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Uneven profiles: Language minority learners' word reading, vocabulary, and reading comprehension skills

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ABSTRACT

English reading comprehension skill development was examined in a group of 87 native Spanish-speakers developing English literacy skills, followed from fourth through fifth grade. Specifically, the effects of Spanish (L1) and English (L2) oral language and word reading skills on reading comprehension were investigated. The participants showed average word reading skills and below average comprehension skills, influenced by low oral language skills. Structural equation modeling confirmed that L2 oral language skills had a large, significant effect on L2 reading comprehension, whereas students' word-level reading skills, whether in L1 or L2, were not significantly related to English reading comprehension in three of four models fitted. The results converge with findings from studies with monolinguals demonstrating the influence of oral language on reading comprehension outcomes, and extend these findings by showing that, for language minority learners, L2 oral language exerts a stronger influence than word reading in models of L2 reading.

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Introduction

Models of reading based on research with native English (L1) speakers have long demonstrated the multi-faceted nature of reading comprehension (e.g., RAND Reading Study Group, 2002a,b). In particular, these models have highlighted the critical roles of word reading accuracy and fluency in the process of extracting and creating meaning while reading. For monolinguals, much research has demonstrated a persistent influence of accuracy and speed of single word reading in explaining individual differences in reading comprehension outcomes, even for skilled, adult readers (Perfetti, 1985, 1988; Perfetti, Landi, & Oakhill, 2005). At the same time, vocabulary knowledge has emerged as another important and distinct predictor of reading comprehension across multiple studies with monolinguals (e.g., Anderson & Freebody, 1981; Davis, 1968), particularly for those who have transitioned from "learning to read" in the primary grades to "reading to learn" in the upper elementary grades and beyond (Chall, 1983). The growing population of language minority learners and the prevalence of their reading difficulties raises questions about this (already complex) developmental process for children charged with the task of comprehending a text in their second language (L2).

In the last decade, the U.S. population of students who are language minority learners has grown 105%, whereas the general school population has grown only 12% (National Center for Education Statistics, 2004).

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Approximately three quarters of language minority learners come from homes where Spanish is spoken (National Center for Educational Statistics, 2007). The achievement of language minority learners tends to lag well behind that of their native English-speaking peers in all content areas, and these students tend to fall farther and farther behind with increasing years of schooling as reading comprehension comes to dominate all aspects of the curriculum (de Jong, 2004; De George, 1988; Gandara & Rumberger, 2002. Indeed, these learners face the challenge of negotiating two languages and must learn to analyze and comprehend sophisticated text in a language in which, in many cases, they are not fully proficient. Yet, our understanding of the processes that contribute to reading comprehension are based predominantly on research with native English speakers (for relevant reviews see National Reading Panel, 2000; RAND Reading Study Group, 2002a,b; Snow, Burns, & Griffin, 1998). Of research conducted with language minority students, the vast majority of studies have been conducted with children in the primary grades (for a review see Lesaux, Koda, Siegel, & Shanahan, 2006). Thus, there is a need to investigate the factors that influence reading comprehension development of language minority learners in the upper elementary grades.

Findings from studies comparing language minority learners' reading development in their second language to their monolingual peers indicate that the two groups typically perform at similar levels on measures of phonological processing, word reading, and spelling (e.g., Aarts & Verhoeven, 1999; Carlisle & Beeman, 2000; Lesaux & Siegel, 2003; Lesaux et al., 2006). For example, a meta-analysis based on data from studies that compared language minority learners' and monolinguals' word reading skills indicated that these groups were equivalent in word reading accuracy (effect size = -.09, ns; Lesaux et

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al., 2006). In these studies, the proportion of children who experienced word reading difficulties was proportionally the same as in the monolingual population, and their difficulty was similarly explained primarily by a phonological awareness weakness.

However, the findings of studies on reading comprehension paint a very different picture, yielding highly consistent results that, in comparison to their monolingual peers, reading comprehension is an area of weakness for language minority learners (e.g., Aarts & Verhoeven, 1999; Carlisle, Beeman, Davis, & Spharim, 1999; Hutchinson, Whiteley, Smith, & Connors, 2003; Lindsey, Manis, & Bailey, 2003; Proctor, August, Carlo, & Snow, 2006; Proctor, Carlo, August, & Snow, 2005; Reese, Garnier, Gallimore, & Goldenberg, 2000; Verhoeven, 1990, 2000). Yet, only a small number of these studies has empirically examined the componential L2 skills that influence reading comprehension performance for this group of learners (e.g., Carlisle & Beeman, 2000; Carlisle et al., 1999; Droop & Verhoeven, 1998; Hutchinson et al., 2003; Lindsey et al., 2003). A notable finding across many of these studies is strong and significant correlations between L2 vocabulary knowledge and L2 reading comprehension for language minority learners (Carlisle et al., 1999; Carlisle & Beeman, 2000; Droop & Verhoeven, 2003; Hutchinson et al., 2003; Verhoeven, 2000). Additional research focused on cross-linguistic relationships suggests that language minority students may exploit their L1 vocabulary knowledge in comprehension of L2 texts (Carlisle et al., 1999; Jimenez, Garcia, & Pearson, 1995, 1996; Nagy, García, Durgunoglu, & Hancin-Bhatt, 1993; Proctor et al., 2006; Royer & Carlo, 1991; see also Geva & Genesee, 2006 for a review). There is a need for research to deepen our understanding of how myriad underlying skills-in particular L1 and L2 vocabulary knowledgeinfluence L2 reading comprehension outcomes. Therefore, the present investigation was designed to examine the influence of both L1 and L2 skills on English reading comprehension among a sample of Spanishspeaking language minority learners.

