ABSTRACT: **Purpose:** Cognates are words that share meaning and form, where the translation-equivalent pairs between languages are phonologically similar (e.g., baby–bebé and telephone–teléfono). Noncognates are word pairs that share meaning but not form (e.g., bear–oso). The literature strongly establishes a cognate advantage with bilingual adults, although evidence for younger bilinguals is still emerging. This study investigated young Spanish-speaking English language learners’ (ELLs’) picture naming of cognates and noncognates.

**Method:** Thirty-one Spanish-speaking ELL children completed a picture-naming task in English and in Spanish, in a counterbalanced order, to compare performance on cognates and noncognates. Data analysis using a repeated measures analysis of variance compared cognate and noncognate accuracy in English and Spanish. The number of translation-equivalent pairs between cognates and noncognates (i.e., named in both languages) was also compared.

**Results:** Young ELL children demonstrated higher naming accuracy on phonologically similar cognates than on phonologically dissimilar noncognates, which is similar to the cognate advantage found with bilingual adults and with young bilingual children on receptive tasks. Additionally, more translation-equivalent pairs were found with cognates than with noncognates.

**Conclusion:** Findings suggest that the cognate status of words should be considered for assessment practices and clinical decision making. Future research should examine additional cognate measures and individual factors that influence cognate facilitation.

**KEY WORDS:** bilingualism, assessment, phonology, language
15,000 cognates, estimated as one-third to one-half of one’s vocabulary (Thomas, Nash, Thomas, & Richmond, 2005). In contrast, noncognates share meaning, but the translation pairs share less linguistic similarity (e.g., bear—asos), and false cognates share lexical similarity but have different semantic meanings (e.g., embarrassed—embarazada, in Spanish means pregnant).

Only 4.5% of the 161,163 American Speech-Language-Hearing Association (ASHA) members reported meeting the definition of being bilingual (ASHA, 2014), but at least 60% of school speech-language pathologists (SLPs) reported having children who are English language learners (ELLs) on their caseload (ASHA, 2010). Thus, SLPs may be interested in cognates due to the cross-language interaction and linguistic similarity that cognate pairs provide.

Cognates have received increased attention in the bilingual literature for their cross-linguistic overlap and their potential for cognate facilitation. Cognate facilitation is when the linguistic features of a word in one language influence and/or activate the features of a word in another language (Hoshino & Kroll, 2008; Sánchez-Casas & García-Albea, 2005). For this reason, bilingual or second-language–learning adults recognize cognates quicker and with fewer errors than they do noncognates (Sunderman & Schwartz, 2008). Monolingual adults do not demonstrate cognate facilitation because only one language is present (Colomé, 2001).

Most evidence of cognate facilitation is based on studies of bilingual adults or older school-age children. Adults demonstrate cognate facilitation as both languages simultaneously activate regardless of the language presented during tasks (Blumenfeld & Marian, 2007; Hermans, Bongaerts, de Bot, & Schreuder, 1998; Kroll, Gerfen, & Dussias, 2008). For older children, providing specific instruction to recognize cognates may increase word learning (Nagy, García, Durgunoğlu, & Hancin-Bhatt, 1993; Proctor & Mo, 2009). Bilingual adults and older elementary students may use the combined phonological and orthographic similarities of cognates to facilitate reading comprehension (Cunningham & Graham, 2000; Malabonga, Kenyon, Carlo, August, & Louguit, 2008), whereas younger children may rely more on just the phonological properties of cognates (Kohnert, Windsor, & Miller, 2004; Pérez, Peña, & Bedore, 2010). Overall, cognates’ linguistic overlap may increase word retrieval for bilingual individuals or second-language learners (Costa, Santesteban, & Caño, 2005; Hoshino & Kroll, 2008).

Despite the substantial research on cognates with adults and older children, additional research is warranted to investigate young bilingual children’s performance on cognates. The purpose of this study was to investigate young ELL children’s ability to express phonologically similar cognates as compared to phonologically dissimilar noncognates. Exploring phonological overlap differences with young bilingual children has implications to guide word selection for assessment and potential utility in treatment.

Theoretical Models of Cognates

A theoretical model that is sensitive to cognates would need to include a conceptual–semantic level and a lexical level (two labels: language A, language B) as well as a phonological level for similarity between words. As a basic framework, a monolingual learner knows one vocabulary concept and one name for that concept. For the child who is acquiring another language, Cummins (1981) explained how the word’s concept is the common underlying proficiency (CUP) or prior conceptual knowledge that facilitates the acquisition of another label in a different language for that same concept. If a Spanish-speaking child knows the concept of an orange and its Spanish label of naranja, the CUP is the foundation for learning a second label in English; that is, orange.

Cummins’s (1981) model provides a rationale for cognate facilitation in relation to the overlapping semantic–lexical representation; however, the phonological overlap is not specifically addressed. The word production model (Garrett, 1975, 1976; Levelt, 1989) represents the activation of a word’s concept, the semantic label, and corresponding phonology across multiple stages for bilingual adults. For example, in naming pictures, the first stage involves concept activation; successive stages involve the retrieval of a spoken word with its syntactic and phonological properties.

