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Exploiting the Interconnected Lexicon: Bootstrapping English Language Learning in Young Spanish Speakers

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This article reviews commonly accepted pedagogical practices for educating school-age English language learners, especially those whose first language is Spanish, and challenges these practices on the basis of results from psycholinguistics research that cast doubt on the assumptions underlying them. Policymakers and educators have different ideas about the best methods to teach these students; to a large extent, opinions from both sides are swayed by cultural beliefs, including the idea that children benefit more from language learning when they do not use their languages together in the same context (e.g., in a classroom setting; Petitto et al., 2001; Grosjean, 2006), or that they are delayed when they learn 2 languages simultaneously (Chiocca, 1998; Watson, 1996). But this assumption is undermined by experimental findings showing that second-language learners actually benefit when they use their first language to bootstrap learning of their target language (August, Carlo, Dressler, & Snow, 2005; Dressler, Carlo, Snow, August, & White, 2011; Proctor, August, Carlo, & Snow, 2006). Moreover, recent studies show that mixed-language settings, as compared to single-language settings, do not negatively impact learning outcomes in various academic subjects (Antón, Thierry, & Duñabeitia, 2015; Antón, Thierry, Goborov, Anasagasti, & Duñabeitia, 2016). We discuss evidence that bilinguals' 2 language systems are frequently coactive via shared representations, and how such interconnectedness can bootstrap language learning without poorly affecting scholastic achievement. In addition, we propose research-based alternatives to common pedagogical practices that would exploit similarities between vocabulary in the first and second language.

What is the significance of this article for the general public?
This review suggests that a dual-language classroom approach in the United States for Spanish-speaking second-language learners of English could facilitate their social and linguistic development. Currently, most school subjects are taught in English only, and second-language learners fall measurably behind monolingual English students in their academic achievement. Incorporating the first language into academic study may bolster their educational success.

Keywords: bilingualism, second-language learning, Spanish, ELL instruction

An increasing number of children in the United States are growing up bilingual, and many of these children are entering school without a strong knowledge of English (Kena et al., 2015). In 2013, 4.4 million students in public schools across the United States were second-language learners (Kena et al., 2015). Seventy-one percent of those learners used Spanish as their first language (U.S. Census Bureau, 2013). About a quarter of Spanish-speaking children between the ages of 5 and 14 speak English "less than very well" (U.S. Census Bureau, 2013). Given the fact that schools have a legal obligation to provide the highest-quality education for second-language learners of English, researchers and policymakers have focused on how best to educate this growing population

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(*Lau v. Nichols*, 1974). However, there remains a significant academic achievement gap between English-language learners (ELLs) and monolingual students (Fry, 2007; Hoff, 2013). Some of this may result from a difference in English vocabulary knowledge, and many instructors focus attention on English-only classrooms as a way of improving that vocabulary knowledge (Yoon, 2007). As we discuss throughout this article, though, ELLs may be able to draw from their first-language vocabulary to enhance second-language learning. For example, their native-language vocabulary development contributes to the improvement of second-language reading ability (Carlisle, Beeman, Davis, & Spharim, 1999), and students acquire novel vocabulary items faster in dual-language contexts than in monolingual contexts (Kaushanskaya, Gross, & Buac, 2014). Despite this body of research, there remains an engrained belief that teachers should not use students' first language (L1) in the classroom for fear that the students might overrely on it, thereby preventing progress in second-language (L2) acquisition. This article discusses some misconceptions about bilingual education and suggests research-motivated improvements to current ELL instruction methods to bolster spoken-language comprehension and vocabulary development. We particularly focus on methods by which learners can use their L1 to scaffold learning of their L2, in hopes of taking a step toward reducing the gap in academic performance between native speakers of English and ELLs in American classrooms.

To achieve our goals, we necessarily review work from various fields including education, psycholinguistics, and second-language acquisition, the downside of which is that they use terms differently according to the lingua franca of their respective disciplines. Thus, before we begin, we define how we use terms throughout this article. *Second-language learner* refers to any child or adult who is in the process of learning a new language. The term *bilingual* will be used in an inclusive sense, encompassing second-language learners as well as balanced, highly proficient speakers of two languages. *English-language learners*, or *ELL*s, refers to students who grew up speaking a language other than English and perform below a certain threshold on tests of English proficiency, requiring them to receive additional English instruction. Regarding schooling for ELLs, *immersion* or an *immersive environment* refers to a scenario where the students are placed in an English-only classroom to learn English. *Bilingual education* will loosely refer to an educational system where more than one language is encouraged in the classroom. Finally, *translanguaging* refers to a purposeful mixing of languages in the classroom by bilingual teachers and students to encourage both linguistic and sociocultural development during learning-based activities (see García & Wei, 2014, for a review). While *code-switching*—the use of multiple languages in a conversation (Milroy & Muyskin, 1995)—can be an integral part of translanguaging because it can free up linguistic resources for the bilingual student to exploit, its effects have not yet been studied in translanguaging contexts. The advantages and disadvantages of code-switching are beyond the scope of this article, but importantly for the concept of translanguaging, there is no evidence that code-switching is a sign of poor language skills (see Werker & Byers-Heinlein, 2008, for a review).

In what follows, we first discuss pedagogical practices in ELL instruction in the section titled "Common Practices in ELL Education: Keeping the Languages Separate." We then demonstrate how these practices appear inconsistent with research findings from psycholinguistics showing that a bilingual's two languages are simultaneously "on" even in monolingual settings, raising questions about the practicality of separating learners' languages despite educators' best efforts. Next, we discuss what implications this phenomenon has for second-language word learning in the section "The Interconnected Bilingual Lexicon," before connecting this research to potential core educational applications within and outside the field of language in the section on "Potential L2 Benefits From Bilingual Education." A different methodology is suggested as a potential improvement upon the current method of second-language instruction in the section "Strategies to Incorporate Into Teaching for Better ELL Outcomes."

Common Practices in ELL Education: Keeping the Languages Separate

There are a number of misconceptions about bilingual education that stem from old research and strongly held beliefs and biases about the kinds of language environments that are harmful for learning. While people understand that children learn new languages faster and more successfully than adult learners, this fact is curiously paired with an equally strong cultural belief that bilingualism can stunt a child's linguistic development or cause "confusion" between languages, leading to a smaller vocabulary and inappropriate language-switching (Petitto et al., 2001), or that it can hinder learning (Cummins, 2005; for a discussion, see Creese & Blackledge, 2010). The chief pedagogical practice in bilingual education has thus been to keep students' two languages apart, under the assumption that such separation would alleviate any potential cross-linguistic interference and negative effects on achievement (Creese & Blackledge, 2010). That is, educators have maintained that a monolingual approach in both the L2 and other academic topics should aid bilingual students' learning. However, evidence has shown that ELLs do well in a dual-language environment. For example, Baker and colleagues tested reading achievement in elementary school-aged ELLs in either a dual-language or English-only setting. The students in the dual-language setting performed just as well as the English-only children, and the dual-language children also had marginal improvement in their Spanish reading skills (Baker et al., 2012). Moreover, classrooms that support multiple cultures can foster social development, which leads to increased confidence in the classroom and better learning outcomes. Yoon (2007) found that when teachers included the cultural experience of ELLs in various classroom exercises and encouraged the students to speak up and tell their stories, those children were accepted more by their peers, participated more in class, and engaged with the course material with more enthusiasm. In contrast, teachers who did not attempt to incorporate the ELLs in their classroom had students who were quiet and withdrawn, and did not participate or do well in class.

