating English reading comprehension growth in adolescent language minority learners: Some insights from the simple view. *Reading and Writing: An Interdisciplinary Journal*, 24(3), 339–354. doi: 10.1007/s11145-009-9215-5
- Mancilla-Martinez J, & Lesaux NK (2010). Predictors of reading comprehension for struggling readers: The case of Spanish-speaking language minority learners. *Journal of Educational Psychology*, 102(3), 701–711. doi:10.1037/a0019135 [PubMed: 20856691]
- Mancilla-Martinez J, & Lesaux N (2011). Early home language use and later vocabulary development. *Journal of Educational Psychology*, 103(3), 535–546. doi: 10.1037/a0023655
- Mancilla-Martinez J, & Lesaux NK (2017). Early indicators of later English reading comprehension outcomes among children from Spanish-speaking homes. *Scientific Studies of Reading*, 21(5), 428–448. doi: 10.1080/10888438.2017.1320402 [PubMed: 31511760]
- Mancilla-Martinez J & Vagh SB (2013). Growth in toddler's Spanish, English, and conceptual vocabulary knowledge. *Early Childhood Research Quarterly*, 28, 555–567. doi:10.1016/j.ecresq.2013.03.004
- Manis FR, Lindsey KA, & Bailey CE (2004). Development of reading in grades K-2 Spanish-speaking English-language learners. *Learning Disabilities Research & Practice*, 19(4), 214–224. doi:10.1111/j.1540-5826.2004.00107.x
- Martin N (2013). *Receptive One-Word Picture Vocabulary Test- 4: 2012 Spanish-Bilingual Edition (ROWPVT- 4:SBE)*. Academic Therapy Publications Novato, CA.
- Melby-Lervåg M, & Lervåg A (2014). Reading comprehension and its underlying components in second-language learners: A meta-analysis of studies comparing first- and second-language learners. *Psychological Bulletin*, 140(2), 409–433. doi: 10.1037/a0033890 [PubMed: 23937316]
- Melby-Lervåg M, & Lervåg A (2011). Cross-linguistic transfer of oral language, decoding, phonological awareness and reading comprehension: A meta-analysis of the correlational evidence. *Journal of Research in Reading*, 34(1), 114–135. doi: 10.1111/j.1467-9817.2010.01477.x
- Migration Policy Institute. (2015). ELL information center fact sheet series: Top languages spoken by English language learners nationally and by state. Retrieved from <https://www.migrationpolicy.org/research/top-languages-spoken-english-language-learners-nationally-and-state>
- Nagy WE (1988). *Teaching vocabulary to improve reading comprehension*. Urbana, IL: ERIC Clearinghouse on Reading and Communication Skills.