Efforts to postulate a model of reading comprehension for language minority learners have increased our understanding of the interplay among those underlying skills that contribute to reading comprehension performance. Three studies, designed specifically to postulate such models with language minority students in the upper elementary grades, examined the influence of word-level and oral language skills on L2 reading comprehension (Droop & Verhoeven, 2003; Hoover & Gough, 1990; Proctor et al., 2006, 2005).

Hoover and Gough (1990) outlined a simple view of reading in which reading comprehension is comprised of two somewhat independent, yet essential, components—decoding and linguistic comprehension. Investigating this hypothesis with a sample of Spanish-speaking language minority learners in the U.S. followed from first through fourth grade, the authors found that each component, assessed in English, contributed independently to English reading comprehension; they thus argued that either component (or both) could be the source of a given learner's reading difficulties. The authors also found that linguistic comprehension skills explained an increasing proportion of variance in reading comprehension over time.

Similarly, Droop and Verhoeven (2003) examined the contributions of L2 decoding and oral language skills to L2 reading comprehension outcomes with a sample of language minority students in the Netherlands, followed from third to fourth grade. Convergent with Hoover and Gough's postulated model, they found that speed and accuracy of decoding, vocabulary knowledge, and listening comprehension all contributed to comprehension outcomes, but that the influence of decoding skills weakened over time whereas the influence of oral language skills increased. L2 vocabulary knowledge, which influenced comprehension both directly and indirectly through its influence on listening comprehension, emerged as an important predictor of comprehension.

Finally, in two reports of a study conducted with a sample of fourth grade language minority learners from Spanish-speaking back-

grounds in the U.S., Proctor et al. (2006, 2005) hypothesized models built upon previous efforts by considering not only the role of L2 decoding and oral language skills in L2 reading comprehension, but also the influences of parallel skills in L1. The findings demonstrated that L2 decoding skills (i.e., alphabetic knowledge and word reading fluency), L1 and L2 vocabulary knowledge, and L2 listening comprehension all played important roles in predicting reading comprehension. Corroborating the findings of Hoover and Gough (1990) and Droop and Verhoeven (2003), their research demonstrated that L2 word reading, although a significant predictor, was less predictive of comprehension performance than oral language competencies whereas L2 listening comprehension exerted the strongest influence on comprehension outcomes. Similar to the pattern that emerged in Droop and Verhoeven's (2003) study, L2 vocabulary knowledge not only directly influenced comprehension, but also exerted an indirect influence through its relationship with listening comprehension (Proctor et al., 2005). Moreover, the contribution of L1 vocabulary knowledge to L2 comprehension was moderated by L2 word reading fluency, such that readers with stronger L2 word reading fluency benefited more from L1 vocabulary knowledge than those with poorer L2 word reading fluency skills.

Taken together, the findings from these studies suggest that at the upper elementary level, the effect of L2 word reading skills on reading comprehension becomes increasingly weak whereas the influence of linguistic ability (i.e., vocabulary and listening comprehension) exerts an increasingly strong influence on L2 reading comprehension. These findings guided the hypotheses and analyses in the present study. We anticipated that English word-level reading skills, listening comprehension, and vocabulary knowledge would each explain a significant portion of the English reading comprehension performance variance if included simultaneously in a single model, but that oral language variables would exert a stronger influence on English reading comprehension than word reading. Similarly, in light of research on cross-linguistic transfer of oral language skills noted above and Proctor et al.'s (2006) finding regarding the influence of L1 vocabulary on L2 reading comprehension, we also investigated influence of native language (i.e., Spanish) skills on English reading comprehension outcomes, anticipating that L1 vocabulary knowledge would explain a significant portion of the variance in English reading comprehension.

Method

Participants

The participants for this study were 87 students (39 girls and 48 boys) from 3 schools in a southwestern U.S. large, urban school district; they were followed from the fourth to the fifth grade. The median age of participants was 9 years 9 months in fourth grade and 10 years 9 months in fifth grade. Each of the 3 schools served a student population with low socio-economic status, ranging from 90 to 100% of students receiving free or reduced lunch. Attrition between fourth and fifth grade was minimal; only 3 students from the original sample of 90 were not assessed in fifth grade, and the final sample of 87 did not differ significantly from the original sample on any of the fourth grade measures.

The three schools from which students were recruited were selected because they each offered "biliteracy" classes in which participating children were instructed in both Spanish and English for a portion of each day, with increasing amounts of English instruction in each grade level until fifth grade. Literacy instruction was predominantly in Spanish during kindergarten and first grade, and approximately 80% English, 20% Spanish by fourth grade. These classrooms typically stay intact through the primary grades, such that the "exit" from the program happens in fourth grade. The program was not developed strictly as a vehicle for English acquisition, but rather to develop the Spanish literacy skills for children whose

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