Some of the beliefs that children should learn in a single-language environment are based on outdated studies that found that bilinguals performed worse on tests of IQ, verbal intelligence, and mathematical skill when compared with their monolingual peers (e.g., Darcy, 1952; Peal & Lambert, 1962). However, these studies were later shown to have several design flaws that invalidated the conclusions; for example, the bilingual children were not assessed for their competency in both languages, leading to the strong possibility that they were tested in their weaker L2 (Torrance, Gowan, Wu, & Aliotti, 1970; Tsushima & Hogan, 1975), which could influence apparent IQ and math skills. In fact, in some experimental contexts, bilingualism has been shown to confer cognitive advantages for both adults and children, even when controlling for socioeconomic status factors (Bialystok & Craik, 2014; Bialystok, Craik, & Luk, 2012; Costa, Hernández, & Sebastián-Gallés, 2008; Teubner-Rhodes et al., 2016; for children: Kroll & Bialystok, 2013; but see, e.g., Colzato et al., 2008, Morton & Harper, 2007, and Paap & Greenberg, 2013, for contrary evidence).

Perhaps resulting from these differences, some parents fear teaching a second language early to their children because of a pervasive societal belief that it will confuse them (Genesee, 2008). Alternatively, some families follow methods like the one-parent-one-language approach, where one parent speaks entirely in one of the target languages and the other parent in the second language, to try to make learning easier (Barron-Hauwaert, 2004). There is little evidence on the efficacy of such approaches, and few studies examine the development of bilingual children's vocabulary in different learning environments as compared to monolinguals. However, the studies that exist show a similar pattern: Bilinguals raised in households where they are exposed to two languages at once meet all the major milestones for linguistic development at approximately the same time as monolingual children (2-word productions and a 50-word vocabulary: Petitto et al., 2001; grammatical properties: Paradis & Genesee, 1996; vocabulary development: Pearson, Fernández, & Oller, 1993). One source of confusion is that there are several studies that do not look at children's vocabulary in both languages but instead compare the developing English lexicon across monolingual and bilingual children. Bilinguals tend to have a similar overall vocabulary size across languages when

compared to monolinguals, but a smaller vocabulary size in each language alone (Bialystok & Feng, 2011; Hoff, 2013). Research examining English vocabulary in particular may be more influential in terms of news coverage and policy, as many people are still swayed by concerns that bilingualism stunts cognitive growth.

In view of early research suggesting that bilingualism could be harmful, some policymakers proposed bills that attempted to prevent non-English use in the classrooms. State governments currently have placed several restrictions on teaching methodologies in favor of a one-language immersion environment. California, Arizona, and Massachusetts have all passed laws of this nature. Policymakers may have expected that this mode of instruction would avoid potential confusion, and accelerate English language acquisition in ELLs; indeed, a number of older studies demonstrated benefits of immersion. One particularly influential case study followed a group of English-speaking students in a French immersion program; a second case study looked at Cuban refugees in an English immersion program (Lambert & Tucker, 1972; Mackey & Beebe, 1977, respectively). Both studies showed L2 improvement in the immersion situation. However, these groups of students were from privileged backgrounds; the Cuban refugees were primarily upper-class families, and the French students were from upper-middle-class families that saw the potential value of bilingualism in Canada, a country where both English and French are embraced (August & Hakuta, 1997). They are not representative of the heritage speakers and immigrants that comprise the English language-learning population in American schools, who may lack exposure in either language to academic terminology that will be critical for subsequent learning. Indeed, more recent evidence suggests that immersion-like contexts, such as a study abroad experience, can facilitate learning in adults who already have strong skills in their first language (Savage & Hughes, 2014; Serrano, Llanes, & Tragant, 2016). However, research suggests that remaining exclusively in the societally dominant language may have negative consequences for ELLs in the United States, who are still acquiring all of their languages, and are trying to learn other academic disciplines in a language with which they are less skilled (academic consequences: Hoff, 2013; health consequences: Parra, Evans, Fletcher, & Combs, 2014).

Policymakers appear to have been informed by these older studies with other groups of learners, and this has led to an increase in immersion programs in many school districts. This places the educators and policymakers at odds. However, unlike more fraught political issues, the goals of these different groups are very similar: They all want ELLs to become fluent in English so they can participate just as meaningfully in an English-speaking society as they do in their home culture.

There are other reasons why English-only pedagogical approaches have predominated. It can be difficult for teachers to understand how to incorporate ELLs into their classes when most teachers have not been trained in English as a second language (Castro, Garcia, & Markos, 2013). As a result, most of them must either devise a way to work with these students themselves, or follow the recommended procedure laid out by the government (de Schonewise & Klingner, 2012). Until recently, teaching English as a second language was considered to be a one-size-fits-all approach, without consideration of the students' L1s, their ages, or their cultural experiences (Galante, 2014). This one-size-fits-all belief, combined with the idea that these emergent bilinguals are really just "two monolinguals in one," often leads state administrators to choose immersive English environments for their students as they assume it would be the most effective way to teach (Grosjean, 2006). In addition, implementation of bilingual education in the United States requires a significant amount of funding and time for teacher training and curriculum development, which is not currently available for educators. This, too, encourages use of English immersive environments. But as we will see in the next section, bilinguals cannot help but coactivate both languages even when only one is currently in use (as is the case in single-language educational contexts). Such effects clearly undermine the effectiveness of strict attempts to keep the languages apart.

The Interconnected Bilingual Lexicon

For many years, researchers have been studying the lexicon to determine the extent to which bilinguals' two languages are interconnected.

Evidence for interconnectedness comes from several domains. First, when reading in one language, cognates (words that are similar phonologically or written similarly across the speakers' two languages) are read more quickly than noncognates (Dressler, Carlo, Snow, August, & White, 2011; van Hell & Dijkstra, 2002), suggesting that information from the language not currently in use can still "seep through" to influence lexical processing. Thus, in an English context, English–Spanish bilinguals read *the girl was very popular* faster than *the girl was very friendly*, because the word *popular* is a cognate in Spanish. Similarly, both bilinguals and second-language learners are faster to indicate that an item is a word on a lexical-decision task if that word is a cognate (Costa & Santesteban, 2004), especially if the word is presented in the weaker language (Rosselli, Ardila, Jurado, & Salvatierra, 2014).