- Nakamoto J, Lindsey KA, Manis FR (2007). A longitudinal analysis of English language learners' word decoding and reading comprehension. *Reading & Writing*, 20(7), 691–719. doi:10.1007/s11145-006-9045-7
- Nakamoto J, Lindsey KA, & Manis FR (2008). A cross-linguistic investigation of English language learners' reading comprehension in English and Spanish. *Scientific Studies of Reading*, 12(4), 351–371. doi:10.1080/10888430802378526
- Oller DK & Eilers RE (2002). *Language and literacy in bilingual children*. Tonawanda, NY: Multilingual Matters.
- Olsen L (2014). Meeting the unique needs of long term English language learners: A Guide for educators. National Education Association Retrieved from https://www.rcoe.us/educational.../NEA_Meeting_the_Unique_Needs_of_LTELEs.pdf
- Ouellette GP (2006). What's meaning got to do with it: The role of vocabulary in word reading and reading comprehension. *Journal of Educational Psychology*, 98(3), 554–566. doi: 10.1037/0022-0663.98.3.554
- Ouellette G, & Beers A (2010). A not-so-simple view of reading: How oral vocabulary and visual-word recognition complicate the story. *Reading and Writing: An Interdisciplinary Journal*, 23(2), 189–208. doi:10.1007/s11145-008-9159-1
- Pearson BZ, Fernández SC, Lewedeg V, & Oller DK (1997). The relation of input factors to lexical learning by bilingual infants. *Applied Psycholinguistics*, 18(1), 41–58. doi :10.1017/S0142716400009863
- Perfetti C, Landi N, Oakhill J (2005). The acquisition of reading comprehension skills In Snowling MJ, & Hulme C (Eds.), *The science of reading: A handbook*, (pp. 227–247). Malden, MA: Blackwell Publishing.
- Perfetti C (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading*, 11(4), 357–383. doi:10.1080/10888430701530730
- Place S, & Hoff E (2011). Properties of dual language exposure that influence 2-year-olds' bilingual proficiency. *Child Development*, 82(6), 1834–1849. doi: 10.1111/j.1467-8624.2011.01660.x [PubMed: 22004372]
- Poarch GJ, Van Hell JG, & Kroll J (2015). Accessing word meaning in beginning second language learners: Lexical or conceptual mediation? *Bilingualism: Language and Cognition*, 18(3), 357–371. doi:10.1017/S1366728914000558
- Pollard-Durodola SD, Gonzalez JE, Saenz L, Resendez N, Kwok O, Leina Z, & Davis H (2018). The effects of content-enriched shared book reading versus vocabulary-only discussions on the vocabulary outcomes of preschool dual language learners. *Early Education and Development*, 29(2), 245–265. doi: 10.1080/10409289.2017.1393738
- Pickering MJ, and Garrod S (2007). Do people use language production to make predictions during comprehension? *Trends in Cognitive Sciences*, 11(3), 105–110. [PubMed: 17254833]
- Proctor CP, Carlo M, August D, & Snow C (2005). Native Spanish-speaking children reading in English: Toward a model of comprehension. *Journal of Educational Psychology*, 97(2), 246–256. doi:10.1037/0022-0663.97.2.246
- Proctor CP, Carlo M, August D, & Snow C (2006). The intriguing role of Spanish language vocabulary knowledge in predicting English reading comprehension. *Journal of Educational Psychology*, 98(1), 159–169. doi:10.1037/0022-0663.98.1.159
- Protopapas A, Mouzaki A, Sideridis GD, Kotsolakou A, & Simos PG (2013). The role of vocabulary in the context of the simple view of reading. *Reading & Writing Quarterly*, 29(2), 168–202. doi:10.1080/10573569.2013.758569
- Quiroz BG, Snow CE, & Zhao J (2010). Vocabulary skills of Spanish-English bilinguals: Impact of mother-child language interactions and home language and literacy support. *International Journal of Bilingualism*, 14(4), 379–399. doi: 10.1177/1367006910370919
- RAND Reading Study Group. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Santa Monica, CA: RAND.
- Reed DK, Petscher Y, & Foorman BR (2016). The contribution of vocabulary knowledge and spelling to the reading comprehension of adolescents who are and are not English language learners.