It is hypothesized that the interaction among these word production stages is not separate like stair steps, but rather is overlapping and interactive among stages, similar to cascades or a waterfall (Humphreys, Riddoch, & Quinlen, 1988). For adult bilingual speakers, cognates have cascaded activation among the stages, which influences word production when sounds are similar or overlap between languages. Even in languages where the orthographic script is different (e.g., Spanish–English and Japanese–English), bilingual individuals naming pictures of cognates demonstrated activation across languages as compared to noncognates (Hoshino & Kroll, 2008). Costa, Caramazza, and Sebastian-Galles (2000) found that Catalan–Spanish adult bilinguals named pictures of cognates (e.g., gato–gat [cat]) more rapidly than they named pictures of noncognates (e.g., perro–gos [dog]), and this cognate effect disappeared when testing a monolingual control group. Costa et al. hypothesized that the overlapping phonology of the words in two languages permits quicker access. Perhaps not all
bilingual children will demonstrate a cognate effect, but an interacting bilingual system could lead to a child’s vocabulary containing more cognates because the overlapping phonology facilitates learning and acquisition in both languages due to the similar sounds (Kelley & Kohnert, 2012).

Receptive Vocabulary

Measuring receptive vocabulary is a common procedure used with young children. The vocabulary inventory of bilingual infants and toddlers contains either “doublets” (i.e., translation equivalents in both languages) or “singlets” (i.e., label only in one language). As an example of a doublet, a child produces the words perro and dog in each language; however, a child may only label oso as a Spanish singlet and not yet know the English equivalent of bear. When calculating vocabulary, a composite or conceptual score (Bedore, Peña, García, & Cortez, 2005; Pearson, Fernández, & Oller, 1993) is recommended as a more accurate bilingual representation of the child’s total number of concepts across languages as compared to a single monolingual score.

In a study by Marchman and Martínez-Sussman (2002), Spanish–English toddlers demonstrated that a substantial amount of their vocabulary may be specific to one language. Pearson, Fernández, and Oller (1995) found that approximately 30% of bilingual toddlers’ vocabulary words were doublets, with cognates comprising 20% of the doublets, or 7% of their total vocabulary. Peña, Bedore, and Zlatic-Giunta (2002) found that in a structured word generation task, older bilingual children (M = 6.5 years) had more doublets than did younger bilingual children (M = 5.1 years).

Kan and Kohnert (2005) investigated the receptive and expressive vocabulary skills of 19 bilingual Hmong–English preschoolers (ages 3;4–5;2 [years;months]). They administered a 50-item receptive picture identification task and a separate 50-item expressive picture-naming task of developmental words (from Fenson et al., 1993), using the same items presented across both languages in a counterbalanced order. The authors analyzed separate language scores in Hmong and English as well as a composite score and found that the older children outperformed the younger children in English but not in Hmong, and all of the children’s composite scores were greater than their single language scores.

Kan and Kohnert’s (2005) picture-naming results also showed that the doublet-to-singlet ratio increased with age, where younger children (M = 3;11, SD = 0;4) had 90% singlets and 10% doublets/translation equivalents, and older children (M = 5;0, SD = 0;2) had 77% singlets and 23% doublets. The authors stated that the early acquired words were selected from developmental inventories, but they did not report whether any Hmong–English translation equivalents were cognates or not (Kan & Kohnert, 2005); cognates may not exist between Hmong and English (Vang, 2005).

Several studies have used receptive vocabulary tests to investigate performance differences based on words’ cognate status. In a preliminary investigation, Umbel, Pearson, Fernández, and Oller (1992) compared bilingual first graders’ performance on Spanish and English items from two standardized receptive vocabulary tests: the Test de Vocabulario en Imágenes de Peabody (TVIP–H Spanish; Dunn, Padilla, Lugo, & Dunn, 1986) and the Peabody Picture Vocabulary Test—Revised Edition (PPVT–R, English: Dunn & Dunn, 1981). The bilingual students performed similarly on the English–Spanish cognate pairs compared to all of the words, 68% and 67% correct, respectively. Umbel et al. also analyzed approximately 15% of the sample for priming effects on cognates, as both the TVIP–H and PPVT–R were administered in the same sitting. They hypothesized that if cognates did influence the children’s test performance, then more cognate doubles would exist; however, they found that cognates did not determine an “automatic doublet” (p. 1,016). Thus, Umbel et al. suggested that there was no preliminary evidence for cognate facilitation, and findings suggested that children performed similarly on cognate and noncognate vocabulary test items. Umbel and Oller (1994) found similar results with first, third, and sixth graders, where they reported that no significant differences existed in their performance on cognates (60% correct) compared to their performance on all words (65% correct). Although early studies of receptive vocabulary did not find evidence of a cognate effect with young children (Umbel et al., 1992; Umbel & Oller, 1994), initial research suggested that cognates influenced older bilingual children’s vocabulary (Nagy et al., 1993).

Researcher-Designed Investigations With Older Children

Most standardized vocabulary tests are not designed to examine cognates specifically; thus, many researchers have developed tasks to investigate phonological similarity. In a two-part study, Kohnert et al. (2004) were the first to develop a cognate scale to rate the phonological similarity between English and Spanish words, as children may rely more on the perceived phonological attributes of a word rather than on the orthographic properties. The Crosslinguistic Overlap Scale for
Phonology (COSP; Kohnert et al., 2004; see publication for scale) quantifies cognate status as the amount of phonological overlap between a word in Spanish and its English translation equivalent. The COSP assigns values of 0 to 10 points based on four word characteristics: initial sound, number of syllables, percentage of overlapping consonants, and percentage of overlapping vowels. Higher scores indicate more phonological overlap, where cognates have values of six points or higher.