More generally, even when in monolingual settings, bilinguals cannot selectively deactivate the language currently not in use. As a result, multiple properties of words (i.e., orthography, phonology, semantics) are temporarily activated in both languages even when processing information in a single-language context (Kroll, Bobb, & Wodniecka, 2006; Spivey & Marian, 1999; Schoonbaert, Holcomb, Grainger, & Hartsuiker, 2011; Weber & Cutler, 2004). For example, in the semantic domain, cross-linguistic priming studies demonstrate that a masked prime word in one language facilitates its categorization in the other language (Costa, Miozzo, & Caramazza, 1999; de Bruijn, Dijkstra, Chwilla, & Schriefers, 2001; Dijkstra, Van Jaarsveld, & Brinke, 1998; Kerkhofs, Dijkstra, Chwilla, & de Bruijn, 2006). Such "spread" of activation is not restricted to shared meanings across languages; rather, the phenomenon is broader, observed at multiple levels of representation. In the phonological domain, for instance, Weber and Cutler (2004) gave English instructions to bilingual Dutch–English participants to look at particular pictures. In key trials, one distractor image had a name in the other language that sounded like the target item (e.g., a picture of a lid, *deksel*, was present in an array of images when participants were asked to look at the *desk*). Participants' fixations to the correct object were delayed because they spent some time fixating the interlingual phonological competitor (e.g., the lid), compared to when the competitor was replaced with an item whose Dutch label did not overlap in sound (Weber & Cutler, 2004; see also Spivey & Marian, 1999). This suggests that as the incoming speech stream unfolds moment by moment, listeners temporarily consider related-sounding words from the irrelevant lexicon even when it is not in use. Interestingly, such cross-language phonological competition, while modulated by contextual factors, is relatively unaffected by proficiency level, suggesting that parallel language activation occurs across a range of learner skills (Chambers & Cooke, 2009).

Linguistic coactivation is also seen in "output representations" of words as users are preparing to speak (Colomé, 2001; Jared & Kroll, 2001; Jared & Szucs, 2002). For example, Colomé (2001) showed participants a word in their dominant language, Catalan, and asked if a certain phoneme was in the word or not. In certain cases, the phoneme was not actually present but would be in the Spanish translation of the word. Participants were slower to reject these phonemes as "not present" than control phonemes that were not shared by the Catalan word and its Spanish translation. This interference effect indicates that bilinguals activate both the Spanish and Catalan phonological representations as they speak (Colomé, 2001).

Although the evidence above focuses on lexical interconnectedness, there is also evidence for cross-language connections at other levels of representation as well (structural priming and verb bias: Kootstra & Doedens, 2016; phonological representation in production: Spalek, Hoshino, Wu, Damian, & Thierry, 2014), suggesting that the general finding of strong links across languages is highly pervasive. Together, the findings indicate that a bilingual's two languages are not walled off and are, to some extent, both involuntarily active even in a single-language environment. That is, these studies used only one language in the experimental context (instructions, test stimuli) but showed that certain conditions simultaneously trigger representations from both languages. This has implications for instructional practice: Avoiding the use of one language in the classroom setting will not necessarily prevent the second language's activation. Said another way, explicit separation of languages in the classroom is unlikely to alleviate the prospect of "unwanted" cross-linguistic interference com-

pletely. Instead, we suggest that students may be able to exploit the linguistic cues of their first language to aid their second-language acquisition.

As we discuss below, recent research on second-language acquisition suggests that incorporating first-language knowledge into the kindergarten–grade 12 classroom can facilitate children's vocabulary development, and can improve reading skills among ELLs (Baker et al., 2012; Yoon, 2007). We discuss how such effects capitalize on bilinguals' highly interconnected lexicon.

Potential L2 Benefits From Bilingual Education: Exploiting the Interconnected Lexicon

One way to take advantage of the interconnected lexicon would be to exploit the presence of cognates between languages. Second-language learners implicitly use word surface form similarity from their first language as they try to establish and remember new words from their L2 (Hall, 2002; Jared, Cormier, Levy, & Wade-Woolley, 2012; Sunderman & Schwartz, 2008). Thus, Spanish-speaking learners of English will find it easier to learn the English word *taxi*, since it is identical to the word *taxi* in Spanish. However, a relatively small percentage of words overall in Spanish and English are actually full cognates with similar spelling and pronunciation. There are many more words that are relatively similar in form and share some aspect of their meaning; these are known as partial cognates (Holmes & Ramos, 1993). While these partial cognates can differ in the degree to which they overlap phonologically, orthographically, and semantically, they still lead to coactivation in the bilingual lexicon (Schwartz, Kroll, & Diaz, 2007). For example, *computadora* in Spanish means *computer*. The words look similar and have the same meaning, but are not phonologically the same. There are also items that are similar in spelling and have overlapping meaning, but not identical meanings. *Librería* in Spanish refers to a bookstore, not a library (in Spanish, *biblioteca*), but there is significant semantic overlap between the meanings. Evidence suggests that learners can take advantage of these types of word pairs as well. As an extension of the cognate facilitation task, Dijkstra and colleagues (1999) showed Dutch–English bilinguals pairs of words that had incremental differences in orthography and either partial overlap or complete overlap in meaning. They found that the higher the overlap in both semantics and orthography, the faster participants made a word/nonword decision about the item (Dijkstra, Grainger, & van Heuven, 1999); but overlap did not need to be complete to be of benefit. A similar study done by Jared and colleagues (2012) tested French–English bilingual children, who were shown words from a list in one of their two languages and asked to read the word as quickly as possible once it appeared on the screen. They found a similar effect of cognate facilitation for words that are fully or partially overlapping in orthography (Jared et al., 2012).

One potential source of difficulty between languages is the presence of items that sound or look similar across languages but do not share meanings; these are known as interlingual homographs or "false friends." *Pie,* for example, refers to a foot in Spanish, not to a dessert. While instructors and textbooks often warn students early on about the presence of these words, students can actually capitalize on the false pairing to help remember and eventually encode the word meaning (Sunderman & Kroll, 2006). For example, Hall and Ecke (2003) suggested that when a student hears the German word *tschüß,* meaning "bye," the student may notice that it sounds like the English word "shoes." As a result, he or she will temporarily link the form representation of *tschüß* to "shoes" so that it can more easily be encoded in the lexicon. When the student gains more experience with the word, the representation is then shifted to more strongly link with its translation equivalent and semantic associates. This pattern of learning is reflected in the types of errors that early L2 speakers tend to make. While one might assume this would temporarily disadvantage new students, in fact the authors theorized that the ease of encoding would actually serve as an advantage. Less work has tested this prediction experimentally (especially in children), so the extent of any advantage remains unclear. However, there are also other ways in which word learning can be affected by interconnections between the two lexicons. In particular, many words between languages in similar language families share common roots that allow learners to infer meanings of novel words. We

explore the possibility that similar languages enhance learning in the next section, where we discuss how such surface-form similarity and the interconnected lexicon can improve lexical development and word learning in ELL students, and how these factors can inform methods of instruction.