- Reading and Writing: An Interdisciplinary Journal, 29(4), 633–657. doi: 10.1007/s11145-015-9619-3
- Ribot KM, Hoff E, & Burridge A (2018). Language use contributes to expressive language growth: Evidence from bilingual children. *Child Development*, 89(3), 929–940. doi: 10.1111/cdev.12770 [PubMed: 28245341]
- Ruiz Soto AG, Hooker S, & Batalova J (2015). *Top Languages Spoken by English Learners Nationally and by State*. Washington D.C.: Migration Policy Institute.
- Sabatini JP, Sawaki Y, Shore JR, & Scarborough HS (2010). Relationships among reading skills of adults with low literacy. *Journal of Learning Disabilities*, 43(2), 122–138. doi:10.1177/0022219409359343 [PubMed: 20179307]
- Scarborough H (2001). Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice In Neuman SB & Dickinson DK (Eds.), *Handbook of early literacy* (pp. 97–110). NY: Guilford Press.
- Schmitt SA, Simpson AM, & Friend M (2011). A longitudinal assessment of the home literacy environment and early language. *Infant and Child Development*, 20(6), 409–431. doi: 10.1002/icd.733 [PubMed: 28701901]
- Shankweiler D, Lundquist E, Katz L, Stuebing KK, Fletcher JM, Brady S, ... Shaywitz BA (1999). Comprehension and decoding: Patterns of association in children with reading difficulties. *Scientific Studies of Reading*, 3(1), 69–94. doi: 10.1207/s1532799xssr0301_4
- Sheng L, Bedore LM, Peña ED, & Fiestas CE (2013). Semantic development in Spanish-English bilingual children: Effects of age and language experience. *Child Development*, 84(3), 1034–1045. doi:10.1111/cdev.12015Child [PubMed: 23163772]
- Skibbe LE, Connor CM, Morrison FJ, & Jewkes AM (2011). Schooling effects on preschoolers' self-regulation, early literacy, and language growth. *Early Childhood Research Quarterly*, 26(1), 42–49. doi:10.1016/j.ecresq.2010.05.001 [PubMed: 24068856]
- Soto-Hinman I (2011). Increasing academic oral language development: Using English language learner shadowing in classrooms. *Multicultural Education*, 18(2), 21–23.
- Spencer M, & Wagner RK (2017). The comprehension problems for second-language learners with poor reading comprehension despite adequate decoding: A meta-analysis. *Journal of Research in Read* doi: 10.1111.1467-9817.12080
- Spear-Swerling L (2004). A road map for understanding reading disability and other reading problems: Origins, intervention, and prevention In Ruddell R & Unrau N (Eds.), *Theoretical models and processes of reading: Vol. 5* Newark, DE: International Reading Association.
- Swain M (2000). The Output Hypothesis and beyond: Mediating Acquisition through Collaborative Dialogue In Lantolf JP (Ed.), *Sociocultural Theory and Second Language Learning* (pp. 97–114). Oxford, UK: Oxford University Press.
- Torgesen JK, Wagner RK, & Rashotte CA (2012). *Test of Word Reading Efficiency-2*. Austin, TX: Pro-Ed.
- Tunmer WE, & Chapman JW (2012). The simple view of reading redux vocabulary knowledge and the independent components hypothesis. *Journal of Learning Disabilities*, 45(5), 453–466. doi:10.1177/0022219411432685 [PubMed: 22293683]
- Umansky IM (2016). To be or not to be EL: An examination of the impact of classifying students as English Learners. *Educational Evaluation and Policy Analysis*, 38(4), 714–737. doi:10.3102/0162373716664802
- Umansky IM, & Reardon SF (2014). Reclassification patterns among Latino English learner students in bilingual, dual immersion, and English immersion classrooms. *American Educational Research Journal*, 51(5), 879–912. doi:10.3102/0002831214545110
- Vagh SB, Pan BA, & Mancilla-Martinez J (2009). Measuring growth in bilingual and monolingual children's English productive vocabulary development: The utility of combining parent and teacher report. *Child Development*, 80(5), 1545–1563. doi: 10.1111/j.1467-8624.2009.01350.x [PubMed: 19765017]
- Verhoeven L (2000). Components in early second language reading and spelling. *Scientific Studies of Reading*, 4(4), 313–330. doi: 10.1207/S1532799XSSR0404_4

- Verhoeven L, & Van Leeuwe J (2012). The simple view of second language reading throughout the primary grades. *Reading Writing: An Interdisciplinary Journal*, 25(8), 1805–1818. doi: 10.1007/s11145-011-9346-3
- Weisleder A, & Fernald A (2013). Talking to children matters: Early language experience strengthens processing and builds vocabulary. *Psychological Science*, 24(11), 2143–2152. doi:10.1177/0956797613488145 [PubMed: 24022649]
- Williams KT (2001). *Group Reading Assessment and Diagnostic Evaluation: Technical manual*. Circle Pines, MN: American Guidance Service, Inc.
- Winsler A, Burchinal MR, Tien HC, Peisner-Feinberg E, Espinosa L, Castro DC, ... De Feyter J (2014). Early development among dual language learners: The roles of language use at home, maternal immigration, country of origin, and socio-demographic variables. *Early Childhood Research Quarterly*, 29(4), 750–764. doi: 10.1016/j.ecresq.2014.02.008
- Wise JC, Sevcik RA, Morris RD, Lovett MW, & Wolf M (2007). The relationship among receptive and expressive vocabulary, listening comprehension, pre-reading skills, word identification skills, and reading comprehension by children with reading disabilities. *Journal of Speech, Language, and Hearing Research*, 50(4), 1093–1109. doi: 10.1044/1092-4388(2007/076)
- Wright TS, & Cervetti GN (2016). A systematic review of the research on vocabulary instruction that impacts text comprehension. *Reading Research Quarterly*, 52(2), 203–226. doi:10.1002/rtrq.163

Educational Impact and Implications Statement:

