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Language-minority children's sensitivity to the semantic relations between words

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ABSTRACT

The purpose of this study was to examine automatic language processing among Spanish-speaking language-minority children. A sample of 73 children (mean age = 90.4 months) completed two measures of semantic priming: an auditory lexical decision task and a looking-while-listening task. It was hypothesized that within- and cross-language semantic priming effects would occur but that translation priming effects would not occur. Results from vocabulary assessments indicated that language-minority children in this study were more proficient in English than they were in Spanish. Limited evidence for semantic priming effects within English and from English to Spanish emerged. In addition, substantial evidence for translation priming from Spanish to English and from English to Spanish emerged. Given the lack of within-Spanish semantic priming effects and the presence of translation priming effects from Spanish to English, the results of this study indicated that Spanish-speaking language-minority children rely on translation from their less proficient language to their more proficient language to access meaning. There was partial evidence that language-minority children's two languages are active simultaneously, indicating that early in life children develop semantic knowledge that is associated with words known in both languages.

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Introduction

Children in the United States who speak a language other than English at home are often referred to as language-minority (LM) children because the majority of the population of the country in which they live does not speak their home language. In contrast to terminology that designates limited proficiency in one language (e.g., English language learners) or specifies the order in which languages are acquired (e.g., sequential bilinguals), LM simply indicates that children speak a language at home that is not the societal language, and LM children could have any range of language proficiency or could have sequential or simultaneous exposure to their two languages. In the United States, the largest and fastest growing subgroup of LM children is children who are native Spanish speakers. As of 2011, more than 37 million people in the United States (among individuals age 5 years or older) spoke Spanish or a Spanish creole at home (U.S. Census Bureau, 2011). Furthermore, during recent years this population has expanded due to continued immigration from Latin America. Despite the cultural, linguistic, and economic diversity present within this population, Spanish-speaking LM children are at an elevated risk for struggling academically (Hemphill, Vanneman, & Rahman, 2011). An understanding of the cognitive processes that underlie the acquisition of academic skills could help to identify children at risk for struggling academically and prevent those children from falling behind their peers.

Evidence indicates that children's vocabulary knowledge is significantly related to subsequent academic outcomes (e.g., Storch & Whitehurst, 2002). According to the lexical quality hypothesis (Perfetti & Hart, 2002), children's comprehension of spoken and written language is dependent, in part, on the complexity of children's knowledge of word meanings and the ease with which children can access this knowledge. A substantial body of evidence exists regarding the development of language skills among LM children. Studies frequently report that LM children have significantly less vocabulary knowledge in their first language (L1) or second language (L2) than do monolingual children (e.g., Hoff et al., 2012; Mancilla-Martinez & Vagh, 2013). However, it appears that this is because language exposure is distributed across two languages for LM children and not because of an inherently lower propensity for the acquisition of language skills (Bedore & Peña, 2008). Whereas most prior studies have evaluated LM children's language skills through measures of explicit vocabulary knowledge, a novel method of examining LM children's language skills is using cognitive tasks that capture automatic language processing across L1 and L2. One method of measuring automatic language processing is through semantic priming.

Semantic priming among monolinguals

Semantic priming tasks allow a test of whether presentation of one word activates other words related to the presented word through meaning. Semantic priming effects are often indicative of underlying language proficiency. Individuals with greater language proficiency typically demonstrate stronger semantic priming effects than individuals with less language proficiency (e.g., Kotz & Elston-Güttler, 2004). Although early studies of semantic priming were primarily conducted with adults and this body of literature has continued to grow (see Lucas, 2000, for a review), more recently research has begun to examine semantic priming in monolingual children. Results of this research indicate that the degree to which semantic priming effects occur is related to developmentally important outcomes, such as reading comprehension (e.g., Cremer & Schoonen, 2013). Some evidence indicates that semantic networks begin to develop as early as 21 months of age (Arias-Trejo & Plunkett, 2009), and early development of conceptual connections in the lexicon may be important for the development of reading comprehension (Nation & Snowling, 1999). Furthermore, semantic priming effects do not emerge in children with reading disability (Betjemann & Keenan, 2008). Considering these findings, it may be important to examine how automatic language processing occurs and develops early in life to identify children at risk for developing academic difficulties.

Theories of bilingual language processing

Research on semantic priming effects among bilinguals is primarily centered on describing cross-language connections between words and concepts (e.g., Altarriba & Basnight-Brown, 2009; Pavlenko,