Strategies to Incorporate Into Teaching for Better ELL Outcomes

Given information from previous psycholinguistic findings, we can exploit the notion of a bilingual's interconnected lexicon to support and help design an L2 learning curriculum. As noted above, both full and partial cognates benefit from simultaneous activation in the other language system. Moreover, unbalanced bilinguals, especially those that are low proficiency in their L2, like ELLs, show the greatest cognate facilitation effect, especially for frequent words (Peeters, Dijkstra, & Grainger, 2013). However, the implicit ability to notice cognates between languages and capitalize on the similarities seems to be constrained developmentally (Hancin-Bhatt & Nagy, 1994). It then follows that drawing more explicit attention to the similarities between languages would aid students' L2 learning in the spoken and written domains. For example, children's reading proficiency in their L1 predicted their ability to define cognate words in their L2 (Proctor et al., 2006). This suggests that they use their knowledge of their first-language sound systems and orthography to aid their comprehension in the classroom. The dual-language approach can build on this tendency and enhance students' learning. Similarly, Edelsky's (1982) analysis of ELLs' essays indicates that they harness their Spanish phonological and orthographic knowledge in their English compositions. Students who are more proficient in Spanish writing also show a greater ability to compose essays in English (Lanauze & Snow, 1989). These examples further demonstrate the interconnectedness of languages during language development in ELLs.

Academic Vocabulary

Explicit cognate instruction especially lends itself to learning academic vocabulary. Many education researchers have demonstrated that drawing attention to both full and partial cognates between the L1 and the L2 will facilitate learning (Cummins, 2005; Cunningham & Graham, 2000; Treville, 1996). While cognates are often mentioned in classroom instruction, they are not usually discussed as a useful tool for deciphering novel words (Cummins, 2005). Not only do cognates ease acquisition of the L2, but drawing attention to these words can also help students more easily comprehend the material taught in their content area classes, like math and science (e.g., math vocabulary: Doabler, Nelson, & Clarke, 2016; biology vocabulary: Reed, Medina, Martinez, & Veleta, 2013). Over one third of words in academic textbooks are Latin cognates, which would aid Spanish speakers (Nash, 1997). Academic vocabulary in this case contains several categories: words that are domain specific (geographical or scientific words, etc.), words that are often taught in literary contexts (e.g., *tranquil*, *bayonet*), or words that appear functionally to analyze and interpret information (e.g., *observe*, *conclude*). Because these words tend to derive from Latin roots, Spanish speakers might actually be at an advantage in learning them if they utilize their first-language knowledge. Lubliner and Hiebert (2011) translated the Academic Word List, a collection of English academic words used between kindergarten and college, into Spanish; the resulting list shows that over 70% of these words are full or partial cognates for Spanish speakers. One potential limitation of this approach is that many academic words, even if cross-language cognates, may not be typically used in home settings; ELLs may therefore not have encountered them in their Spanish-learning environment. For example, the words *geometry* and *geometría* are cognates, but are unlikely to be used outside of the classroom. Academic language differs qualitatively from the social/casual communication language that is used in the home; while both can be complex, the topics of discussion are quite different, which leads to different vocabulary usage (Nagy, Townsend, Lesaux, & Schmitt, 2012).

Despite this, there is some evidence to suggest that many academic words are cognates that would be encountered in the home; in the same analysis of the Academic Word List, 85% of the time the Spanish cognate words are more common than their English counterparts (Lubliner & Hiebert, 2011), making it more likely

that the young Spanish speakers already know the word. In the cognate pair *velocity/velocidad*, *velocidad* occurs about 35.91 times per million in spoken Spanish (Davies, 2002) while *velocity* occurs only 1.09 times per million in spoken English (Davies, 2008). This is because *velocidad* translates as the more common English word *speed.* Thus bilingual children are likely to already know the term *velocidad* from outside the academic environment, which could help them learn the academic term *velocity* more easily. A similar analysis has been done with elementary school science textbooks, which showed that about 76% of the scientific terms used were English–Spanish cognates, and half of these cognates were high-frequency words in Spanish (Bravo, Hiebert, & Pearson, 2007).

Facilitatory benefits of cognates depend on conscious awareness of the potential linkages between words. Dressler and colleagues examined the effect of explicit cognate instruction to see if application of the strategy would lead to greater skill in identifying the meaning of novel cognate and partial-cognate words (Dressler et al., 2011). Students in this study were presented with comprehension sentences that contained cognate words between Spanish and English: for example, "She began to feel *amorous towards him," where *amorous* serves as a novel vocabulary item that shares features with the word *amor* in Spanish. The participants were asked to define the unknown word. One student that did not receive explicit instruction in cognate identification responded, "Kind of exciting or something? I don't know; it doesn't give me any clues. So I don't know why." In stark comparison is a student that received the training, who responded, "Oh I think it means, like, love because in Spanish *amor* means love, and she said she began to feel. . . . Like some people feel like they love somebody else." Actively teaching lessons that link Spanish and English can help students more rapidly learn new vocabulary items; in fact, these ELLs outperformed the monolingual students at guessing the meanings of these new words, due to their first-language knowledge (Dressler et al., 2011). One future course of research would be to examine how the L2 cognate advantage carries over into bilingual children's development of new lexical representations. This would tell us something about the development of ELLs' emerging bilingual vocabulary.

Of the variety of classroom experiments conducted to assess explicit cognate instruction, only a few specifically described the methods they utilized to instruct the students. In terms of classroom structure, breaking the students into heterogeneous monolingual/bilingual groups to discuss content leads to mutually beneficial increased understanding; this is known as a peer-assisted learning strategy (Slavin, Lake, Chambers, Cheung, & Davis, 2009). One useful way to improve students' vocabulary and reading comprehension is through direct instruction of derivational morphology, where children learn to break down words into their component parts to recognize their meaning (i.e., *popularity* into *popular* and *–ity*; Kieffer & Lesaux, 2008). To extend this, it would be valuable to explore how the instruction of common morphological and phonological transformations between Spanish and English affects vocabulary development. For example, the ending *–ción* in Spanish frequently appears as *–tion* in English (*conception* vs. *concepción*), and words that begin with an [sp] sound in English are seen in Spanish with an [e] affix, like *space–espacio*. These similarities could help students remember different English affixes. This might be another type of advantage of explicit vocabulary instruction, one that would benefit from additional research.

Given the research that indicates bilinguals can leverage shared and coactive phonological, orthographic, and semantic representations to aid L2 learning through mixed-language contexts, how can we address concerns raised by policymakers and parents about multilanguage environments in schools being scholastically harmful (Genesee, 2008)? For our claims to be valid, there should be evidence that dual-language settings do not hinder learning outcomes.

Testing One-Subject-One-Language

In view of the findings sketched above, some education researchers have touted a bilingual classroom practice known as translanguaging (see García & Wei, 2014, for a review), in which instructors and students alike explicitly switch between languages in class. Promoting such a practice is clearly in stark contrast to the primary pedagogical practice we reviewed at

the outset, whereby students' two languages are kept functionally separate in order to attenuate any "deleterious" cross-linguistic interference (Creese & Blackledge, 2010). The argument behind using multiple languages in educational settings is that it may support learning at least by making available (and explicit) the wealth of active, interconnected linguistic representations for the multilingual student to leverage (Anderson, 2008; Arthur & Martin, 2006; Cummins, 2005; Garcia, 2007). But how does a mixed-language environment affect scholastic results?