As a secondary study to the COSP scale development, Kohnert et al. (2004) developed a picture-word recognition task in Spanish for 8- to 13-year-old monolingual English-speaking children. The English-speaking children were shown two pictures (i.e., one Spanish–English phonologically similar word and one foil), simultaneously heard a Spanish word, and had to decide which picture matched the spoken Spanish word by pressing a left or right button. Even monolingual English speakers without any exposure to Spanish could identify words with higher Spanish–English overlap (e.g., heard “elefante,” saw “elephant” and “hammer”) with higher accuracy and quicker response times, with a medium effect size, as compared to words with lower COSP scores.

Malabonga et al. (2008) developed the Cognate Awareness Test (CAT) and administered it in English to Spanish–English bilingual students in fourth and fifth grade. The results indicated that fourth-grade students were aware of cognates, and a 1-year follow-up showed higher performance on cognates than noncognates. Spanish picture vocabulary was related to cognate performance, and English picture vocabulary was strongly related to noncognate performance. During test design, the researchers recommended using word frequencies specific to children (e.g., Zeno, Ivens, Millard, & Duvvuri, 1995) and quantifying the amount of overlap between words (e.g., Kohnert et al., 2004).

Schelletter (2002) designed a timed picture-naming task to assess the effects of cognates based on “form similarity” (i.e., translation equivalents sharing 50% of similar phonemes) with two groups of 8- to 9-year-olds who were either German language dominant (i.e., less fluent in English) or German–English bilinguals. The bilingual children named pictures in both languages (English and German) on cognate and noncognate items. Although both groups had only eight participants, results yielded a small yet significant cognate effect. Schelletter found that children in both groups named cognates quicker than noncognates in both languages. A cognate effect existed regardless of whether the children were less fluent in their second language or had a mixed language exposure across their first and second languages.

Picture-naming accuracy performance may vary based on age. Kohnert, Bates, and Hernandez (1999) investigated picture naming with Spanish–English bilinguals ranging from 5 to 20 years of age in a cross-sectional design; response accuracy and speed (i.e., reaction times) showed a developmental language shift, with maturation from Spanish dominance at younger ages to a balanced cognitive processing in middle childhood, to English dominance in adolescence and young adulthood. Kohnert et al. administered the picture-naming task in different blocks: Spanish only, English only, and mixed languages (i.e., cued to respond in a specific language). Despite using early-acquired vocabulary stimuli, the children in the 5- to 7-year age group had decreased accuracy rates, as evidenced by the percentage of pictures they named correctly (Spanish blocked: 60%, English blocked 38%, Spanish mixed 46%, English mixed 30%). Although this study was foundational for examining young bilinguals’ picture-naming abilities, the potential influence of cognates was not reported.

Recent Cognate Investigations With Bilingual Children

More than 15 years after the initial studies on testing cognate status using receptive vocabulary tests (e.g., Umbel et al., 1992), Pérez et al. (2010) compared cognates and noncognates on a standardized receptive vocabulary subtest (Test of Language Development—Primary: Third Edition; TOLD–P:3; Newcomer & Hammill, 1997) with kindergarten and first-grade bilingual students. Pérez et al. administered all 30 test items (18 cognates, 12 noncognates) and tested past the typical ceiling so as to get more opportunities to compare cognates to noncognates. Target words were administered in order of lesser to greater difficulty level and reported word frequency to describe word characteristics. Although previous receptive studies (e.g., Pearson et al., 1993) did not find a cognate difference, Pérez et al.’s results demonstrated higher performance accuracy on cognates over noncognates, with a 1% to 8% cognate advantage, depending on grade and language exposure. The advantage equated to a modest but significant finding of 1.08 to 3.08 words higher on cognates than noncognates. The children with high Spanish language exposure had higher accuracy on cognates than on noncognates.

With older children of a greater age range, Kelley and Kohnert (2012) more recently examined 8- to 13-year-olds’ cognate advantage through standardized administration of a receptive English vocabulary test, the Peabody Picture Vocabulary Test—Third Edition, Form A (PPVT–III; Dunn & Dunn, 1997), and the English Expressive One-Word Picture Vocabulary Test.
Third Edition (EOWPVT–3; Brownell, 2000). Spanish translations of these English tests were made by a trained bilingual speaker in order to identify the degree of phonological overlap (i.e., COSP), but only English items were administered, not Spanish. Due to the increasing difficulty level of vocabulary items on both standardized tests, items were categorized across three difficulty levels as well. Kelley and Kohnert found evidence of an overall cognate advantage. The children’s scores on cognates were significantly higher than their scores on noncognates for words with comparable difficulty level; however, not all of the children demonstrated a cognate advantage. An analysis of individual student performance on the PPVT–III showed that age predicted 26% of the variance for the cognate advantage, where older children significantly outperformed younger children. On the EOWPVT–3, a nonverbal intelligence score approached significance ($p = 0.56$), which would account for 9% of the variance. Although conclusive results indicated evidence of cognate facilitation, the use of standardized vocabulary tests limits the ability to match cognates and noncognates on word-level factors such as length and frequency. Kelley and Kohnert also pointed out that the original purpose of the standardized testing tools was to evaluate vocabulary, not cognate performance. Based on this review of the literature, recent studies’ results suggest that vocabulary words show preliminary evidence of a cognate advantage for bilingual children. Investigators have examined cognate status using standardized receptive vocabulary tests (Pearson et al., 1993; Pérez et al., 2010; Umbel et al., 1992), standardized receptive and expressive vocabulary tests with older children (Kelley & Kohnert, 2012), and researcher-developed tasks to specifically examine cognates with older children (e.g., Kohnert et al., 2004; Malabonga et al., 2008; Schelletter, 2002). Expressive picture-naming tasks have been conducted with younger bilingual children, but cognate status has not been investigated (Kan & Kohnert, 2005). To date, no one has examined the expressive picture naming of cognates with younger bilingual children.