Given the importance of reading comprehension for overall academic success and the demographic shifts across classrooms in the United States more generally and in the Southern region of the U.S. more specifically, there is an increasing need to understand the factors that contribute to English reading comprehension outcomes among school-aged dual language learners' (DLLs) from Spanish-speaking homes. This study explored how word reading, receptive vocabulary, and home language use patterns contribute to English reading comprehension among DLLs from Spanish-speaking, low-income homes in an urban school district in the Southern U.S. Results confirmed the robust role of word reading as a predictor of English reading comprehension, but, unlike previous work, also revealed that DLLs' word reading skills require further support and development. While vocabulary was not a robust predictor, assessments that measured knowledge of concepts as they were distributed across both Spanish and English were found to be more effective at demonstrating the rich linguistic knowledge DLLs possess. In fact, the previously noted gap between generally adequate word reading and low vocabulary among DLLs varied significantly depending on the vocabulary measure used. Finally, findings suggest that the language students produce at home may be more important than the language students are exposed to at home, warranting further research into the role of the productive language domain.

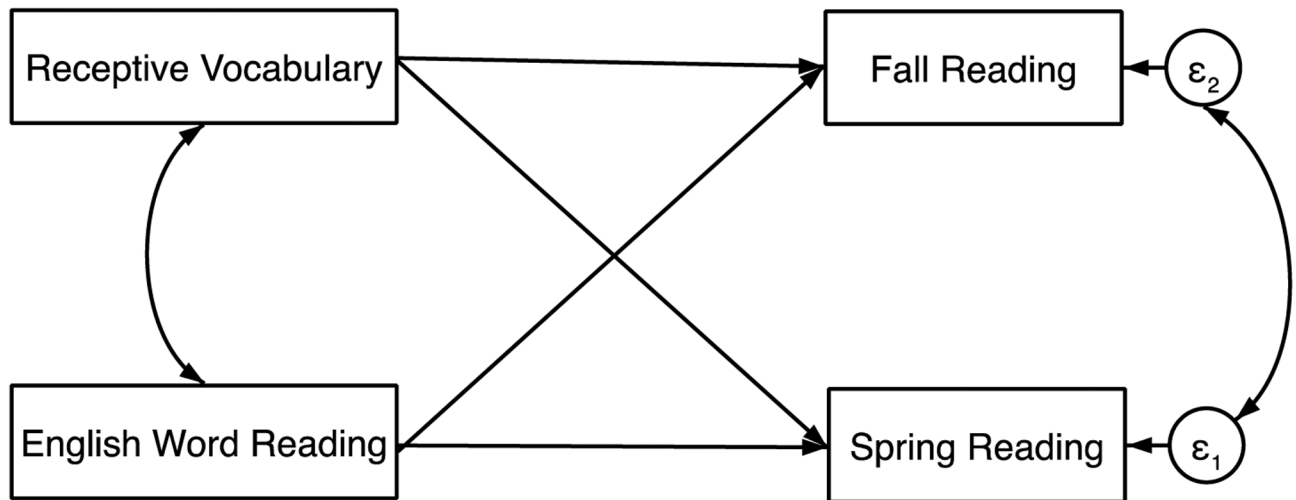


Figure 1. Hypothesized structural equation model showing the relationship among receptive vocabulary, English word reading, and English reading comprehension. We tested whether English-only, Spanish-only, and Spanish-English conceptually-scored vocabulary would predict either fall or spring English reading comprehension, controlling for the effects of English word reading.

Table 1

Patterns of language exposure to child and language use by child with all household members, with Spearman correlations between language exposure and use

	M	SD	n	r
Language spoken to the child by the mother	1.63	.86	64	.5
Language child speaks to mother	2.11	1.06	64	
Language spoken to the child by the father	1.7	.87	60	.7
Language child speaks to father	2.03	1.09	60	
Language spoken to the child by other adults	2.08	1.2	60	.6
Language child speaks to other adults	2.39	1.27	59	
Language spoken to the child by other children	3.15	1.4	59	.8
Language child speaks to other children	3.3	1.32	60	
Overall language spoken to the child (exposure)	2.13	.75	64	.7
Overall language child speaks (use)	2.45	.95	64	
Overall home language (composite)	2.29	.79	64	

Table 2

Sample means on English-only vocabulary, Spanish-only vocabulary, Spanish-English conceptually-scored vocabulary, English word reading, and English reading comprehension by grade and by Limited English Proficient (LEP) status, with sample standard deviations, and t-test comparisons between English word reading and vocabulary