Two recent studies tested the effects of multilanguage versus monolingual settings on academic learning outcomes (Antón et al., 2015, 2016). The overall goal of the study was to evaluate the common "one subject, one language" rule, which is a classroom policy where teachers and students avoid mixing languages in formal classes. The researchers examined bilingual students' ability to learn concepts in a dual-language environment or a single-language environment. The concepts were presented as a novel object that had multiple properties. The properties were taken from common household items; for example, the participants would be shown an unfamiliar shape and told that it "can be kept in the pocket" and "is used to unlock doors," which are properties of a key. They randomly assigned students to a single-language or dual-language classroom condition and taught them the names of these unfamiliar objects and their corresponding facts. Children showed no difference overall in this concept-learning task between the two learning environments. This contradicts the common view that bilinguals get confused or distracted in mixed-language environments, hindering their ability to learn novel concepts; instead it provides support for the idea that translanguaging would not be harmful to the students (Antón et al., 2015, 2016).

On the other hand, this study did not show an advantage in the dual-language environment, only the lack of a decrement. If there is no difference between the standard method and translanguaging, why switch teaching methods? The students in the Antón studies were relatively balanced bilinguals that learned both Spanish and Basque from a young age. We are instead arguing for applying this method to teach unbalanced bilinguals that are attempting to become more proficient in their L2. Although there exists no current evidence that translanguaging is not harmful for unbalanced bilinguals, we predict that the proven advantages shown in psycholinguistic findings would outweigh any potential negative consequences. Since there (a) are no obvious hindrances to learning outcomes, (b) is a wealth of evidence that bilinguals' two languages are coactive even when processing information in single language settings (so that keeping them apart in the classroom does not actually keep them apart in the child), and (c) is evidence that you can leverage this phenomenon to benefit learning, it makes sense to take advantage of this teaching method to better educate students (for similar arguments, see Antón et al., 2016).

Conclusion and Closing Remarks

Despite their common goal to help ELLs attain fluency, researchers, educators, and policymakers continue to hold conflicting ideas about the best methods of English education for this population. This paper reviewed common pedagogical practices in second-language education, particularly an approach that immerses ELLs in an all-English learning environment. We then discussed evidence from psycholinguistics that shows how even in strictly monolingual settings, bilinguals' two languages are both "on" at once, which undermines educators' best attempts to force them to be separate. Bilinguals' interconnected lexicon could facilitate bootstrapping between their first and second languages, especially since cognate effects are higher in individuals with lower proficiency, suggesting that they would particularly benefit from explicit use of cross-language connections. Unlike the learners in Antón et al.'s (2015, 2016) studies, who are equally balanced in their languages, the ELLs experience less rich dual-language input on a daily basis. The language they use in the home tends to be a different kind of input than the academic language they hear at school (Nagy et al., 2012), but under current pedagogical practices, neither environment provides much opportunity for benefitting from cross-language linkages. Moreover, recent findings demonstrate that mixed-language educational settings do not appear to hinder learning and performance in classroom environments. Together, these results suggest that a dual-language environment, which en-

courages students to use both of their languages in the classroom, may allow children to more quickly acquire vocabulary items in their target language and facilitate the development of important academic skills, like critical reading of texts (Velasco & García, 2014). Rapid learning of vocabulary might particularly be the case when the two languages share many cognates, such as Spanish and English. The shared cognates allow students to utilize their preexisting vocabulary knowledge to quickly determine the meaning of novel English words. Students, however, struggle to identify cognates on their own (Lightbown & Libben, 1984); as a result, teachers need to explicitly provide instruction on strategies to connect languages together for optimal learning. In order to implement this program of education, there needs to be collective discussion between the different stakeholders: the educators, the policymakers, and the researchers. Encouraging cross-talk between these groups will allow educators access to the most recent advances in second-language education, and successful implementation of these ideas in smaller settings can influence statewide or national policy, as well as serve as data for future research.

There are a number of questions remaining to be addressed, however. One future course of research would be to examine how the L2 cognate advantage carries over into ELLs' development of new lexical representations. We know how existing cognates lead to facilitation in word/nonword decision tasks and word recall (Costa & Santesteban, 2004; Rosselli et al., 2014) but researchers have only theorized and partially tested the way that L2 cognates are learned in relation to their L1 counterparts (Hall, 2002). In addition, these studies have primarily examined adults, so it is incumbent upon researchers to test how children of different ages handle cognate learning as well. Testing children on their acquisition of partial cognates is another direction for research. Most partial cognate studies have likewise been done in laboratory settings and with adults (i.e., Dijkstra et al., 1999). Since these words only share part of their phonology, orthography, and meaning, it would be valuable to see how younger children can handle learning items that are not necessarily translation equivalents; they may show a similar benefit, as adults do, or they may face more difficulty. This could potentially change with development, with younger children or those with smaller vocabularies only benefitting from closer similarities across languages.

In the domain of education, questions remain regarding the best curricular approaches for ELLs. As previously discussed, cross-linguistic similarities in morphology could help students remember different English affixes (Kieffer & Lesaux, 2008). Very few studies explore this, however; looking at learning of similar affixes in naturalistic environments and also in the laboratory would determine whether explicit instruction regarding cross-language similarities helps second-language acquisition. We hope that additional psycholinguistic research will continue to provide useful data that can be relevant to curriculum development.

In summary, data from psycholinguistics suggests that purposefully using both languages in the classroom could help ELLs bootstrap their second language. Continuing research on a translanguaging method of ELL instruction could result in curricular advances and lead policymakers to propose dual-language bills that would improve learning outcomes of students.

References

Anderson, J. (2008). Towards integrated second-language teaching pedagogy for foreign and community/heritage 1 languages in multilingual Britain. *Language Learning Journal, 36,* 79–89. http://dx.doi.org/10.1080/09571730801988553

Antón, E., Thierry, G., & Duñabeitia, J. A. (2015). Mixing languages during learning? Testing the one subject—One language rule. *PLoS ONE, 10,* e0130069. http://dx.doi.org/10.1371/journal.pone.0130069

Antón, E., Thierry, G., Goborov, A., Anasagasti, J., & Duñabeitia, J. A. (2016). Testing bilingual educational methods: A plea to end the language-mixing taboo. *Language Learning, 66,* 29–50. http://dx.doi.org/10.1111/lang.12173

Arthur, J., & Martin, P. (2006). Accomplishing lessons in postcolonial classrooms: Comparative perspectives from Botswana and Brunei Darussalam. *PLoS ONE, 42,* 177–202.

August, D., Carlo, M., Dressler, C., & Snow, C. (2005). The critical role of vocabulary development for English language learners. *Learning Disabilities Research & Practice, 20,* 50–57. http://dx.doi.org/10.1111/j.1540-5826.2005.00120.x

August, D., & Hakuta, K. (1997). *Improving schooling for language-minority children: A research agenda*. Washington, DC: National Academies Press.