It was unknown how young children would perform on an expressive picture-naming task that was designed specifically to test cognates. We hypothesized that because bilingual children have doublets in their vocabulary (Pearson et al., 1995), it is plausible that children with more doublets could have higher picture-naming accuracy overall. Perhaps more doublets (i.e., translation equivalents) would be present in word pairs that were cognates due to the overlapping phonology between English and Spanish. If a cognate advantage was found, it was unknown whether the cognate advantage would be present in only the second language (Malabonga et al., 2008), or, given the young age and early-acquired vocabulary, whether a cognate advantage would be present in both languages (Schelletter, 2002), evident of the interacting bilingual linguistic representation. Additionally, if a cognate effect was evident, child factors may relate to cognate status, such as age and/or language exposure, as seen in receptive tasks (Kelley & Kohnert, 2012; Pérez et al., 2010), or nonverbal intelligence as significance was approached with older children (Kelley & Kohnert, 2012), or possibly even English phonological skills due to the phonological overlap of cognates.

The specific aim of this investigation was to examine young ELL children’s performance on expressive picture-naming tasks comparing phonologically similar English–Spanish cognates to phonologically dissimilar English–Spanish noncognates. We asked the following research questions:

- Is there a difference in ELL children’s picture naming on cognates versus noncognates?
- Is there an association between cognate performance and child variables (e.g., age, nonverbal IQ, phonological awareness subtest scores)?

**METHOD**

**Participants.** Thirty-one ELL children (15 girls, 16 boys) with a mean age of 68.9 months ($SD = 8.8$) were included in the final sample. Most parents completed a questionnaire on the child’s language (e.g., age of exposure to each language), development, and home experiences (90% returned), with follow-up phone inquiries for missing questionnaires. Of completed questionnaires, the majority of the ELL children’s parents reported that they were born in Mexico (85%), and most of the children were born in the United States (93%). All of the children had significant exposure to English and Spanish either through English instruction at school with English and/or Spanish spoken at home or English instruction at school with only Spanish spoken at home. Most of the ELL children’s parents reported Spanish as the home language (78%); however, the ELL children’s parents reported that 42% of the children spoke only Spanish at home, and 58% of the children spoke both English and Spanish at home.

Language exposure and dominance is dynamic, not static, which presents bilingual children as a more heterogeneous population (Kan & Kohnert, 2005). For the current study, we defined exposure as language input and/or output per parent report.
example, children who were exposed to English after 36 months and whose parents spoke only Spanish in the home would be considered to have more Spanish exposure. In cases where a child had at least one parent who spoke both English and Spanish in the home, and parents reported child output in both languages, then the child would have a more balanced exposure to both languages.

Preschool attendance was 61%. All of the children received free or reduced lunch rates. For most of the participants’ parents, education levels ranged from 4th to 12th grade. All of the children passed a hearing screening if the parents had reported hearing concerns. This study was approved by Florida State University’s Institutional Review Board.

Table 1 provides the ELL children’s scores from the measures that were administered. The Peabody Picture Vocabulary Test—Fourth Edition (PPVT–4; Dunn & Dunn, 2007) assesses children’s receptive English vocabulary, requiring the child to point to a picture from a field of four pictures, with high alpha reliability coefficients on internal consistency levels: .95–.96. The TVIP–H, which is the Spanish adapted version of the PPVT–4, was used to examine the children’s Spanish receptive vocabulary. The TVIP–H has normative data on Spanish monolingual children, and its alpha reliability coefficients are .91–.94. The Primary Test of Nonverbal Intelligence (PTONI; Ehrler & McGhee, 2008) examines young children’s reasoning abilities, with instructions provided in Spanish; alpha reliability coefficients were .90–.92. The Phonological Awareness subtest from the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2002) assesses young children’s early literacy skills across 27 items. The reliability coefficients for internal consistency are .87 and for test–retest reliability are .83. Normative data are only available for children ages 3 to 5 years; however, raw scores were examined. It is notable that standardized monolingual tests may not be appropriate measures of bilinguals’ conceptual vocabulary abilities (Kester & Peña, 2002), which may lead to lower than average scores (Umbel et al., 1992); yet, these assessments are used as indices of relative standing for bilingual children as compared to their monolingual peers.

Oversampling occurred; children were excluded if (a) they demonstrated limited English or Spanish exposure (i.e., unable to complete criterion for picture-naming practice items), (b) parents reported a third language in the home, or (c) there were concerns about language difficulties. To screen for possible language impairment, the parent questionnaire included questions concerning the child’s speech and language skills as parent report provides contributing information about the identification of language impairment (Restrepo, 1998). Two included children presented with one late-developing speech-sound error (i.e., interdental /s/); however, the error was not a phonological disorder, and performance on a vocabulary test and nonverbal intelligence test were average or above average in their native language. None of the included children was receiving speech, language, or hearing services. The ELL children had English-only speaking teachers who provided English-only instruction; however, to facilitate comprehensible input, the classrooms had Spanish–English bilingual assistants who provided basic directives and instruction in Spanish.