	Raw Score			Standard Score			Comparison to English Word Reading		
	N	Mean	SD	Mean	SD	N	t-statistic	p-value	
English Vocabulary									
Total	73	104.08	26.68	88.84	15.61	61	3.97	.71	.48
Grade 1	39	91.23	18.64	88.03	12.14				
Grade 3	34	118.82	27.09	89.76	18.99				
Spanish Vocabulary									
Total	73	44.71	17.23	81.11	18.18	61	11.69	4.12	< .001
Grade 1	39	38.69	13.31	81.69	16.64				
Grade 3	34	51.62	18.76	80.44	20.03				
Conceptually-scored Vocabulary									
Total	65	92.05	18.31	111.58	13.23	54	-18.78	-7.36	< .001
Grade 1	31	82.74	15.51	111.29	13.06				
Grade 3	34	100.53	16.61	111.85	13.58				
English Word Reading									
Total	61	59.49	28.67	92.80	14.92				
Grade 1	29	39.62	18.68	94.24	13.09				
Grade 3	32	77.50	23.90	91.50	16.50				
English Reading Comprehension									
Total	71	19.75	9.80	92.72	12.33				
Grade 1	38	14.66	7.18	94.18	11.87				
Grade 3	33	25.61	9.18	91.03	12.80				

Note. Standard scores were used for all measures, except for English Word Reading, as scaled scores were used. Comparison to English Word Reading refers to the difference between standard scores of each vocabulary measure and scale scores of English Word Reading measure.

Table 3
Correlations among measures of vocabulary, word reading, reading comprehension and home language

	English-only Vocabulary	Spanish-only Vocabulary	Conceptually-Scored Vocabulary	English Word Reading	Fall English RC	Spring English RC	Home Language Exposure	Home Language Use	Home Language Composite
English-only Vocabulary	1								
Spanish-only Vocabulary	.26*	1							
Conceptually-Scored Vocabulary	.31*	.43***	1						
English Word Reading	.17	.14	.10	1					
Fall English RC	.42***	.16	.21~	.73***	1				
Spring English RC	.33**	.18	.16	.67***	.81***	1			
Home Language Exposure	.23	-.15	.21	-.06	.13	.13	1		
Home Language Use	.27*	-.21	.15	-.11	.15	.05	.73***	1	
Home Language Composite	.27*	-.19	.19	-.10	.15	.09	.91***	.95***	1

Note.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

RC = Reading Comprehension.

Table 4
Standardized regression coefficients from structural equation modeling analyses predicting English reading comprehension by receptive English-only, Spanish-only, and Spanish-English conceptually-scored vocabulary and English word reading

	Model 1		Model 2		Model 3		Model 4	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
English Vocabulary	.15 (.10)	.19* (.09)					.12 (.11)	.19 (.10)
Spanish Vocabulary			.03 (.09)	.06 (.09)			-.04 (.09)	.02 (.10)
Conceptually-Scored Vocabulary					.11 (.09)	.07 (.10)	.10 (.10)	.004 (.10)
English Word Reading	.68*** (.07)	.62*** (.08)	.72*** (.06)	.65*** (.08)	.70*** (.06)	.65*** (.08)	.68*** (.07)	.61*** (.08)
Constant	2.49** (.81)	2.80** (.86)	3.01 (.78)	3.44*** (.86)	2.25* (.98)	3.11** (1.08)	1.97* (.98)	2.75* (1.07)
N	73		73		73		73	

Note.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

Table 5

Standardized regression coefficients from structural equation modeling analyses predicting English reading comprehension by receptive English-only vocabulary, English word reading, home language, and English proficiency designation

	Model 1		Model 2		Model 3	
	Fall	Spring	Fall	Spring	Fall	Spring
English Vocabulary	.13 (.10)	.17 (.09)	.08 (.10)	.16 (.10)	.09 (.10)	.16 (.10)
Word Reading	.69*** (.07)	.62*** (.08)	.73*** (.07)	.64*** (.08)	.72*** (.07)	.64*** (.08)
Home Language Exposure	.12 (.10)	.12 (.10)				
Home Language Use			.22* (.10)	.10 (.10)		
Home Language Composite					.19* (.10)	.12 (.10)
Constant	2.21** (.81)	2.53** (.87)	1.06** (.78)	2.59** (.87)	2.04* (.80)	2.52** (.87)
<i>N</i>	73		73		73	

Note.

*
 $p < 0.05$.

**
 $p < 0.01$.

 $p < 0.001$.