Baker, D. L., Park, Y., Baker, S. K., Basaraba, D. L., Kame'enui, E. J., & Beck, C. T. (2012). Effects of a paired bilingual reading program and an English-only program on the reading performance of English learners in Grades 1–3. *Journal of School Psychology, 50,* 737–758. http://dx.doi.org/10.1016/j.jsp.2012.09.002

Barron-Hauwaert, S. (2004). *Language strategies for bilingual families: The one-parent-one-language approach. Parents' and teachers' guides: No. 7* (Vol. 1). Retrieved from http://www.loc.gov/catdir/toc/ecip047/2003017736.html

Bialystok, E., & Craik, F. I. M. (2014). Cognitive and linguistic processing in the bilingual mind. *IGARSS, 2470,* 1–5.

Bialystok, E., Craik, F. I. M., & Luk, G. (2012). Bilingualism: Consequences for mind and brain. *Trends in Cognitive Sciences, 16,* 240–250. http://dx.doi.org/10.1016/j.tics.2012.03.001

Bialystok, E., & Feng, X. (2011). Language proficiency and its implications for monolingual and bilingual children. In A. Y. Durgunoglu & C. Goldenberg (Eds.), *Language and literacy development in bilingual settings* (pp. 240–250). New York, NY: Guilford Press.

Bravo, M. A., Hiebert, E. H., & Pearson, P. D. (2007). Tapping the linguistic resources of Spanish–English bilinguals. In A. Y. Durgunoglu & C. Goldenberg (Eds.), *Vocabulary acquisition: Implications for reading comprehension* (pp. 140–156). New York, NY: Guilford Press.

Carlisle, J. F., Beeman, M., Davis, L. H., & Spharim, G. (1999). Relationship of metalinguistic capabilities and reading achievement for children who are becoming bilingual. *Applied Psycholinguistics, 20,* 459–478. http://dx.doi.org/10.1017/S0142716499004014

Castro, D., Garcia, E., & Markos, A. (2013). *Dual language learners: Research informing policy* (pp. 5–8). Chapel Hill, NC: University of North Carolina, Frank Porter Graham Child Development Institute. Retrieved from http://www.edweek.org/media/policypaper-05-10-13-learning-the-language.pdf

Chambers, C. G., & Cooke, H. (2009). Lexical competition during second-language listening: Sentence context, but not proficiency, constrains interference from the native lexicon. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 35,* 1029–1040. http://dx.doi.org/10.1037/a0015901

Chiocca, E. M. (1998). Language development in bilingual children. *Pediatric Nursing, 24,* 43–47.

Colomé, À. (2001). Lexical activation in bilinguals' speech production: Language-specific or language-independent? *Journal of Memory and Language, 45,* 721–736. http://dx.doi.org/10.1006/jmla.2001.2793

Colzato, L. S., Bajo, M. T., van den Wildenberg, W., Paolieri, D., Nieuwenhuis, S., La Heij Heij, W., & Hommel, B. (2008). How does bilingualism improve executive control? A comparison of active and reactive inhibition mechanisms. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 34,* 302–312. http://dx.doi.org/10.1037/0278-7393.34.2.302

Costa, A., Hernández, M., & Sebastián-Gallés, N. (2008). Bilingualism aids conflict resolution: Evidence from the ANT task. *Cognition, 106,* 59–86. http://dx.doi.org/10.1016/j.cognition.2006.12.013

Costa, A., Miozzo, M., & Caramazza, A. (1999). Lexical selection in bilinguals: Do words in the bilingual's two lexicons compete for selection? *Journal of Memory and Language, 41,* 365–397. http://dx.doi.org/10.1006/jmla.1999.2651

Costa, A., & Santesteban, M. (2004). Lexical access in bilingual speech production: Evidence from language switching in highly proficient bilinguals and L2 learners. *Journal of Memory and Language, 50,* 491–511. http://dx.doi.org/10.1016/j.jml.2004.02.002

Creese, A., & Blackledge, A. (2010). Translanguaging in the bilingual classroom: A pedagogy for learning and teaching? *Modern Language Journal, 94,* 103–115. http://dx.doi.org/10.1111/j.1540-4781.2009.00986.x

Cummins, J. (2005). A proposal for action: Strategies for recognizing heritage language competence as a learning resource within the mainstream classroom. *Modern Language Journal, 89,* 585–592.

Cunningham, T. H., & Graham, C. R. (2000). Increasing native English vocabulary recognition through Spanish immersion: Cognate transfer from foreign to first language. *Journal of Educational Psychology, 92,* 37–49. http://dx.doi.org/10.1037/0022-0663.92.1.37

Darcy, N. T. (1952). The performance of bilingual Puerto Rican children on verbal and on nonlanguage tests of intelligence. *Journal of Educational Research, 45,* 499–506. http://dx.doi.org/10.1080/00220671.1952.10881969

Davies, M. (2002). *El corpus del Español* [100 million words, 1200s–1900s]. Retrieved from http://www.corpusdelespanol.org/

Davies, M. (2008). The 385+ million word corpus of contemporary American English (1990–2008). *International Journal of Corpus Linguistics, 14,* 159–190.

de Bruijn, E. R., Dijkstra, T., Chwilla, D. J., & Schriefers, H. J. (2001). Language context effects on interlingual homograph recognition: Evidence from event-related potentials and response times in semantic priming. *Bilingualism: Language and*

Cognition, 4, 155–168. http://dx.doi.org/10.1017/S1366728901000256

de Schonewise, E. A., & Klingner, J. K. (2012). Linguistic and cultural issues in developing disciplinary literacy for adolescent English language learners. *Topics in Language Disorders, 32,* 51–68. http://dx.doi.org/10.1097/TLD.0b013e3182474c33

Dijkstra, T., Grainger, J., & van Heuven, W. J. B. (1999). Recognition of cognates and interlingual homographs: The neglected role of phonology. *Journal of Memory and Language, 41,* 496–518. http://dx.doi.org/10.1006/jmla.1999.2654

Dijkstra, T., Van Jaarsveld, H., & Brinke, S. T. (1998). Interlingual homograph recognition: Effects of task demands and language intermixing. *Bilingualism: Language and Cognition, 1,* 51–66. http://dx.doi.org/10.1017/S1366728998000121

Doabler, C. T., Nelson, N. J., & Clarke, B. (2016). Adapting evidence-based practices to meet the needs of English learners with mathematics difficulties. *Teaching Exceptional Children, 48,* 301–310. http://dx.doi.org/10.1177/0040059916650638

Dressler, C., Carlo, M. S., Snow, C. E., August, D., & White, C. E. (2011). Spanish-speaking students' use of cognate knowledge to infer the meaning of English words. *Bilingualism: Language and Cognition, 14,* 243–255. http://dx.doi.org/10.1017/S1366728910000519

Edelsky, C. (1982). Writing in a bilingual program: The relation of L1 and L2 texts. *TESOL Quarterly, 16,* 211–228. http://dx.doi.org/10.2307/3586793

Fry, R. (2007). *How far behind in math and reading are English language learners?* Washington, DC: Pew Hispanic Center.

Galante, A. (2014, August). English language teaching in the post-method era. *Tesol Ontario,* 57–62. Retrieved from https://www.researchgate.net/profile/Angelica_Galante/publication/280734191_English_Language_Teaching_in_the_post_method_era/links/55c4124408aebc967df1bc6c.pdf

García, O. (2007). Foreward. In S. Makoni & A. Pennycook (Eds.), *Disinventing and reconstituting languages* (pp. xi–xv). Clevedon, UK: Multilingual Matters.