### Cognate–Noncognate Tasks

We developed picture-naming tasks to examine the children’s production of English–Spanish cognates and noncognates. We defined cognates as phonologically similar words containing overlapping phonemes in English and Spanish that had equivalent meanings (e.g., baby–bebé). Noncognates also had a shared meaning but with limited or no phonological similarities (e.g., bear–oso). The picture stimuli were dichotomized by COSP scores into cognates (≥6 points) and noncognates (≤5 points), without consideration to orthographic similarity (Kohnert et al., 2004). Second, we obtained words from the MacArthur Communicative Development Inventories (CDIs; Fenson et al., 1993) in English and in Spanish (Jackson-Maldonado et al., 2003), which are a noted predictor of picture-naming abilities (Morrison, Ellis, & Quinlan, 1992; Windsor & Kohnert, 2004) and assess normal vocabulary acquisition from language delays of young children. Pilot testing was

---

**Table 1. Mean scores and standard deviations for the descriptive measures.**

<table>
<thead>
<tr>
<th>Descriptive measure</th>
<th>English language learners n = 31</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>English receptive vocabulary&lt;sup&gt;a&lt;/sup&gt;</td>
<td>79.9</td>
</tr>
<tr>
<td>Spanish receptive vocabulary&lt;sup&gt;b&lt;/sup&gt;</td>
<td>87.1</td>
</tr>
<tr>
<td>Nonverbal intelligence&lt;sup&gt;c&lt;/sup&gt;</td>
<td>97.2</td>
</tr>
<tr>
<td>Phonological awareness (raw)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>17.8</td>
</tr>
</tbody>
</table>

*Note. All means and standard deviations were standard scores except for the Phonological Awareness subtests were raw scores.  
<sup>a</sup>Peabody Picture Vocabulary Test—Fourth Edition;  
<sup>b</sup>Test de Vocabulario en Imágenes de Peabody;  
<sup>c</sup>Primary Test of Nonverbal Intelligence;  
<sup>d</sup>Phonological Awareness subtest of the Test of Preschool Early Literacy.
completed with adults to assess feasibility, refine the word list, and test the equipment.

**Stimuli list.** Twenty-four images (12 cognates, 12 noncognates) of concrete nouns were selected from a standardized picture database of black line drawings on white backgrounds (Abbate & La Chappelle, 1984a, 1984b; Snodgrass & Vanderwart, 1980). An early childhood teacher, a certified speech-language pathologist, and one doctoral candidate reviewed an original list of 18 items to identify 12 cognates that were appropriate for young children. Cognates were matched pair-by-pair to noncognates first on word frequency in English (Zeno et al., 1995) and then on number of phonemes (length; Snodgrass & Yuditsky, 1996), for a total of 12 pairs (sample in the Appendix).

**Procedure.** Each child was tested individually in a quiet room. The child sat at a comfortable distance from the computer screen. An initial practice required the child to become familiar with quickly naming four pictures (e.g., *perro*–dog, *barco*–boat, *pie*–foot, *casa*–house) on the computer, with examiner feedback for correct answers (e.g., head nodding, “that’s right”) and incorrect answers (e.g., “do you know the word in [specified language]?”) after the child named each picture. Then, the child had to name eight pictures without any feedback, except the initial instructions (e.g., “Now, name these pictures as best as you can”); practice criterion was to name six out of eight correct. If criterion was not met, the training was re-administered for up to three opportunities. Practice items were not included as experimental stimuli in the picture-naming task.

Next, the ELL children completed two blocks of picture naming in English (EPT = English picture-naming task) and in Spanish (SPT = Spanish picture-naming task), in a counterbalanced order. The language of the practice items matched the language of the picture-naming block. Each picture-naming block consisted of 24 trials in randomized order on a Macintosh laptop computer with SuperLab 4 software (Cedrus Corporation, 2011). On each trial, a bell ring was presented to alert the child to a simultaneously presented picture for the child to name; the child had a 5500-ms display, or until a time response was voice-activated. Within each randomized list, no more than three words from the same semantic category appeared in a row. Because matching stimuli on word frequency and length can be challenging, the same 24 items were used in both blocks of picture naming.

An age- and gender-matched group of 31 English monolingual children completed the picture-naming task in English twice in order to address concerns for a potential priming or repetition effect. The monolingual children demonstrated 91.5% reliability between the two administrations, indicating approximately 22 agreements out of a possible 24 total items. A paired-samples *t* test found no significant differences on the overall accuracy, *t* = .278, *p* > .05, suggesting minimal priming or repetition effect for the English monolingual speakers. All of the picture-naming tasks were videotaped. The computer software did not judge naming accuracy. Thus, each picture-naming task was scored by the first author using the video recording.

**Scoring and Data Analyses**

Mean accuracy data for the picture-naming tasks was collected for each child. Picture-naming response was scored using a scoring protocol based on picture-naming practices (Cycowicz, Friedman, Rothschild, & Snodgrass, 1997; Snodgrass & Vanderwart, 1980). Correct responses were accurate naming of the pictures or alternate acceptable naming responses (Cycowicz et al., 1997). Acceptable responses included changed morphemes (e.g., named *grapes* as *grape*) and expanded label (e.g., named *plato* as *plato de comida*). The three primary naming errors were (a) incorrect or unacceptable label, (b) response in the opposite language, or (c) no response or “I don’t know”–“*no sé*.” Additional errors were lack of specificity (e.g., named *penguin* as *bird*) and semantic errors (e.g., named *spoon* as *toothbrush*). Cognate and noncognate pairs were counted. Analyses were conducted using IBM SPSS V.22 statistical software. Effect sizes were calculated using Cohen’s *d* (1988). Effect sizes were considered small if *d* is .02 or .03, medium if *d* is approximately .5, and large if *d* is greater than .8.

**Reliability.** A trained research assistant rescored 20% of all of the picture-naming tasks, with an inter-rater scoring reliability of 98%. To evaluate reliability of the picture-naming task scores, 20% of the participants were re-administered the picture-naming tasks, with reliability within acceptable limits (English = 83.2%; Spanish = 85.8%).

**RESULTS**

**Picture Naming**

The first research question asked whether there was a difference in ELL children’s picture naming on cognates versus noncognates. Table 2 presents the ELL children’s picture-naming percentage accuracy and standard deviations. A repeated measures analysis of variance (ANOVA) was conducted with two within-subject variables: language (English, Spanish) and cognate status (cognate, noncognate). Language did not have a main effect, *F*(1, 30) = 0.917, *p* = 0.346,
but cognate status had a significant main effect, \(F(1, 30) = 22.558, p < .001\). The language \(\times\) cognate status interaction effect was not significant, \(F(1, 30) = .001, p > .05\). Main effects for cognate status showed that accuracy on cognates was significantly higher than accuracy on noncognates in EPT, \(F(1, 30) = 14.923, p < .01, d = .748\), and in SPT, \(F(1, 30) = 20.186, p < .01, d = .850\). Thus, ELL children’s performance accuracy was significantly higher on cognates than on noncognates both in Spanish picture naming and in English picture naming. Accuracy for cognates and noncognates respectively was 80.9% and 70.4% on the EPT, and 76.3% and 66.0% on the SPT (represented in Figure 1).

**Cognate–noncognate word pair item analysis.**

In order to investigate whether the target word was named accurately in both languages across translation equivalents (e.g., plate–plato), we also calculated the number of cognate and noncognate word pairs (e.g., Umbel et al., 1992). A total of 12 pair opportunities for cognates and 12 pairs for noncognates was possible. The ELL children named word pairs correctly in both Spanish and English: 56.7% of the time for cognates (211/372 = 56.7; 372 = 12 stimulus translation paired-items \(\times\) 31 participants), and 44.4% of the time for noncognates (165/372 = 44.4). On the EPT, as expected, the ELL children demonstrated high positive correlations on the PPVT–4 English vocabulary test with cognate \(r = .54, p < .01\) and noncognate \(r = .47, p < .01\) and the English noncognates \(r = .54, p < .01\).

On the SPT, similarly, the ELL children had positive correlations on the TVIP–H Spanish vocabulary test with cognate \(r = .62, p < .01\) and noncognate \(r = .75, p < .001\) accuracy. On the SPT, similarly, the ELL children had positive correlations on the TVIP–H Spanish vocabulary test with cognate \(r = .56, p < .001\) and noncognate \(r = .63, p < .001\) accuracy.

**DISCUSSION**

The purpose of this study was to examine young ELL children’s performance on picture-naming tasks in order to compare their performance on English–Spanish words, either cognates sharing or noncognates not sharing phonological overlap. We discuss the higher cognate accuracy finding for ELL children with respect to previous vocabulary studies and theoretical and clinical considerations, as well as limitations and future study. Although a modest advantage, higher cognate accuracy on young bilinguals’ picture naming was a substantial finding that should be critically discussed.
Previous Vocabulary Studies

The present study’s findings contradict those of the original (1990s) studies with young bilingual children of no cognate effect (e.g., Umbel et al., 1992), where cognates and noncognates had similar accuracy percentages. This discrepancy in results may have been due to differences in the assessment measure modality (i.e., expressive vs. receptive) or the level of word difficulty. The present study used words from a developmental word list for young children (i.e., CDIs), and most of the previous studies administered standardized vocabulary tests that were not designed to measure cognate status but increased word difficulty with successive items. However, the current study’s outcomes are similar to more recent studies that suggest a cognate effect, where Pérez et al. (2010) found that young kindergarten and first-grade bilingual children demonstrated higher accuracy on cognates over noncognates, even when using a standardized receptive vocabulary test (i.e., TOLD–P:3).

The current study’s results are also similar to Schelletter (2002), who found a cognate effect on an expressive picture-naming task with slightly older children (i.e., 8- to 9-year-olds). A few studies have looked for a cognate effect in both languages with bilingual children. The cognate effect may be present in both languages as children transition from language dominance in their first language to language dominance in their second language. It is common for bilingual children in the United States to demonstrate a developmental linguistic shift between language dominance in their first language to their second language from early childhood development to middle childhood up and through adulthood (Kohnert et al., 1999). A cognate effect in both languages requires further investigation but adds an important construct to theoretical bilingual models when including young children and the transition of language dominance.