García, O., & Wei, L. (2014). *Translanguaging: Language, bilingualism and education*. New York, NY: Palgrave Macmillan. http://dx.doi.org/10.1057/9781137385765

Genesee, F. (2008). Early dual language learning. *Zero to Three, 29,* 17–23.

Grosjean, F. (2006). The bilingual is not two monolinguals in one person. In K. Bolton & B. B. Krachru (Eds.), *World Englishes: Critical concepts in linguistics* (Vol. 4, pp. 202–213). Abingdon-on-Thames, UK: Taylor & Francis.

Hall, C. J. (2002). The automatic cognate form assumption: Evidence for the parasitic model of vocabulary development. *IRAL, 40,* 69–87. http://dx.doi.org/10.1515/iral.2002.008

Hall, C. J., & Ecke, P. (2003). Parasitism as a default mechanism in L3 vocabulary acquisition. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.), *The multilingual lexicon* (pp. 71–85). New York, NY: Springer Netherlands.

Hancin-Bhatt, B., & Nagy, W. (1994). Lexical transfer and second language morphological development. *Applied Psycholinguistics, 15,* 289.

Hoff, E. (2013). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology, 49,* 4–14. http://dx.doi.org/10.1037/a0027238

Hoff, E., Core, C., Place, S., Rumiche, R., Señor, M., & Parra, M. (2012). Dual language exposure and early bilingual development. *Journal of Child Language, 39,* 1–27. http://dx.doi.org/10.1017/S0305000910000759

Holmes, J., & Ramos, R. G. (1993). False friends and reckless guessers: Observing cognate recognition strategies. In T. Huckin, M. Haynes, & J. Coady (Eds.), *Second language reading and vocabulary learning* (pp. 86–108). Norwood, NJ: Ablex.

Jared, D., Cormier, P., Levy, B. A., & Wade-Woolley, L. (2012). Cross-language activation of phonology in young bilingual readers. *Reading and Writing, 25,* 1327–1343. http://dx.doi.org/10.1007/s11145-011-9320-0

Jared, D., & Kroll, J. F. (2001). Do bilinguals activate phonological representations in one or both of their languages when naming words? *Journal of Memory and Language, 44,* 2–31. http://dx.doi.org/10.1006/jmla.2000.2747

Jared, D., & Szucs, C. (2002). Phonological activation in bilinguals: Evidence from interlingual homograph naming. *Bilingualism: Language and Cognition, 5,* 225–239. http://dx.doi.org/10.1017/S1366728902003024

Kaushanskaya, M., Gross, M., & Buac, M. (2014). Effects of classroom bilingualism on task-shifting, verbal memory, and word learning in children. *Developmental Science, 17,* 564–583. http://dx.doi.org/10.1111/desc.12142

Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., . . . Dunlop Velez, E. (2015). *The condition of education 2015 (NCES 2015–144)*. Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved July 3, 2016, from http://nces.ed.gov/pubsearch

Kerkhofs, R., Dijkstra, T., Chwilla, D. J., & de Bruijn, E. R. A. (2006). Testing a model for bilingual semantic priming with interlingual homographs: RT and N400 effects. *Brain Research, 1068,* 170–183. http://dx.doi.org/10.1016/j.brainres.2005.10.087

Kieffer, M. J., & Lesaux, N. K. (2008). The role of derivational morphology in the reading comprehension of Spanish-speaking English language learners. *Reading and Writing, 21,* 783–804. http://dx.doi.org/10.1007/s11145-007-9092-8

Kootstra, G. J., & Doedens, W. J. (2016). How multiple sources of experience influence bilingual syntactic choice: Immediate and cumulative cross-language effects of structural priming, verb bias, and language dominance. *Bilingualism: Language and Cognition, 19,* 710–732. http://dx.doi.org/10.1017/S1366728916000420

Kroll, J. F., & Bialystok, E. (2013). Understanding the consequences of bilingualism for language processing and cognition. *Journal of Cognitive Psychology, 25,* 497–517. http://dx.doi.org/10.1080/20445911.2013.799170

Kroll, J. F., Bobb, S. C., & Wodniecka, Z. (2006). Language selectivity is the exception, not the rule: Arguments against a fixed locus of language selection in bilingual speech. *Bilingualism: Language and Cognition, 9,* 119. http://dx.doi.org/10.1017/S1366728906002483

Lambert, W. E., & Tucker, G. R. (1972). *Bilingual education of children: The St. Lambert experiment*. Rowley, MA: Newbury House.

Lanauze, M., & Snow, C. E. (1989). The relation between first and second language writing skills: Evidence from Puerto Rican elementary school children in bilingual programs. *Linguistics and Education, 1,* 323–339. http://dx.doi.org/10.1016/S0898-5898(89)80005-1

Lau v. Nichols, 414 U.S. 563. (1974).

Lightbown, P. M., & Libben, G. (1984). The recognition and use of cognates by L2 learners. In R. W. Anderson (Ed.), *Second languages* (pp. 393–417). Rowley, MA: Newbury House.

Lubliner, S., & Hiebert, E. H. (2011). An analysis of English–Spanish cognates as a source of general academic language. *Bilingual Research Journal, 34,* 76–93. http://dx.doi.org/10.1080/15235882.2011.568589

Mackey, W. F., & Beebe, V. N. (1977). *Bilingual schools for a bicultural community: Miami's adaptation to the Cuban refugees*. Rowley, MA: Newbury House.

Milroy, L., & Muyskin, P. (Eds.). (1995). *One speaker, two languages: Cross-disciplinary perspectives on code-switching*. New York, NY: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511620867

Morton, J. B., & Harper, S. N. (2007). What did Simon say? Revisiting the bilingual advantage. *Developmental Science, 10,* 719–726. http://dx.doi.org/10.1111/j.1467-7687.2007.00623.x

Nagy, W., & Townsend, D. (2012). Words as tools: Learning academic vocabulary as language acquisition. *Reading Research Quarterly, 47,* 91–108. http://dx.doi.org/10.1002/RRQ.011

Nash, R. (1997). *NTC's dictionary of Spanish cognates: Thematically organized*. Lincolnwood, IL: NTC Group.

Paap, K. R., & Greenberg, Z. I. (2013). There is no coherent evidence for a bilingual advantage in executive processing. *Cognitive Psychology, 66,* 232–258. http://dx.doi.org/10.1016/j.cogpsych.2012.12.002

Paradis, J., & Genesee, F. (1996). Syntactic acquisition in bilingual children. *Studies in Second Language Acquisition, 18,* 1–25. http://dx.doi.org/10.1017/S0272263100014662

Parra, E. B., Evans, C. A., Fletcher, T., & Combs, M. C. (2014). The psychological impact of English language immersion on elementary age English language learners. *Journal of Multilingual Education Research, 5,* 33–65.