Overall, limited significant associations were determined with nonverbal IQ, age, and vocabulary. Age was correlated with noncognate picture naming in Spanish, but not in English; nonverbal IQ was correlated with English noncognate picture naming and PPVT–4 performance. These findings are dissimilar to Kelley and Kohnert (2012), who examined individual effects of a cognate advantage with older students (ages 8–13), where some older bilingual children demonstrated a cognate advantage, but not all students. Kelley and Kohnert found that age significantly predicted 26% of the variance on a cognate advantage for an English vocabulary test, and nonverbal IQ approached significance and would have contributed 9% of the variance.

Cognates may have a closer relationship with metacognitive abilities for older students, which may explain age and an approaching significance for

---

Table 3. Pearson product–moment correlations among naming accuracy and descriptive measures.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cognate accuracy – Spanish</td>
<td></td>
<td>.68**</td>
<td>.01</td>
<td>.02</td>
<td>.29</td>
<td>.11</td>
<td>.56**</td>
<td>.05</td>
<td>.22</td>
</tr>
<tr>
<td>2. Noncognate accuracy – Spanish</td>
<td></td>
<td>.00</td>
<td>.05</td>
<td>.42*</td>
<td>.11</td>
<td>.63**</td>
<td>.06</td>
<td>.28</td>
<td></td>
</tr>
<tr>
<td>4. Noncognate accuracy – English</td>
<td></td>
<td>.29</td>
<td>.75**</td>
<td>.17</td>
<td>.41*</td>
<td>.54**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Age (in months)</td>
<td></td>
<td>.08</td>
<td>.08</td>
<td>.23</td>
<td>.59**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. PPVT–4</td>
<td></td>
<td>.08</td>
<td>.08</td>
<td>.23</td>
<td>.59**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. TVIP–H</td>
<td></td>
<td>.06</td>
<td>.23</td>
<td>.54**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. PTONI</td>
<td></td>
<td>.40*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. TOPEL subtest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. All means were standard scores except the Phonological Awareness subtest (raw scores) and English and Spanish naming accuracy (% correct).

*p < .05, **p < .01.
nonverbal IQ in Kelley and Kohnert’s (2012) study. For younger children, it is possible that other individual factors influence cognate status. Correlational analyses showed that ELL children’s English vocabulary had a significant positive association to picture naming of both cognates and noncognates, which may have been due to the less difficult word selection. Pérez et al. (2010) found that kindergarten and first-grade children’s exposure to Spanish was associated with their recognition of English cognates of Spanish words.

Additionally, we noted that the overall picture-naming percentages of cognates and noncognates combined were higher on English naming (80.9%) than on Spanish naming (76.3%), even though the TVIP–H standard scores were overall higher than the PPVT–4 standard scores. This observation could be due to the high frequency and early acquisition of the selected picture-naming items and may have impacted correlations not found in previous studies. Because prior investigations primarily used standardized vocabulary tests, a higher range of item difficulty may also have altered associations.

Theoretical and Clinical Considerations

Theoretical model. The children’s picture-naming results in our study demonstrated both a higher accuracy on cognates over noncognates as well as a higher percentage of accurate cognate word pairs (i.e., doublet) where a child names the word correctly in both languages (e.g., plate–plato). These findings are congruent with the word production model (Garrett, 1975, 1976) that is used with bilingual adults, suggesting a cascaded or simultaneous activation of the phonological characteristics of the word. This representational overlap may facilitate acquisition.

Kan and Kohnert (2005) found that an older group of Hmong–English speakers (M = 5;0) had more doubledts than a younger group did; however, the cognates were not examined because cognates may be difficult to find between Hmong and English (Vang, 2005). It is possible the similar phonological overlap facilitates the acquisition of learning a word, which contributes to a bilingual child’s doublet vocabulary. Umbel et al. (1992) only examined approximately 15% of the sample of correct doubledts to investigate a cognate effect; it is possible that a complete analysis would lead to alternate results. When a child knows a word in Spanish, perhaps fewer exposures are required to learn a cognate word in English because the phonologically similar word representation is already present. Corresponding with previous research, cognate facilitation exists for bilinguals on words with higher phonological overlap, which is suggested to lead to higher accuracy (Kohnert et al., 2004; Sunderman & Schwartz, 2008). Although previous theoretical models were reserved for bilingual adults, the word production model provides initial support that even young bilingual children have cross-linguistic transfer or influence between languages.

Clinical considerations. This study’s findings contribute to clinical implications in speech-language pathology. First, clinicians should note children’s accuracy on cognates. Cognate status may contribute to the difficulty level of items on vocabulary tests, which would relate to basal and ceiling rules. Thus, bilingual assessments could involve administering test items above the recommended ceiling to examine ELL children’s total performance (Pérez et al., 2010). Cognate status should be taken into consideration as well when making baseline probes for treatment. Higher cognate accuracy on baseline probes has been found in a case study with a bilingual poststroke adult (Kohnert, 2004) and a bilingual child with speech-sound disorders (Leacox, 2013).

A second important clinical consideration may be to provide additional time for word retrieval and/or to consider phonemic cueing as a form of dynamic assessment. Although each picture-naming task was blocked to a single language, the primary investigator noted anecdotally that several children demonstrated activation of the opposite language. For example, one child produced the initial onset of a word in one language, stopped, and then produced the word in the other language (e.g., target Spanish word was silla = chair: “ch-silla”). Children also named complete words in the opposing target language before realizing their error; it appeared that some children were cognizant of the wrong language choice error and then self-corrected (e.g., “chair..silla”); others were not. These errors exemplify how young children appear to have both languages activated at least to some degree. These errors are not uncommon in the literature and are evident even with trilingual speakers who demonstrate multilanguage activation (Francis & Gallard, 2005). Bilinguals are more likely to demonstrate a “tip of tongue” experience, where difficulty is noted in verbal retrieval of a word even though the speaker usually can produce the intended word (Harley, 2008).

Limitations and Future Directions

One limitation of this study was the sample’s variability. The Spanish–English bilingual population is heterogeneous, with various cultural and linguistic differences and varying levels of exposure to each language (Goldstein, 2000). Many times, researchers
dichotomize bilinguals into subgroups of sequential or simultaneous, additive or subtractive, or high/low language proficiency levels. Pérez et al. (2010) created three subgroups of “high English exposure,” “balanced exposure,” and “high Spanish exposure.” The present study included both simultaneous learners (e.g., one parent spoke only Spanish, one parent spoke Spanish and English) where English exposure began at relatively the same time as Spanish exposure. Some children did not begin speaking English until formal English instruction began at around 3 to 5 years of age. The sample defined “young” children as being 3 to 6 years old, which may have also added to group variability. Second, the present study did not directly address any confounds of low socioeconomic status. The sample was collected in one of the more underresourced counties in northern Florida. Although socioeconomic status is a multifaceted construct, a low socioeconomic status has been associated with differences in vocabulary (Hart & Risley, 1995). The present study’s group of young Spanish-speaking ELL children represented a heterogeneous sample of bilingual children from lower socioeconomic backgrounds.

Lastly, although cognates demonstrated a positive cognate effect, the findings were modest. When comparing the number of Spanish–English correct cognate pairs to correct noncognate pairs, cognate doublets had approximately 1 to 1.5 translation pairs more than noncognate pairs. Although a seemingly small advantage, findings were similar to Pérez et al. (2010), which showed a 1 to 3.8 word advantage, and Schelletter (2002), who reported only a slight advantage for form similarity (i.e., cognates) on bilingual children’s picture naming. It may be that cognates only contribute a small portion to bilingual vocabulary development during the early years of acquisition. Given the emphasis on closing the gap in vocabulary learning for ELL children (e.g., Carlo et al., 2004), even small contributions to vocabulary and bridges between languages warrant further investigation.

Future studies can further investigate the influence of vocabulary words’ cognate status. For example, a cognate sensitivity test for young ELL children could potentially be another indicator of language ability. Similar to the cognitive flexibility of code-switching between African American English and Standard American English dialects (Terry, Connor, Thomas-Tate, & Love, 2010), sensitivity to cognate status may be an indicator of a similar cognitive–linguistic flexibility or vocabulary skills. The Cognate Awareness Test (August et al., 2001) was developed to assess older children’s awareness to cognates during reading comprehension. Given that the present study’s task was relatively brief to administer (5 to 10 min), further revisions to create an informal assessment tool for younger children would be a feasible and interesting option. Additionally, future studies may investigate how to maximize this magnitude for cognates by using expanded assessment tools (Malabonga et al., 2008) or even providing brief or extended instruction on cognates, as has been done with older children (Carlo et al., 2004; Nagy et al., 1993; Proctor & Mo, 2009).

In conclusion, young ELL children demonstrate awareness and sensitivity to words with higher degrees of phonological overlap rather than lesser degrees of overlap. Although previous studies have examined vocabulary tests, few are specifically designed to examine cognates in an expressive picture-naming task with young ELL children. The linguistic overlap of cognates necessitates further investigation. From the 1990s research suggesting that young children do not perform differently on cognates, the present study aligns with recent findings that even young children in preschool and early elementary school are sensitive to phonologically similar cognates.

ACKNOWLEDGMENTS

We sincerely appreciate the teachers and staff at Panhandle Area Educational Consortium for Migrant Education and at Leon and Gadsden County who facilitated our access for assessing participants. Special thanks to Maria Pouncey, Director of the Panhandle Area Educational Consortium; research assistant Kelly Worthington; and Marcy Vensel. This research was based on a portion of the first author’s dissertation and was partially supported by the U.S. Department of Education personnel preparation project at Florida State University, H325D070021.

REFERENCES


Leacox et al.: Young Spanish–English Language Learners’ Cognate Facilitation


Contact author: Lindsey Leacox, 230 Communication Arts Center, Cedar Falls, IA 50614. E-mail: lindsey.leacox@uni.edu

---

**APPENDIX. SAMPLE WORD STIMULI FOR PICTURE NAMING**

<table>
<thead>
<tr>
<th>Cognates</th>
<th>Noncognates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target words</strong></td>
<td><strong>COSP</strong></td>
</tr>
<tr>
<td>flower</td>
<td>flor 7</td>
</tr>
<tr>
<td>plate</td>
<td>plato 7</td>
</tr>
<tr>
<td>baby</td>
<td>bébé 8</td>
</tr>
</tbody>
</table>

*Note*. The complete picture-naming task stimuli included 24 words (12 cognates, 12 noncognates). COSP = Crosslinguistic Overlap Scale for Phonology (Kohnert et al., 2004). Sources were word frequency (English: Zeno et al., 1995; Spanish: Davis & Perea, 2005) and age of acquisition (CDI; Fenson et al., 1993).