Peal, E., & Lambert, W. E. (1962). The relation of bilingualism to intelligence. *Psychological Monographs: General and Applied, 76,* 1–23. http://dx.doi.org/10.1037/h0093840

Pearson, B. Z., Fernández, S. C., & Oller, D. K. (1993). Lexical development in bilingual infants and toddlers: Comparison to monolingual norms. *Language Learning, 43,* 93–120. http://dx.doi.org/10.1111/j.1467-1770.1993.tb00174.x

Peeters, D., Dijkstra, T., & Grainger, J. (2013). The representation and processing of identical cognates by late bilinguals: RT and ERP effects. *Journal of Memory and Language, 68,* 315–332. http://dx.doi.org/10.1016/j.jml.2012.12.003

Petitto, L. A., Katerelos, M., Levy, B. G., Gauna, K., Tétreault, K., & Ferraro, V. (2001). Bilingual signed and spoken language acquisition from birth: Implications for the mechanisms underlying early bilingual language acquisition. *Journal of Child Language, 28,* 453–496. http://dx.doi.org/10.1017/S0305000901004718

Proctor, C. P., August, D., Carlo, M. S., & Snow, C. (2006). The intriguing role of Spanish language vocabulary knowledge in predicting English reading comprehension. *Journal of Educational Psychology, 98,* 159–169. http://dx.doi.org/10.1037/0022-0663.98.1.159

Proctor, C. P., Carlo, M., August, D., & Snow, C. (2005). Native Spanish-speaking children reading in English: Toward a model of comprehension. *Journal of Educational Psychology, 97,* 246–256. http://dx.doi.org/10.1037/0022-0663.97.2.246

Reed, D. K., Medina, L. A., Martinez, N. A., & Veleta, L. G. (2013). The accessibility of academic vocabulary to Spanish speaking high school biology students. *High School Journal, 97,* 80–91. http://dx.doi.org/10.1353/hsj.2013.0025

Rolstad, K. (2005). The big picture: A meta-analysis of program effectiveness research on English lan-

guage learners. *Educational Policy, 19,* 572–594. http://dx.doi.org/10.1177/0895904805278067

Rosselli, M., Ardila, A., Jurado, M. B., & Salvatierra, J. L. (2014). Cognate facilitation effect in balanced and non-balanced Spanish-English bilinguals using the Boston Naming Test. *International Journal of Bilingualism, 18,* 649–662. http://dx.doi.org/10.1177/1367006912466313

Savage, B. L., & Hughes, H. Z. (2014). How does short-term foreign language immersion stimulate language learning? *Frontiers: The Interdisciplinary Journal of Study Abroad, 24,* 104–120. Retrieved from http://files.eric.ed.gov/fulltext/EJ1062133.pdf

Schoonbaert, S., Holcomb, P. J., Grainger, J., & Hartsuiker, R. J. (2011). Testing asymmetries in noncognate translation priming: Evidence from RTs and ERPs. *Psychophysiology, 48,* 74–81. http://dx.doi.org/10.1111/j.1469-8986.2010.01048.x

Schwartz, A. I., Kroll, J. F., & Diaz, M. (2007). Reading words in Spanish and English: Mapping orthography to phonology in two languages. *Language and Cognitive Processes, 22,* 106–129. http://dx.doi.org/10.1080/01690960500463920

Serrano, R., Llanes, À., & Tragant, E. (2016). Examining L2 development in two short-term intensive programs for teenagers: Study abroad vs. "at home." *System, 57,* 43–54. http://dx.doi.org/10.1016/j.system.2016.01.003

Slavin, R., Lake, C., Chambers, B., Cheung, A., & Davis, S. (2009). Effective reading programs for the elementary grades: A best-evidence synthesis. *Review of Educational Research, 79,* 1391–1466. http://dx.doi.org/10.3102/0034654309341374

Spalek, K., Hoshino, N., Wu, Y. J., Damian, M., & Thierry, G. (2014). Speaking two languages at once: Unconscious native word form access in second language production. *Cognition, 133,* 226–231. http://dx.doi.org/10.1016/j.cognition.2014.06.016

Spivey, M. J., & Marian, V. (1999). Cross talk between native and second languages: Partial activation of an irrelevant lexicon. *Psychological Science, 10,* 281–284. http://dx.doi.org/10.1111/1467-9280.00151

Sunderman, G., & Kroll, J. F. (2006). First language activation during second language lexical processing: An investigation of lexical form, meaning, and grammatical class. *Studies in Second Language Acquisition, 28,* 387–422.

Sunderman, G., & Schwartz, A. I. (2008). Using cognates to investigate cross-language competition in second language processing. *TESOL Quarterly, 42,* 527–536. http://dx.doi.org/10.1002/j.1545-7249.2008.tb00145.x

Teubner-Rhodes, S. E., Mishler, A., Corbett, R., Andreu, L., Sanz-Torrent, M., Trueswell, J. C., & Novick, J. M. (2016). The effects of bilingualism on conflict monitoring, cognitive control, and garden-path recovery. *Cognition, 150,* 213–231. http://dx.doi.org/10.1016/j.cognition.2016.02.011

Torrance, E. P., Gowan, J. C., Wu, J.-J., & Aliotti, N. C. (1970). Creative functioning of monolingual and bilingual children in Singapore. *Journal of Educational Psychology, 61,* 72–75. http://dx.doi.org/10.1037/h0028767

Treville, M.-C. (1996). Lexical learning and reading in L2 at the beginner level: The advantage of cognates. *Canadian Modern Language Review, 53,* 173–190.

Tsushima, W. T., & Hogan, T. P. (1975). Verbal ability and school achievement of bilingual and monolingual children of different ages. *Journal of Educational Research, 68,* 349–353. http://dx.doi.org/10.1080/00220671.1975.10884795

U.S. Census Bureau. (2013). *American Community Survey*. Retrieved from https://www.census.gov/programs-surveys/acs/data/data-via-ftp.html

van Hell, J. G., & Dijkstra, T. (2002). Foreign language knowledge can influence native language performance in exclusively native contexts. *Psychonomic Bulletin & Review, 9,* 780–789. http://dx.doi.org/10.3758/BF03196335

Velasco, P., & García, O. (2014). Translanguaging and the writing of bilingual learners. *Bilingual Research Journal, 37,* 6–23. http://dx.doi.org/10.1080/15235882.2014.893270

Watson, C. (1996). Helping families from other cultures decide on how to talk to their child with language delays. *Wig-Wag Magazine*. Hanen Center, Ontario, Winter.

Weber, A., & Cutler, A. (2004). Lexical competition in non-native spoken-word recognition. *Journal of Memory and Language, 50,* 1–25. http://dx.doi.org/10.1016/S0749-596X(03)00105-0

Werker, J. F., & Byers-Heinlein, K. (2008). Bilingualism in infancy: First steps in perception and comprehension. *Trends in Cognitive Sciences, 12,* 144–151. http://dx.doi.org/10.1016/j.tics.2008.01.008

Yoon, B. (2007). Classroom teachers' understanding of the needs of English-language learners and the influence on the students' identities. *New Educator, 3,* 221–240. http://dx.doi.org/10.1080/15476880701484055

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